

The Influence of Mental Models on Decision-Making Around Social and Environmental Aspects: Insights from Ontario SMEs

by

Laura Read

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Abstract

This study explores the influence of mental models on decision-making around social and environmental aspects within Ontario SMEs. The research covers areas of design, foresight and innovation as well as sustainability and strongly sustainable business models. Through exploring how business leaders consider and prepare for the future, this project engages foresight and innovation. Business leaders use mental-models to reach decisions by trying to imagine the possibilities compatible with what they know or believe (Johnson-Laird, 2012).

Ontario SMEs are a significant employment and economic contributor in Canada (Industry Canada, 2012). Progress towards greater sustainability by Ontario SME leaders would have a significant impact on the resiliency of our communities and the sustainability of our economy. While business leaders have access to information on social and environmental implications of their work, these items compete with others for priority and businesses continue to face a number of barriers to transitioning towards greater sustainability. The Design Probe method has been used to collect primary data from thirteen decision-makers within Ontario SMEs. The insights collected will serve managers who are interested in transitioning their businesses towards more sustainable behaviours by understanding common biases and errors as well as potential blindspots in their decisions. These insights are also useful for policy makers, NGOs and social entrepreneurs looking at accelerating the sustainability and resiliency of SMEs in Ontario and beyond. In addition, this research will inform the design brief of a range of tools such as those being developed by the Strongly Sustainable Business Model group (SSBMG) with insights into the most appropriate designs to support a shift towards strong sustainability. Further research can then identify how it may be possible to bring more SMEs to the level of sustainability leaders.

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Introduction

Ontario Small and Medium Enterprises are a significant employment and economic contributor in Canada (Industry Canada, 2012). Throughout Ontario, 88.5% of private sector employees are working within SMEs (Statistics Canada, 2012), and these businesses contribute 25% of the country's gross domestic product (GDP) (British Columbia's Statistical Service,, 2012). Progress towards greater sustainability by Ontario SME leaders would have a significant impact on the resiliency of our communities and the sustainability of our economy. While business leaders have access to information on social and environmental implications of their work, these items compete with others for priority and businesses continue to face a number of barriers to transitioning towards greater sustainability. However, businesses that act to improve their sustainability or social impact have reported achieving neutral or increased financial returns on their efforts (Laughland and Bansal, 2011).

According to The Network for Business Sustainability (2011) researching the values, beliefs and norms held by decision-makers leads to understanding why they do or do not engage in sustainable behaviour. In the end, awareness of common decision biases leads to "knowing how to overcome them – or make them work in your favour" (2011).

Mental models are understood as a representation of a system or task, based on previous experience as well as current observation (Wilson and Rutherford, 1989). Business leaders use mental-models to reach decisions by trying to imagine the possibilities compatible with what they know or believe (Johnson-Laird, 2012). By understanding the mental models that direct the decisions of SME leaders around social and environmental aspects, it will become possible to identify the common biases, influences and constraints that inhibit managers from arriving at more sustainable choices.

This paper is part of a series of research taking place at OCAD University. McCammon (2013) investigated the mental models and decision making of Ontario SMEs, who are progressive leaders in sustainability. By contrast, this paper focuses on leaders of mainstream SMEs in Ontario. The insights gained from this research when compared to McCammon's findings may lead to more effective approaches to influencing the mainstream leaders' mental model towards matching those of progressive business leaders.

This study explores the influence of mental models on decision-making around social and environmental aspects within mainstream Ontario SMEs. The Design Probe method was used to collect primary data from thirteen decision-makers within Ontario SMEs. The insights collected can serve managers who are interested in transitioning their businesses towards more sustainable behaviours by understanding common biases and errors as well as potential blindspots in their decisions. These insights are also useful for policy makers as well as NGOs and social entrepreneurs looking at accelerating the sustainability and resiliency of SMEs in Ontario. In addition, this research will inform the design brief of a range of tools being developed by the Strongly Sustainable Business Model group (SSBMG). Based out of OCAD University's Strategic Innovation Lab (sLab) the SSBMG is a hub for applied research into strong sustainability through business models and is developing a toolkit to help decision-makers support a shift towards strong sustainability.

Definitions of Key Terms

Term	Definition	Source
Small-to-Medium-Sized Enterprise (SME)	An organization with fewer than 500 employees.	Industry Canada
Mental Model	“A mental model is a representation formed by a user of a system and/or task, based on previous experience as well as current observation, which provides most (if not all) of their subsequent system understanding and consequently dictates the level of task performance”.	Wilson & Rutherford, 1989
Sustainable enterprise	An enterprise that contributes to sustainable development by delivering simultaneously economic, social and environmental benefits – the triple bottom line.	Hart & Milstein, 2003
Strong sustainability	The idea that “human capital” and “natural capital” are complementary but not interchangeable.	Neumayer, 1999

Table 1: Definitions of Key Terms

Literature Review

There is a substantial body of research that describes the social and environmental aspects of business, decision-making theory of business leaders as well as the history of mental models. However, the linkages between these three areas have not been emphasized, especially within the context of Ontario SMEs. A gap in knowledge exists about identifying the connection between mental models and decision-making around social and environmental aspects within business.

The research that probes the social and environmental aspects of business is extensive. Business sustainability refers to business models and managerial decisions grounded in financial, environmental and social concerns (Rowe & Bansal, 2013). There is a wealth of information that extols the benefits for society when businesses act with an understanding of their impacts on the environment and work to reduce their negative impacts (2013). Most recently, the literature on business sustainability is placing an emphasis on the interconnectedness of minimizing environmental impacts, creating long-term financial value and acting with consideration for employees, customers and communities (2013). While the literature on business sustainability theory is considerable, the difficulty lies in implementing changes and putting theory into practice. This was the birthplace of social impact measurement. In order to prove and evaluate the level of sustainability of business, measurements are required. However the definition of social impact is not agreed upon and is therefore difficult to measure (GRI, 2008; Mulgan, 2010). On the one side, a main obstacle to assessment is assuming that social value is objective, fixed, and stable (2010) on the *other side*, according to Jeff Mulgan (2010), approaching social value as subjective, malleable, and variable, creates better metrics to capture impact.

When GRI (2008) studied seventy-two sustainability reports, there appeared to be no common practice in terms of what was included and the understanding of impact. In the

end, without a clear definition, effective metrics are elusive, businesses are unable to measure and set goals in this area and thus social and environmental aspects end up competing with many business priorities.

It is widely agreed upon that business leaders must struggle with deciding between many competing priorities when approaching sustainability. Therefore it is important to understand how business leaders approach decision-making.

The decision-making processes used by business leaders have been widely explored through academic research. The research centers on the conditions of ethical or moral decisions. Leaders rely on their personal ethics and morality when faced with decisions that involve competing priorities, and can be influenced by the level of accountability and leadership style in use (McWilliams & Siegel, 2001; Wood & Winston, 2005; Groves & LaRocca, 2012). Wood and Winston (2005) define leader accountability as the leader's acceptance of responsibilities inherent in the leadership position to serve the well being of the organization, the expectation that they will be publicly linked to their actions and the expectation that the leader may be called to explain his or her decisions. Groves and LaRocca (2012) identify transformational leadership, whereby a set of behaviours that motivates followers to exceed expectations in pursuit of the organization's vision and for the collective good, is characterized by leaders who hold personal values that facilitate the common good. The result is that the style of leadership employed in a business can dramatically influence the organization's ability to respond to sustainability.

Unlike social impact, the terms around mental models are widely agreed upon. In 1989, Wilson and Rutherford reviewed the literature on mental models in order to identify a shared understanding of the term. The definition they published states that:

"A mental model is a representation formed by a user of a system and/or task, based on previous experience as well as current observation, which provides most (if not all) of their subsequent system understanding and consequently dictates the level of task performance".

This definition implies that the level of accomplishment of an entrepreneur is tied to the mental models that they possess.

Later, Hill and Levenhagen (1995) captured the importance of mental-models for business leaders by highlighting the tool's ability to adequately communicate vague feelings and intuition. According to Hill and Levenhagen (1995), in order to cope with the high instance of uncertainty, the entrepreneur must develop a 'vision' or mental model of how the environment works (sense making) and then be able to communicate to others and gain their support (sensegiving). This is important given the need for entrepreneurs to work within ambiguous markets and environments as well as communicate broad abstract ideas.

There is also an area of literature that covers the intersection of sustainable business and leadership decision-making. Mostly, this work aims to answer the following question: if a wealth of information on the benefits of sustainable business exists, why are decision-makers not acting on it? It has been found that businesses that invest in their sustainability receive a higher ROA (Return on Assets) than those who do not, however there remains a number of barriers to making the transition towards more environmentally friendly business practices (Rowe & Bansal, 2013; Kalkanci et. al, 2013). These include a lack in consumer demand, conflicting public policy, and a heavy burden on the firm to complete sustainability reporting (2013). While business leaders have access to information on social and environmental implications of their work, these items continue to compete with others for priority. This research overlaps at times with the role of mental-models in decision-making. However mental-models and action on sustainability have not been widely linked (Adams et.al 2009). Business leaders use mental-models to reach decisions by trying to imagine the possibilities compatible with what they know or believe (Johnson-Laird, 2012).

The linkages between these three areas, sustainable business, decision-making and mental models, has not been emphasized, especially within the context of SMEs. Research on these areas has commonly been conducted through a review of the existing academic

literature (Wilson & Rutherford, 1989), an analysis of public sustainability reports (GRI, 2008) and occasionally interviews of business leaders (Rowe & Bansal, 2013). There is an opportunity for conducting research with leaders of SMEs in Ontario that draws on participatory and collaborative methods in order to contribute new knowledge in this area.

A gap also exists in knowledge which identifies the connection between mental models and decision-making around social and environmental aspects within business. Similarly, an opportunity to use design research methods, which are participatory and user-centered, rather than led by researcher is present.

Methodology

Based on the gaps in existing knowledge identified in the literature review, this project seeks to understand the mental models that direct the decisions of SME leaders around social and environmental aspects, in order to identify the common biases, influences and constraints that inhibit managers from arriving at more sustainable choices. The research plan included recruiting research participants, collecting data through the design probe method, and finally data analysis in order to answer the following research questions.

Research Questions

Primary and secondary research questions were drafted in order to fully cover the identified area of study.

Primary research question:

For decision-makers within Ontario SMEs, what are the mental models that direct their choices around the social and environmental aspects of their business?

Secondary research questions:

1. What are their mental models about the social and ecological environment of their SME?
2. How do they perceive social and ecological risks to their business?
3. How do leaders within a business recognize the tradeoffs attached to their decisions?
4. What are the influences and constraints driving their business decisions?
5. How far into the future do decision-makers consider the outcomes of their decisions/actions?

Ben McCammon's research (McCammon, 2013) collected data from the environmentally progressive business leaders in Ontario. The above research question made it possible to compare the mainstream mental models to those of the progressive leaders in order to accelerate a shift towards greater sustainability.

Answering the proposed research questions required collecting information on mental models. This includes data that illustrates perceptions, expectations and values around business sustainability, which drives decision-making within SMEs. Specifically, data covered: trade-offs, risks, constraints, priorities, timelines, and outcomes.

Research Method: Literature Review

A literature review was used in order to identify the existing knowledge and research opportunity. The search terms used include: SME sustainability, business decision-making, and mental models. This search took place over internet-based academic journals.

Research Method: Design Probe

The design probe method was chosen in order to collect insights directly from business leaders at Ontario SMEs. Mattelmäki (2005) describes a design probe as a design-oriented user research toolkit that is based on self-documentation. This was the most suitable method based on the type of qualitative data the research questions required, as well as the benefit of facilitating comparisons with findings from McCammon's research (2013). This is a method that may incorporate Participant reflections, drawings, interpretation of maps, collages and other visual aspects. The design probe in this project was in the form of a survey with probative questions. This was a perfect tool to collect the required data because the probe "purposefully invited or provoked users to reflect on and verbalize their experiences, feelings and attitudes, and to visualize their actions and contexts" (2005, p1).

The design probe was drafted with fifteen open-ended written prompts. It was designed in order for Participants to take fifteen minutes to review and record notes

independently and then spend forty-five minutes discussing answers with the Principle Student Investigator over the phone. The recorded notes from the Participant were shared in advance of meeting over the phone, which provided an opportunity to ask clarifying or other follow up questions.

The full design probe can be seen in Appendix A. The following is a list of the questions included:

1. What does thinking about and planning for the future look like at your business?
2. How far into the future does your business plan? Why?
3. What has been your company's experience with implementing a long-term plan?
4. List the elements required for success at your business. Please them in order of importance, starting with the most important. Why are some items ahead of others?
5. What are the social and environmental aspects to your business? For example, fair wages, worker conditions, energy use, waste creation etc.
6. What internal (i.e. size, revenues etc.) and external conditions (i.e. consumer trends, economic environment etc.) do you think should exist before it is possible for you to act on social or environmental aspects of your business?
7. Please share an example from the past where you have had to consider different tradeoffs when making a business decision involving environmental or social aspects.
8. What major elements have influenced the successes of your business in the past?

9. What forces could prevent you from reaching your business goals in the future?
10. What are the risks to your business? Place the risks you identified into a list with the most potential for negative impact at the top.
11. At what point does something become a risk to your business?
12. Do you think there are potential social or environmental risks to your business?
13. In what ways do social and ecological aspects play a role in your business success or failure?
14. Are you aware of other organizations that have acted on the social or environmental aspects of their business? What were the outcomes in your view?
15. What could make you choose to consider social or ecological aspects in your business planning? Why?

Recruitment

While this study is not large enough to provide a statistically significant sample to fully represent the SMEs in Ontario, it has tried to recruit participants as close to the demographic statistics of SMEs. As a guide, in a sample of 20 participants 7 should be female and 3 should be from a visible minority (Industry Canada, 2012). These guidelines informed the recruitment plan, which extended to special interest groups for female entrepreneurs and cultural business organizations. The recruitment sources included:

1. Toronto Entrepreneurs.ca – LinkedIn and Facebook communities, newsletter subscribers
2. Entreppeer Newsletter and LinkedIn group

3. Enterprise Toronto (Toronto Economic Development program) business directory and discussion board
4. Toronto Region Board of Trade (bot.com) membership directory
5. Business and Professional Women's Clubs of Canada – event directory, linkedin, membership directory
6. Ontario Chamber of Commerce (occ.on.ca) – membership directory and newsletter
7. Toronto Association of Business Improvement Areas – cold call board members

Data Analysis Plan

In order to analyze collected data and gain insights, a combination of visual thinking techniques were used. The data analysis plan included identifying keywords and core concepts within answers for each prompt, as well as across all prompts of the design probe as a whole. By clustering these keywords or core concepts within mind maps or affinity maps, similarities and differences became clear along with themes and patterns. Affinity mapping is a technique where individual data points are placed on moveable cards or sticky notes and grouped based on categories or themes. Summaries of the data were also entered into spreadsheets in order to compare results side by side and create digital interpretations of the data.

Results

The goal of this research was to understand the mental models that direct decisions of business leaders around sustainability. The recruitment plan and research methods were designed in order to collect qualitative, open-ended, data that makes up the complete picture of a mental model, including the assumptions, priorities and opinions of business leaders.

The design probe achieved this goal by collecting data from 13 Participants across diverse sectors.

Overview of Design Probe Results:

Recruitment

Outreach to the sources included: a call out email to organizers to be put in touch with potential participants, cold calling potential participants and advertising a call out for participation on related LinkedIn and Facebook pages.

In total 34 people were contacted by phone or email and 24 received a copy of the design probe. In the end, 13 design probes were completed.

The 13 Participants belong to both genders, and a diversity of economic sectors. Almost half of the Participants (7 in total) were the owner or operators of their business, while the rest (5 in total) were high-level managers. While the research is not anonymous, Participants do remain confidential. For this reason, participants are only referred to by a number that corresponds to the order in which their design probe was completed.

Breakdown of Participants

Participant		Industry	
#1	Management consultancy	#8	Water and sanitation
#2	Private security	#9	Communications
#3	Landscaping	#10	Information and technology
#4	Interior decorating	#11	Civil engineering
#5	Retail trade	#12	Advertising
#6	Marketing research	#13	Manufacturing
#7	Manufacturing		

Table 2: Participants and their Industries

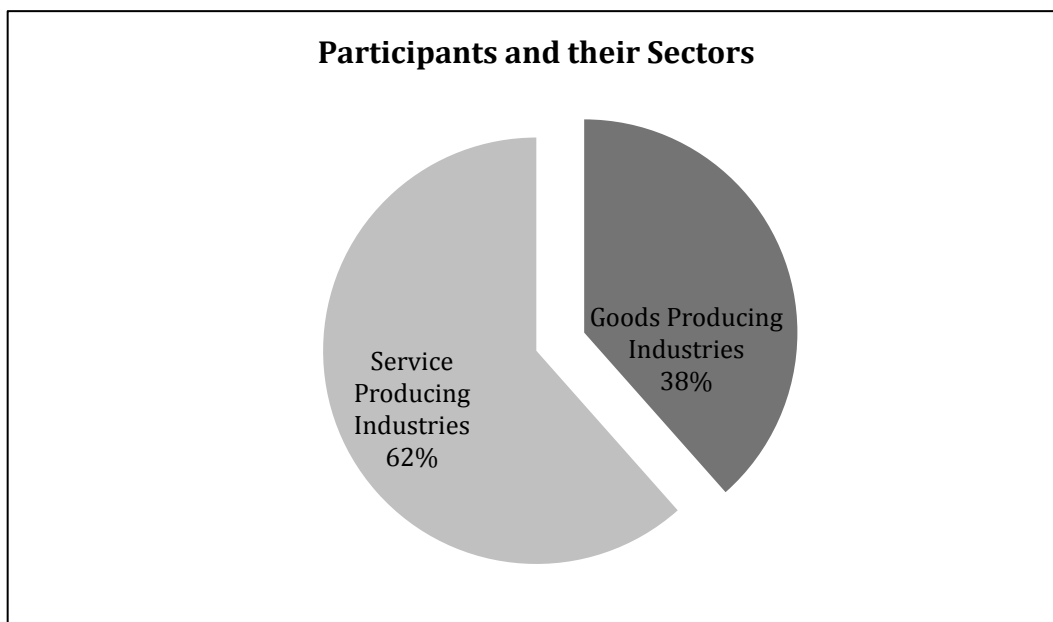


Figure 1: Participants and their Sectors

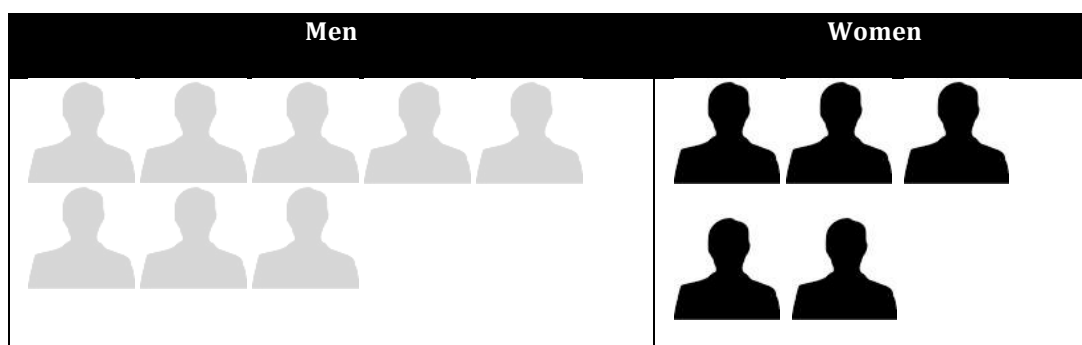


Figure 2: Participants and their Gender

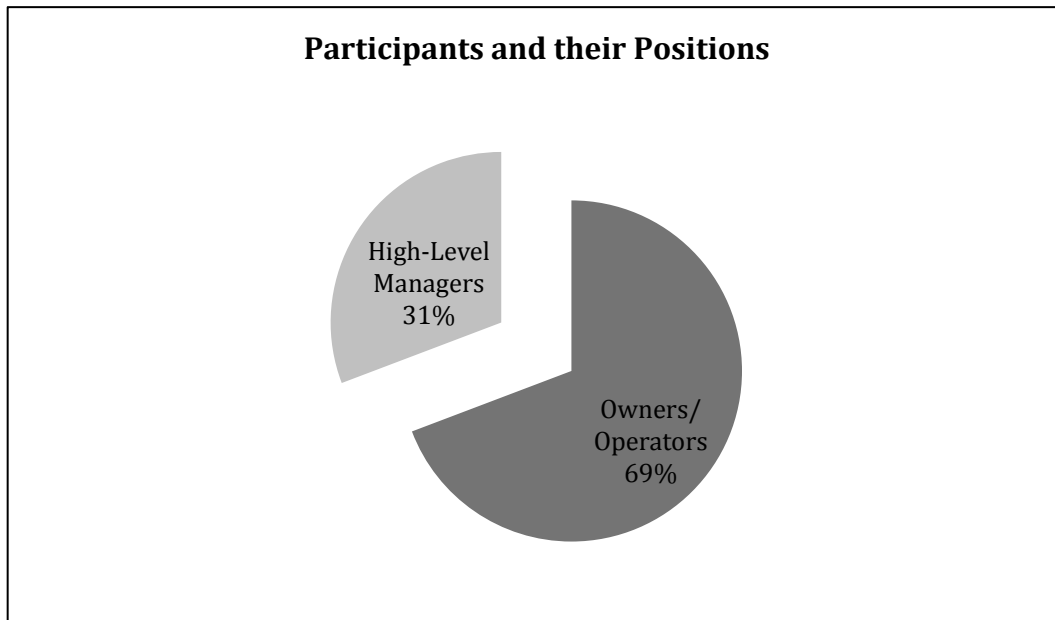


Figure 3: Participants and their Positions

Diversity of Participants

Within Ontario, female business leaders account for 46% of SME owners, and people from a visible minority represent 10% (Industry Canada, 2009). This study included 5 female Participants and 7 male. Participants were asked to indicate whether they identified themselves as part of a visible minority. Only one did so, which indicates insufficient representation of this category of Participants.

The instructions shared with Participants asked them to read the design probe and record their notes, then share these with the researcher in advance of a follow up phone call to ask further clarifying questions. In reality, many Participants did not wish to share their notes in advance of a conversation but rather wanted to engage in conversation while completing the design probe. In total, 8 written design probes were returned and 11 were completed through interviews over the phone. The remaining 2 design probes were completed in writing without an interview, however a clarifying email was sent when required.

A Note on the Financial Health of Participating SMEs

Research Participants were not asked to reveal the financial health of the organization they represented. However, by the information that was volunteered during interviews, it is clear that the 13 participants come from businesses that range from struggling to thriving, and many levels of financial health in between.

Findings

The analysis of the design probe data revealed six mental-models that direct the choices of decision-makers around social and environmental aspects of their business. The following section explores these six mental models. This section also identifies three insights into the decision-making of mainstream SME business leaders and how this group relates to what we know of progressive SME business leaders.

Adams et. al. (2009) created the following framework for identifying mental models of sustainability in business. The authors expressed how business-leaders should be able to shift between both sides of the spectrum of business sustainability throughout the six dimensions when appropriate. However, greater sustainability requires an emphasis on the 'more sustainable' side, which favours a long-term, global and systemic approach.

Less Sustainable Focuses	Dimensions	More Sustainable Focuses
Short term	1. Time orientation	Long term
Reactive	2. Focus of responsiveness	Creative
Local	3. Focus of attention	Global
Separation	4. Prevailing logic	Systems
Blaming	5. Problem consideration	Learning
Doing/Having	6. Life orientation	Being

Table 3: Six Dimensions of Mental Models for Sustainability (adapted from Adams et al., 2009)

Building off of this framework, the data revealed that for Ontario's mainstream SME leaders there are three dimensions that are most relevant to studying sustainability in business and the result is six mental models in total when considering the spectrum of business sustainability from Table 6. These are:

Less Sustainable Focuses	Dimensions	More Sustainable Focuses
Short term: <i>Firefighters</i>	1. Time orientation	Long term: <i>Planners</i>
Local: <i>Lone Ranger</i>	2. Focus of attention	Global: <i>Team Player</i>
Separation: <i>Tradeoffs</i>	3. Prevailing logic	Systems: <i>Synergies</i>

Table 4: Comparison of Research Results to Adams' Six Dimensions of Mental Models for Sustainability

Summary of Mental Models

Dimension: Time Orientation	
Firefighters <p>The decision-makers face large barriers to planning ahead. The nature of the business is to respond to immediate needs, and therefore is highly influenced by the client demands.</p>	Planners <p>The decision-makers highly value strategy and long-term planning. They will often employ a formal process that breaks long-term goals into shorter actionable tasks.</p>
Dimension: Focus of Attention	
Lone Ranger <p>The business leader's decisions are made in a top-down process, allowing the firm to respond quickly to new opportunities or adjust to gain a competitive advantage.</p>	Team Player <p>Making the best decision for their team motivates the decision-maker. This includes their staff, their distributors and other business partners as well as their customers and at times, the community they are based in.</p>
Dimension: Prevailing Logic	
Tradeoffs <p>The decision-maker perceive that they can either be environmentally and socially friendly, or fiscally responsible—but not both concurrently.</p>	Synergies <p>The decision-maker demonstrates an understanding of the interactions and interdependence of financial, ecological aspects of their business.</p>

Table 5: Summary of Mental Models

Dimension: Time orientation

Short vs. Long Term – Firefighters vs. Planners

It is widely reported in sustainability literature that the further into the future we can consider the consequences of our actions, the more likely we are to make decisions with sustainability in mind. Indeed, short-term financial gain at the expense of long-term environmental resources or social stability demonstrates this point. The data collected revealed that the mainstream business leaders are capable of both short and long-term planning and are found across a spectrum of *Firefighters* and *Planners*.

It was also found that the long-term planners were not the only ones with the potential to transition to greater sustainability. A long-term vision of sustainability for an organization may not achieve its goal if the vision is not broadly held and the behaviours and norms are not aligned across the organization. Additionally, if the long-term plan or vision stays with the owner, there is a high risk of those responsible for implementation to miss the mark and fail to see the plan through.

Although it was found that the mainstream SMEs are not frequently acting on long-term visions for sustainability, they are at times creating and sharing long-term plans and considering potential impacts. Those who act as *Firefighters* are able to make a transition to greater sustainability if they also share their mental model and allow for input and accountability mechanisms to shape their decision-making as well as allow for a high level of cohesion between leadership and implementers.

Reviewing the Data

Research Participants demonstrated that the dimension of Time Orientation could influence their mental model around sustainability and their business. In this respect, Participants proved to be either a *Firefighter* or a *Planner*.

Prompt #2 asked “How far into the future does your business plan and why?” The answers were that 9 Participants planned for 1 year or less, 4 planned for between 2 – 3 years, and 2 Participants planned 5 – 10 years. This is consistent with what has been documented in the existing literature, that an absence of a long-term view of a company’s impact will impede their sustainability (Adams et. al., 2009). The result is not surprising, since the Research Participants represent the mainstream SME community in Ontario rather than the sustainability leaders.

Prompt #1 asked Participants to describe what thinking about and planning for the future looks like at their business. There was an obvious difference between the groups of Owners/Operators and High-Level Managers, whereby the first group tended to look forward 2 – 3 years, while the second operated on a shorter, 1-year outlook. This difference may be because managers must focus on the implementation of a plan in order to report back to shareholders, a board or a CEO and this is usually done in one-year increments.

A number of Participants stated that the nature of their business prevented them from planning for the future. Their work was constantly changing and requiring them to adapt to the needs of others (either clients, stakeholders or the external environment). Participant #5, a High-Level Manager for a retail firm said, “smaller businesses do not have the luxury to have a long term plan”.

An Owner/Operator in the water and sanitation industry provided an interesting case story that showed the relationship between being able to plan for the future and remaining agile amongst competition. The rural based company had previously followed long-term plans reaching as far as 5 – 10 years into the future. However, a changing industry, steep competition and dissolution of a succession plan has made it impossible for this decision-maker to plan further than 2 – 3 years into the future.

The Owner/Operator of the business is nearing retirement however there is no one in a leadership position within the company to take on this role. In this field, there is no

apprenticeship required and once staff have experience, they have routinely left the company to start competing ventures. This SME must compete with others who run unlicensed and uninsured businesses that run on cash. It is possible that the business may be sold and aggregated within a larger competing firm.

However remaining small has created an important competitive advantage for the firm. The SME provides an essential service in its rural community, and 80% of its business comes from emergency installations. By carrying their own inventory the firm says they are able to reply to client demands three times faster than competitors. Additionally, with raising concerns of theft in the community the local staff members are familiar and trusted to enter homes of clients.

While it can be true that smaller organizations may have difficulty implementing long-term plans, there are benefits to the agility that can accompany a smaller size. “Agility, and the ability to react quickly to new practices and solutions, is one of the main advantages small and medium-sized businesses have over their larger rivals (The Guardian, 2014).” SMEs can use their inherent flexibility to offer new services and goods first, at times this may include more sustainable practices.

Whether long-term planning would be possible or not, the majority of Participants interviewed stated they were able to plan for 1 – 3 years in the future. This is similar for the majority of progressive leaders interviewed (McCammon, 2013). Research on the progressive SME leaders of Ontario showed that even for these forward-looking leaders, there is a gap between long-term aspirations and short-term goals (McCammon, 2013).

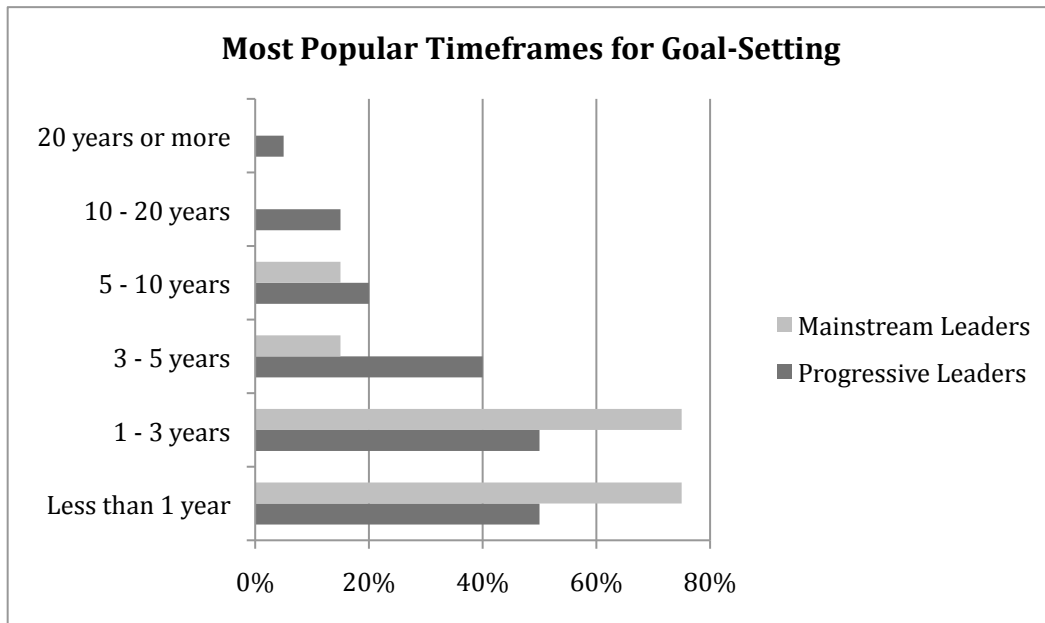


Figure 4: Most Popular Timeframe for Goal-Setting: comparing progressive and mainstream business leaders¹

Therefore, while the mainstream leaders are typically planning for shorter time periods than the progressive leaders, they do at times create a long-term vision and plan for their businesses. This is important for understanding how to design tools for this demographic to transition towards greater sustainability. The tools suggested for progressive leaders, which include ‘stretch goals’ and backcasting (McCammon, 2013), could also be effective for the mainstream business leaders.

Sharing a Mental Model

Another insight from research on the progressive SMEs of Ontario that relates to the mainstream business leaders is that the dissemination of mental models is a crucial challenge to sustainability (McCammon, 2013). Disseminating a mental model refers to making the mental model visible through creating a shared culture, that is reflected through

¹ The values do not sum to 100% because there are Participants who have created multiple plans for different time horizons.

hiring practices, policies, systems or infrastructure which translates into the formal decision-making of the company (McCammon, 2013). This insight into the progressive leaders explains how the leaders in SME sustainability have unique mental models that underpin their values and the way they run their businesses. However without sharing their mental model throughout their organization and network, the likelihood of the focus on sustainability to persist beyond the current leader is slim (2013). The results indicated a bias towards unilateral decision-making and action. For that reason, there is a need to create a “shared culture” within an SME, which includes creating policies, systems or infrastructure that translates values into the formal decision-making of the company (McCammon, 2013).

The mainstream leaders interviewed revealed a similar issue. However there was a clear divide in behaviour between the Owner/Operator of a business and a High-Level Manager. It was much more common for the Owners/Operators to have their vision or mental model internalized rather than shared throughout the organization. This is a good indicator that Owners/Operators in mainstream SMEs, also have a bias towards unilateral decision-making and action. The implication for this group is that the organization is then closed off from opportunities to become more sustainable or socially progressive if those values are not already instilled within the mental model of the Owners/Operators.

As an alternative to the authoritarian hierarchy, Peter Senge (1994) suggests that businesses should take on the characteristics of a ‘learning organization’ in order to achieve long-term competitive advantage. The characteristics of a learning organization (shared vision, team learning and constant transformation) are also the building blocks for an organization to become more sustainable.

The implication for the mainstream group, which tend to internalize the vision and values within the mental model of the Owners/Operators, is that they are missing the opportunity to think in a more interconnected way and maximize the benefits of thinking as

a community as well as set the groundwork for transforming into a more sustainable organization while creating a competitive advantage.

Ben McCammon (2013) offered the suggestion of creating a shared culture at the organization so that the mental model of the Owner can be made visible and positively impact the organization or even the network after their departure. For the group of mainstream SMEs the goal is to make the mental model visible and open to input from stakeholders including employees, partners and customers. Changing the decision-making model of the organizations may not in fact be the most effective approach, if the nature of their business requires quick and decisive action. However, a greater awareness of different perspectives, incorporating additional information and knowledge of the business as being part of a system is likely to increase the influence of social and ecological aspects on decision-making for this group of pragmatic leaders.

A blocking force for progressive leaders in meeting their business goals was the theme of “a lack of understanding of our approach” (McCammon, 2013). This was the result of a mental model that was hidden by the Owners/Operators, and lead to an unawareness of how decisions might be made and actions taken. This theme is interpreted differently through the lens of mainstream business leaders. A mental model hidden by the Owners/Operators is potentially closed off from being challenged or improved on by others.

While there is a list of probative questions recommended for the progressive leaders to use in order to better understand their internal approach and how to communicate it more clearly, the questions for the mainstream leaders could include how decision-makers identify social and environmental aspects of their organization, social and environmental risks, as well as how and why to include social and ecological aspects in their business planning.

Because of the similarities between the mental models of the progressive leaders and the mainstream SME decision-makers, the suggestions for institutionalizing

sustainability are relevant to both groups. By implementing policies, systems and other business infrastructure the mental model of the Owners/Operators or High-Level Managers can become visible and potentially open to change.

From examining the mental models that are dominated by the dimension of time-orientation, an additional insight emerged. The plan of an organization often lives within the mind of the Owners/Operators, while a Manager is more likely to communicate a shared vision. The mental models 'Firefighters' and 'Planners' demonstrated that the group of Owners/Operators takes a longer-term view of the organization and responsibility for the business while Managers worked according to one-year plans. This may be because Managers require approval and direction towards predefined goals. While having a plan is crucial to taking positive action, without buy-in and commitment from the organization, the implementation of any sustainability initiative can fall short or be abandoned. Therefore, communicating a shared vision is crucial.

Prompt #3 asked Participants to share their company's experience with implementing a long-term plan. The answers varied along a spectrum from 'reactionary and no plan', 'plan abandoned once met obstacles', and 'successfully implemented'. For the latter response, all three Participants had leadership that clearly communicated the vision and plan as well as regular check-ins with staff and High-Level Managers. In combination with prompts #1 and #2 detailed earlier, the collected data demonstrates how thinking about and planning for the future takes place for each Participant. The results were clearly divided between Owners/Operators and managers and can be summarized as the following:

High-Level Managers	Owners/Operators
The vision and values are clearly laid out and shared with the staff team	The vision, values and plan live within the leadership of these organizations and are not written down but rather 'part of the DNA' of the organization.
There is a formal plan, which draws on feedback from consultants, staff and clients and is broken down into smaller increments.	There is an informal plan, which the Owners/Operators regularly (monthly) adjusts. This plan involves feedback from staff, consultants, clients and family.
A manager plans for 1-year goals and includes frequent management team check-ins to adjust the course if necessary.	These organizations plan on a scale as small as seasonally, and when succession planning is concerned, as large as 10 years. The majority plan between 2 – 3 years.
There is a focus on responding to financial goals, building staff skill set as required and incorporating trends as they emerge.	When obstacles arise, the plan falls away or shifts to the new circumstances.

Table 6: Summary of the Planning Process for Managers and Owners/Operators

It is widely agreed that the further into the future a business considers the impacts of its decisions, the higher the likelihood of them to take action towards greater sustainability. However, the data revealed that the Owners/Operators largely considered their long-term vision to be inherently 'part of the DNA' of the organization rather than needed explicitly in formal plans. For example:

- A high-level manager at an interior decorating firm stated that there is no formal plan at their organization, but rather it has been "baked into the culture" of the business. Additionally, "if [the owner] is not into it, it's not going to happen" which

refers to the business's charitable giving to local organizations and Players teams where the Owners/Operators live.

- Participant # 6, an Owner/Operator at a marketing research firm, says their plan is informal and decisions around social and environmental aspects are directed by the values of the business. These include: work life balance, hiring practices for diversity, and charitable giving.
- Another high-level manager, Participant #10, says that the CEO of their information and technology firm is very future oriented and that this has been "built into the DNA of the business". However the plan is secretive and not transparent. "Never tell a boss you are looking at trends 10 years out – that is what he does. We need to execute."
- The Owner/Operator of a management-consulting firm says, "I hold in my mind a 'sense' for what I am looking to develop towards. I think that means that subconsciously I jump on opportunities that align with that, and invest more energy in them. That's probably my indirect way of steering the ship."
- Participant # 9, another Owner/Operator says "We have an ingrained sense of what we want to accomplish for our business" at their communications company.

Managers, on the other hand, talked frequently about communicating the company's vision to the employees, clients and partners. Managing an efficient team and working towards a shared mission were listed as high priorities for these Participants. Participant #4 says: "When our team is working together and we are all focused on the same goal, we are poised for success... When the team is disjointed, when the President is disconnected from me or the team, we suffer."

The Owners/Operators of a business cannot see their long-term vision become a reality without a strong commitment from those in a position to implement it.

Owners/Operators will need the buy-in of their managers and managers require a clear and

consistent vision to be communicated. This insight was consistent across the smaller (5 or less employees) and the larger (100 and more employees) of the SMEs, as well as across sectors. This indicates that the likelihood of communicating a shared vision is not linked to the environment but the individual and their leadership style.

Dimension: Focus of Attention

Local vs. Global – Lone Ranger vs. Team Player

Sustainability requires that decision-maker considers the impact beyond short-term, personal gains. A business that profits at the expense of people or nonrenewable resources cannot truly be sustainable. This is why the literature encourages a global mindset to direct decision-makers towards more positive impact. SMEs however, have a much smaller global impact than international corporations. While the progressive SME leaders all share a commitment to sustainability based on an international experience or global connection, the mainstream leaders interviewed did not. However the mainstream SME leaders did reveal two mental models, *Lone Ranger* and *Team Player* that reveal different levels of awareness for those beyond themselves. This chapter considers the dimension of ‘focus of attention’ in three ways, global vs. local, the organization vs. community, and the individual vs. the external. The result is a clear picture of the mental models *Lone Ranger* and *Team Player*.

Reviewing the Data

The progressive SME leaders have a wealth of global experience (McCammon, 2013), which gave them their emotional commitment to sustainability. While the sustainability leaders tended to make their decisions based on personal values, the mainstream leaders interviewed were not fully convinced of the practical reasons to implement sustainability initiatives. This tendency for pragmatic rather than values based decision-making can be seen by considering the relationship between a number of prompts. Firstly, in prompt #13

Participants were asked, “In what ways do social and ecological aspects play a role in the success or failure of your business?” Five Participants responded that these aspects improve the business’ visibility and reputation within the community, and fewer said that it maintains a happy staff team and leads to increased growth. Four of the thirteen Participants could not think of an answer.

Secondly, prompt #14 asked Participants to identify a similar organization that has acted on the social and/or environmental aspects of their business, and to share the perceived outcomes. Fifty percent of Participants noted that they perceived a positive outcome for other businesses taking measures for sustainability, while an additional forty percent felt it was a neutral outcome. Only ten percent (one Participant) felt there was a negative or poor impact from acting on sustainability.

Lastly, prompt #15 asked Participants to share what would make them choose to consider social or ecological aspects in their business planning and why. The results can be seen as:

Percentage Responded	Item needed
50%	A cultural shift in the staff team
20%	More funds, growth
20%	External pressure
10%	More supporting data

Table 7: Results of Prompt #15 "What could make you consider social and ecological aspects in your business planning?"

Where the staff members are required to do a high level of problem solving and knowledge work, the firm needs talented and highly educated employees. An Owner/Operator at an engineering consultancy described how important the employees were to the decision-making within the business and its subsequent success.

In order to attract and keep such a talented pool of employees, Participant #11 realized

that the trend in recent graduates was to hold their employers to a higher standard of social and environmental sustainability, and their organization would need to adapt.

The most recently trained engineers were arriving at the organization and championing sustainability initiatives. Because of the culture of learning and innovation as well as the horizontal management structure, these values have become integrated into the organization. Participant #11 agrees that social and environmental aspects “have to be part of your business plan”.

The combination of these prompts and case story reveal the values and priorities, as well as perceptions that these decision-makers hold towards sustainability which are necessary to know in order to design appropriate tools for this demographic to transition towards sustainability.

Increasing Impact

Many of the progressive leaders see their greatest contribution as “Catalyzing Larger Impacts”. The first insight shared in Ben McCammon’s MRP (2013) outlines how the progressive business leaders are focused on accelerating change beyond the boundaries of their own company and are lead by a mental model that places an emphasis on being a catalyst for change in an external context. He includes that this mental stance is more proactive than reactive, and more focused on opportunities than on risk-mitigation.

In order to further increase the positive impact of their work, McCammon recommends the progressive business leaders consider the use of BHAGs (Big, Hairy, Audacious, Goals) and The Ripples of Influence as tools. Figure 5 demonstrates that the Mainstream Leaders are currently considering their impact, although on a smaller scale than the Progressive Leaders. The Ripples of Influence tool could be used for these leaders to visualize their current and future impact throughout their communities and industries.

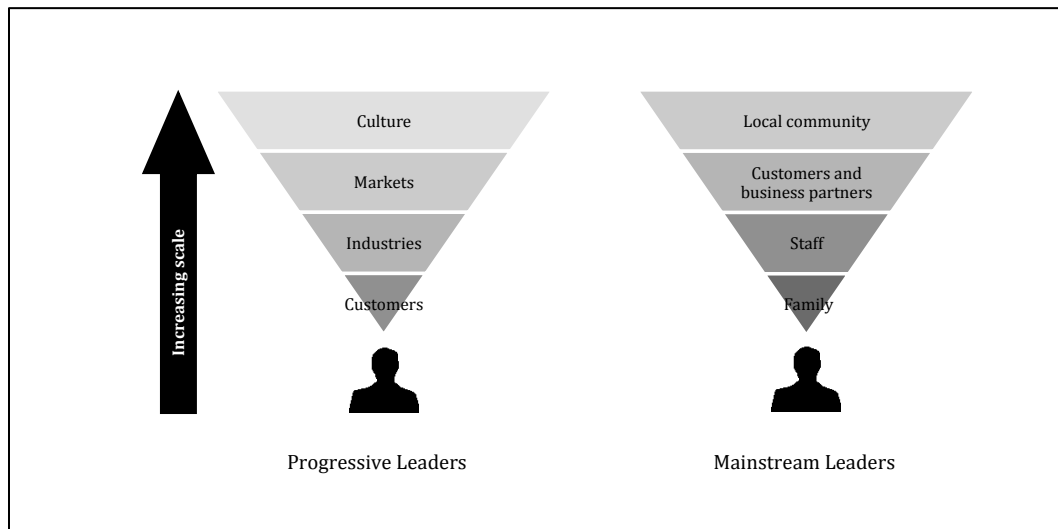


Figure 5: Differences in Scale of Impact Between Progressive and Mainstream Leaders

The categories illustrated in Figure 5 represent the levels of influence that the Progressive and Mainstream decision-makers have identified in their responses. The levels in both inverted pyramids should not be read as equal, but as the furthest or closest level of influence to the Research Participant. Therefore, while the Progressive leaders believe in their ability to influence culture, the mental model of the Mainstream leaders includes at the furthest, their local communities. It should be noted that it was the majority of Mainstream Research Participants who talked about their concern and impact on their communities, but not one hundred percent of the participants.

Understanding the differences between the groups of progressive and mainstream business-leaders will help to determine whether the same or similar tools may be used for encouraging sustainable action. While the mainstream business leaders did prioritize impact beyond themselves, the scale and priority of positive impact differed from the progressive business leaders.

The *Ripples of Influence* is a model for visualizing progressively larger levels of scale that can be used to establish strategies with specific time horizons (McCammon, 2013). It is one potential way of helping other SME leaders to harness the mental model of *Catalyzing Larger*

Impacts. The *Ripples of Influence* model requires testing but could be useful for the mainstream if it is found to be a helpful tool for the progressive leaders.

Beyond the difference in scale of impact that the mainstream SME decision-makers perceive, it was also found that the role of a decision-maker will influence the likelihood of them having an external focus in their choices. An Owner/Operator must have awareness for the internal and external elements of the organization, whereas the decisions of High-Level Managers are influenced by an internal focus.

In order to understand the barriers that the Mainstream Business Leaders face, Prompt #9 asked “what forces could prevent you from reaching your business goals in the future?” Every Participant felt that their decisions were constrained in some way by economic uncertainties. Across sectors, the businesses interviewed were largely influenced by the level of technical or specialized knowledge in-house, the culture or interest of a staff team to implement decisions, and the need to rise to client expectations in order to maintain important relationships. The result to Prompt #9 was that 8 Participants identified a dysfunctional team as a major barrier. The answers were consistent with the inverse of Prompt #8, which asks about the influencing factors for success.

High-Level Managers	Owners/Operators
Influences: Seeking innovation Creating brand differentiation	Influences: Foresight and flexibility
Constraints: Customer trends and awareness Governmental policies	Constraints: Shifting capacity of staff team (loss of staff, talent availability etc.) Competing with other firms

Table 8: Differing Influences and Constraints for Success Faced by Managers and Owners/Operators

While High-Level Managers said that the need to create brand differentiation was a key influence, this differed from the Owners/Operators who listed demonstrating foresight and flexibility instead. This variation may reflect the different roles that a Manager and an Owner/Operator of a business have. While both of these influences represents a larger need or trend to keep ahead of the competition, the Manager must create plans for approval (brand differentiation) while the Owners/Operators must maintain flexibility in order to react quickly to new opportunities. These differences exist because the Owners/Operators have a more holistic view of the firm.

While few mainstream SMEs will consider their global impact, this does not negate their ability for positive impact. The data for the mainstream SME was not global but rather showed the ability for decision-makers to consider themselves and the surrounding levels of influence on their external environments.

In combination with the findings from the previous dimension, we see that the Owners/Operators have a greater proclivity for thinking further out in scope and scale, however High-Level Managers have the skills for communicating a unifying vision which implementation requires.

Dimension: Prevailing logic

Separation vs. Systems – Tradeoffs vs. Synergies

In nature, sustainability relies on cooperating systems of resource-use and waste-creation. In business, sustainability requires an interrelated effort between the ecological, social and financial aspects. Adams et. al. (2009) regarded a systems understanding as the goal for business sustainability. By asking open-ended questions which had the Participant share

their understanding of their organization's relationship with external or potentially interconnected issues, the design probe captured the Participants' ability to think in terms of systems. The design probe revealed that the mainstream business leaders have one of two mental models around the dimension of prevailing logic. These are *Tradeoffs* (separation) and *Synergies* (systems). These mental models are consistent with decision-makers considering the firm as a stand-alone system, as well as the firm within larger, external systems.

A similar insight surfaced from research into the progressive business leaders of Ontario. In order to transition towards greater sustainability, tools for encouraging a mental model that reflects sustainability as a whole, rather than a sum of parts, is needed (McCammon, 2013). Additionally, for mainstream business leaders, the roles of Owner/Operator and High-Level Manager will determine whether a decision-maker sees their choices as *Tradeoffs* or in *Synergies*.

Reviewing the Data

A number of prompts explored how business leaders perceive making decisions that involve tradeoffs. Prompt #7 asked Participants to share an example from the past where they have had to consider different tradeoffs when making a business decision involving environmental or social aspects. 10 out of 13 Participants were able to identify an example; and 5 shared stories of choosing financial benefit over environmental or social good. This reveals the mental model of *Tradeoffs*, where decision-makers assume they can either create a financially sound business or one that has a positive environmental or social impact. This mental model is characterized by an assumption of separation between financial, ecological and societal elements, rather than a systems understanding.

Prompts #6 and #15 explored how some Participants have alternatively adopted the mental model of *Synergies* when faced with decisions involving tradeoffs. Prompt#6 asked

“what internal and external conditions do you think should exist before it is possible for you to act on social or environmental aspects of your business?” The answers reveal that the priorities of Participants are weighted equally as follows: 1/3 staff culture, 1/3 financial stability, and 1/3 client demands. Additionally, Prompt #15 asked “what could make you choose to consider social or ecological aspects in your business planning?” for which 60% of Participants replied “a cultural shift in the staff team”. The remaining 6 Participants were divided between “more funds”, “more supporting data” and “increased external pressure”. This demonstrates that the business decisions of this mainstream group are not determined exclusively by either financial or personal goals but by a combination of interrelated elements. Therefore, Ontario’s mainstream SME decision-makers are placed along a spectrum, which ranges from *Tradeoffs* to *Synergies*.

An important insight from the design probe data is that the Owners/Operators view the business as a whole, whereas High-Level Managers make decisions based on sections of responsibility. When making choices with important tradeoffs, the results will differ based on the top priorities of the decision-maker. Prompt #8 asked Participants to list the major elements that have influenced the success of their business in the past. This prompt was used to identify the priorities and values of Participants. 8 out of 13 listed their ‘team’ as a major contributor to their success. The full breakdown can be seen in Table 10.









Times Mentioned by Participants	Element or Characteristic of Business
	Team
	Relationships
	Knowledge and Innovation
	Quality of Product
	Leadership
	Adaptability
	Reputation
	Planning or Goal Setting

Table 9: Results of Prompt #8 Elements that Have Influenced the Success of the Business

There is an interesting difference between the priorities of High-Level Managers and the Owners or Operators of businesses that influence the tradeoffs taken and ultimately affect the opportunity for sustainability. The following table illustrates how leaders within a business recognize the tradeoffs attached to their decisions:

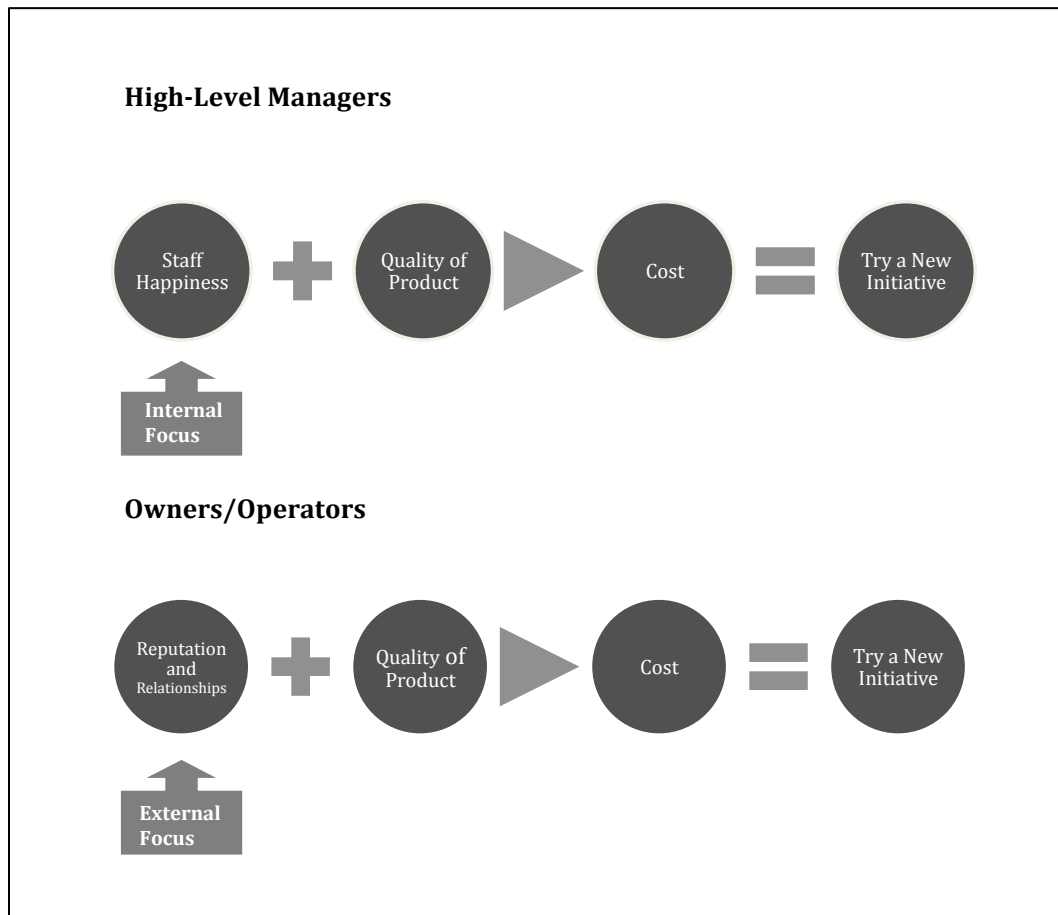


Table 10: Making Decisions that Require Tradeoffs

High-Level Managers

The High-Level Managers who took part in the design probe recognized tradeoffs in terms of balancing the short-term financial benefit/cost with the long-term effect on the priorities or values of the business. For instance, if an option does not demonstrate an immediate financial benefit it will be tried but potentially not last. However, a decision to cut costs that affect the quality of product or the staff team will not win-out in this group. Therefore decisions must generate short-term financial gains (or at least remain neutral)

and be aligned with the firm's identified priorities in the long-term (which are: high quality of product or service and a thriving staff team).

For example, a High-Level Manager at a retail organization strongly advocated for the return of work the company had sent offshore. The staff members in Ontario had been left with too little work to do and the company was risking losing the talent and knowledge of employees who had spent seventeen years at the organization. While it was less expensive to send work over seas, the priorities of this manager were maintaining a high quality product and a successful staff team.

Owners/Operators

The 9 Owners/Operators recalled implementing new social and ecological efforts but abandoned the initiatives when staff lost interest or the cost outweighed the benefit. Also, if the quality of the product or reputation were in jeopardy, the Owner/Operator would take action to repair it even if there was a financial tradeoff. Quality of product was not listed as a priority for this group, however maintaining reputation and relationships were.

The difference between these two groups, High-Level Managers and Owners/Operators, is that the Managers are influenced by a highly internal focus (happiness of staff team) while the Owner/Operator has an awareness of the internal and external elements (reputation of the organization). This may be because the personal reputation of the Owner/Operator is greatly connected to the professional reputation of their business, unlike High-Level Managers who have a level of perceived personal distance from the community reputation.

Similar to Adams et.al (2009), Ben McCammon found that SME sustainability needs to be seen as a whole, not just a sum of the parts in an organization (McCammon, 2013). The progressive SMEs in Ontario consider financial concerns as a primary part of their company's sustainability strategy, however they are willing to sacrifice financial benefit, in some cases, if it conflicts with social or environmental benefits. This is because their mental

model sees their companies as having a larger purpose beyond financial success. The trade-offs between the financial, social and ecological aspects are context-dependent, and this dynamic “deserves as much attention as the categories themselves” (2013).

As a result, McCammon (2013) suggests a mix of analytical tools (ones that consider the separate sections of financial, social and ecological) as well as tools for synthesis. While the progressive leaders demonstrated their familiarity of the Financial, Social, Environmental (FSE) framework, this is not language that was used in the responses from the Mainstream group. The progressive leaders see these three elements as one and therefore need tools that are integrated, however mainstream leaders do not have a familiarity with the FSE framework and may be more inclined to use analytical tools that show the three elements separately, at least initially.

Prompt #5 asked Participants to identify the social and environmental aspects to their business. These differed depending on whether the business was a knowledge-based organization or in manufacturing. Those in manufacturing were much more aware of the ecological aspects to their business while those in knowledge-based businesses were much more aware of their social rather than ecological aspects. The answers included: treatment of staff and hiring practices as well as charitable donations and work for social aspects, and transportation, materials, energy and waste for ecological aspects. This demonstrates a blind spot that these Participants have, that keep them from considering their choices in relation to an FSE framework. While increased knowledge of the FSE framework would be beneficial, any related tool would need to be tailored to reflect the priorities and perspective of the mainstream SME leaders.

While the theme of *Tradeoffs* was evident in the data, one important insight that was also revealed is that the Owners/Operators are more able to view the business as a whole (a system) while High-Level Managers tend to make their decisions based on sections of responsibility (separateness). Therefore, Owners/Operators are more likely to take an

outlook that appreciates the balance of competing and interrelated aspects of the business, instead of the less sustainable mental model of *tradeoffs*.

Further Insights to the Mainstream SME Decision-Makers

Insight 1

Ontario SME decision-makers shift from one side to the other along the spectrum of the business sustainability framework.

After considering where the SMEs fall within the three different dimensions and their corresponding pairs of mental models, it became clear that mainstream decision-makers at Ontario SMEs are not strictly on the “unsustainable” side of the framework, nor are they consistently on the more “sustainable” side. In fact, the Participants in the design probe showed that depending on the context, they might switch from one side to the other given the dimension in which they consider the decision.

Participant	Time Orientation		Focus of Attention		Prevailing Logic	
	Less Sustainable	More Sustainable	Less Sustainable	More Sustainable	Less Sustainable	More Sustainable
#1		✗	✗		✗	
#2		✗	✗	✗	✗	
#3	✗		✗			✗
#4	✗			✗	✗	
#5	✗			✗	✗	
#6	✗	✗		✗		✗
#7		✗		✗		✗
#8	✗			✗		✗
#9	✗			✗	✗	
#10		✗			✗	
#11		✗	✗		✗	
#12		✗		✗		✗
#13	✗		✗			✗

Table 11: Participant Answers Categorized by Dimension

For example, the majority of Participants took a short-term view to planning, but also had the mindset of *Team Player* and emphasized *Synergies* in their decisions. This places them on the 'less sustainable' side within the dimension of *Time*, but poised for greater sustainability on the 'more sustainable' side when considering *Focus of Attention* and *Prevailing Logic*. Two Participants were found to be on the 'more sustainable' side of the

framework for all three dimensions. No Participants were found to be on the 'less sustainable' side of the framework for all three dimensions.

What this implies for SME sustainability is that the mainstream firms have demonstrated that their mental models have laid the groundwork for taking decisions towards greater sustainability. The implication for sustainability strategy tools is that these instances of 'more sustainable' thinking indicate entry points for greater action on sustainability. These three dimensions, time-orientation, focus of attention and prevailing logic are the most strategic places to start because mainstream leaders are already thinking within this framework.

A tool for recognizing these entry points for greater sustainability may be a scaled down version of the design probe which will help to identify which category the 'client' falls within for each dimension, 'less' or 'more' sustainable. That information can be used to design more effective engagement with mainstream leaders.

Insight 2

Mainstream business decision-makers are open to attempting sustainability initiatives.

Follow-up questions from the design probe revealed that both the Owners/Operators and High-Level Managers had at some point attempted a sustainability initiative at the organization. These initiatives ranged from a staff-coordinated carpool to the purchasing of environmentally friendly resources for a manufacturing firm. They were dropped when either staff or customers became disinterested. Participant #5 shares "People want sustainability until they find it inconvenient". However, with the right support, these businesses may be ready to try for greater sustainability given the proper conditions.

Participants of the design probe have an overall positive perception of sustainability initiatives taking place at similar firms. Prompt #14 asked Participants to identify a similar organization that has acted on the social and/or environmental aspects of their business, and to share the perceived outcomes. Fifty percent of Participants noted that other businesses had a perceived positive outcome from taking measures for sustainability, while an additional 40% felt it was a neutral outcome. Only 10% (one Participant) felt there was a negative or poor impact from acting on sustainability.

A staff member who champions a project may be the best entry point for sustainability at these firms. As seen in Table 9, 50% of Participants responded that a cultural shift in the staff team would make them consider social or ecological aspects in their business planning. This would require that the Owners/Operators create an environment where idea sharing and collaboration is possible. Most importantly, the mainstream SMEs of Ontario need support to identify the most strategic sustainability initiative for their business as well as support to institutionalize positive changes so that are not attached to a single staff person.

Insight 3

Mainstream SME decision-makers aim for “good enough” when acting on sustainability.

The third insight that surfaced from the design probe, was that that Participants perceive they have done “good enough” for the social and ecological aspects of their business. The implication of this mindset is that mainstream decision-makers are not focused on progressing in these areas or in addressing potential social or ecological risks.

When discussing the sustainability of their firm, a high-level manager at an information technology firm responded that they “do one social initiative really well, so that

justifies inaction on environment". Similarly, one third of the Participants noted they would require industry standards and laws to change before they would consider acting on social and ecological aspects currently overlooked in their business.

The five levels of sustainability activities, as demonstrated by Beloe et. al. (2004), confirms that the mainstream Participants in this study are within the first and second levels of sustainability.

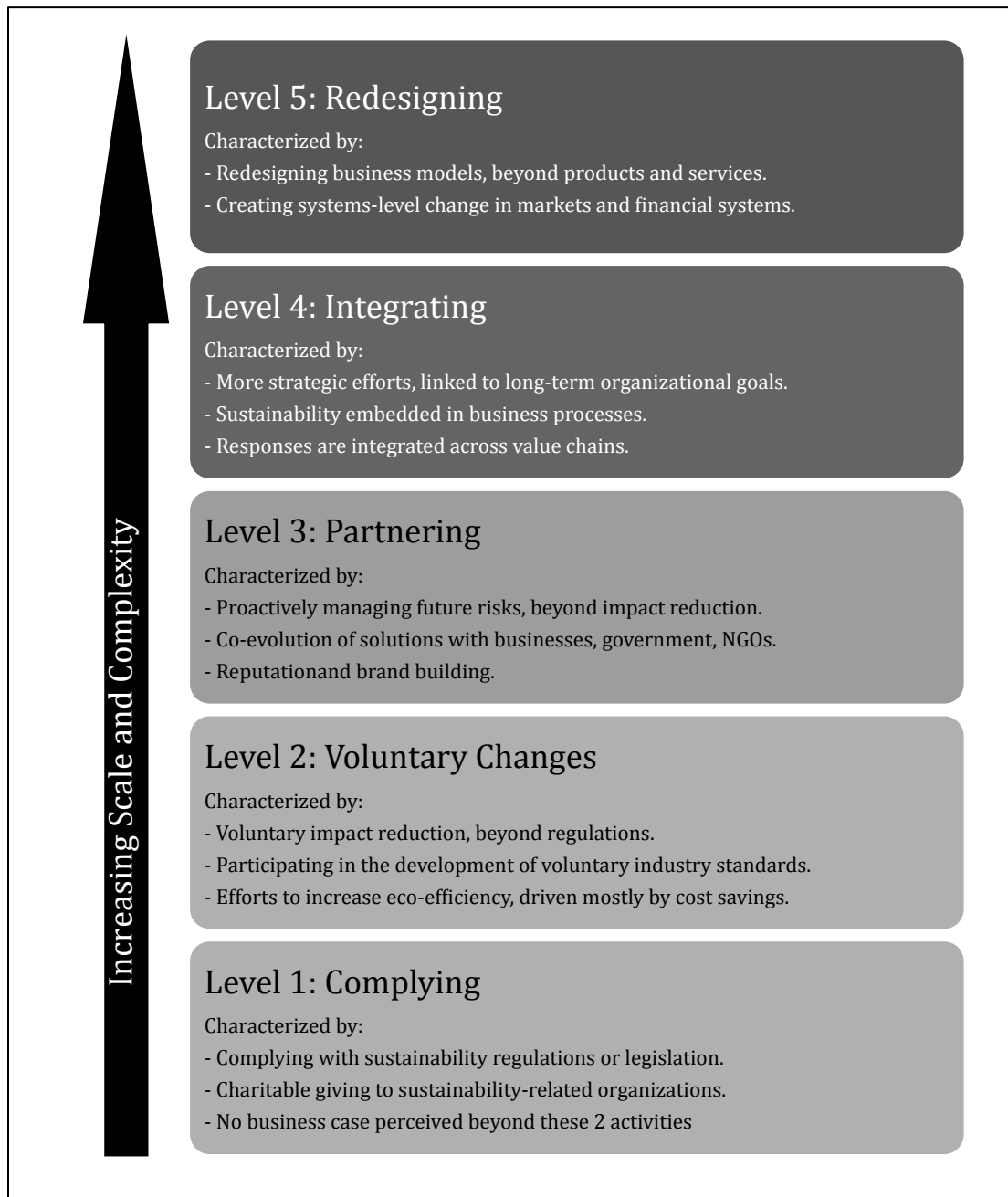


Figure 6: Five Levels of Sustainable Activities (adapted from Beloe et al., 2004 and McCammon, 2013)

An awareness and ability for decision-makers to manage future risks is what characterizes level three. The Participants in the design probe revealed a blind spot in this area when a number of prompts in the design probe questioned the risks they may face.

Prompt #10 asked Participants to identify the risks to their business. Eight of thirteen Participants listed a changing economy as a major risk, while seven also mentioned growing competition. An additional five Participants listed loss of team or leadership as major risks that their business may face. However, when asked in Prompt #12 whether there were any potential social or ecological risks to their business, few could identify any. Two Participants listed 'extreme weather' as a potential risk, which is relevant since the interviews took place during a major ice storm and power outage in Toronto during December 2013. Most importantly, five Participants claimed that there were no social and ecological risks to their business. Therefore, for organizations developing tools for businesses to transition towards greater sustainability, an emphasis should be placed on awareness of risks emanating from social and ecological elements for SMEs making the shift from Levels 1 and 2, (Compliance and Voluntary Changes) towards Level 3 (Partnering).

Recommendations

By considering the previous insights and knowledge of mental models within mainstream SME leadership, the following interventions are recommended for consultants, NGOs or policy makers focusing on accelerating sustainability in Ontario.

Recommendation 1

Identify entry-points for intervention

The primary research in this project identified that this demographic is currently drawing on mental models within the dimensions of time orientation, focus of attention and prevailing logic. These dimensions represent instances of more sustainable thinking in the mainstream decision-makers and indicate entry points for greater action on sustainability. Identifying which dimension is framing a decision-maker's mental model will help to tailor the support they receive and help transition them from the 'lesser' to 'more' sustainable sides of the business sustainability framework. This can be done with a similar, but smaller design probe as the one used in this study.

Recommendation 2

Support strategic initiatives and institutionalize sustainability

Insight 2 showed that the mainstream SME decision-makers had at some point tried a sustainability initiative with their organization. When prompted to discuss why these initiatives failed, participants listed a decline in interest from the championing staff member or client base.

This insight demonstrates the important role an external consultant or NGO could play in identifying the most strategic initiative for an organization to accumulate momentum and

gain support with sustainability efforts. In The Sustainability Champion's Guidebook (2009), Bob Willard outlines a number of interventions a consultant can take to assess the current reality at an organization and therefore identify the most strategic areas to address. These include:

- Life-Cycle Analysis
- Carbon Footprint Calculators
- An Annual Report on Sustainability Progress (that is aligned with the global reporting initiative, GRI, frameworks)
- Force-Field Analysis: identify the current helping and hindering forces, their strength and importance makes up the reality facing the organization

Additionally, it is a passionate person that drives the sustainability efforts at mainstream SMEs. If this person transitions away from the organization, the initiatives they cultivated risk dissolution. Following John P. Kotter's Eight-Stage Organizational Change Process (Kotter, 1996) is recommended in order to institutionalize the changes into the organization.

Kotter's Eight-Stage Organizational Change Process
1. Establish a sense of urgency
2. Create the guiding coalition
3. Develop a vision and strategy
4. Communicate the change vision
5. Empower broad-based action
6. Generate short-term wins
7. Communicate gains and produce more change
8. Anchor new approaches into the culture

Table 12: Kotter's Eight-Stage Organizational Change

Recommendation 3

Educating decision-makers on the risks of inaction around sustainability is a priority

The decision-makers of mainstream SMEs in Ontario are currently acting within the first and second levels of Sustainability Activities (Beloe, 2004) as seen in Figure 6. In order to progress from 'Complying' and 'Voluntary Changes' to level 3 'Partnering', leaders will need to resolve the blind spot they currently have around proactively managing future risks. Efforts to increase strong sustainability in Ontario's SMEs should focus on educating and coaching decision-makers on these issues.

Any intervention in this area should make a strong business case for taking action on sustainability, as well as tailor the materials and language to the specific industry or business context. Results from the design probe have revealed that this is a demographic that is wary of the need for sustainability initiatives and will be driven by pragmatic reasons rather than emotional reasoning to take action.

In Bob Willard's, *The Sustainability Champion's Guidebook* (2009), a good example of the bottom-line benefits for large companies acting on sustainability is provided. With further research the following figure could be adapted to small and medium sized enterprises.

Benefit Area		Improvement
Employee Commitment to Sustainability	1. Reduced recruiting costs	-1%
	2. Reduced attrition costs	-2%
	3. Increased employee productivity	+10%
	4. Eco-efficiencies in manufacturing	-5%
	5. Eco-efficiencies at commercial sites	-20%
	6. Increased revenue/market share	+5%
	7. Lower insurance and borrowing costs	-5%
	Contributing to a profit increase of at least:	+38%

Table 13: Potential Bottom-Line Benefits for a Large Company²

Recommendation 4

Understand what the decision-maker sees as their greatest influencer of success

The final recommendation is to discover what the priorities of the SMEs are and use this to tailor the tools and support for transitioning mainstream organizations to greater sustainability. Table 10 illustrated the priorities of the research participants. With these business elements in mind, the appropriate sustainability intervention can be found by asking the questions: how can we make X more sustainable? How can we use X to bring sustainability into the organization?

² Source: Bob Willard, *The Sustainability Advantage*, New Society Publishers, 2002. The book explains the assumptions and case studies supporting the estimated benefits.

By positioning sustainability interventions around elements of the business that are already a high priority, there is the potential to ‘piggy back’ new initiatives onto existing ones. This is another strategy for change advocated in The Sustainability Champion’s Guidebook (Willard, 2009). Because there is at times a large difference between the mental models of Owners/Operators and High-Level Managers, it may be beneficial to approach these two demographics with alternative interventions.

Element or Characteristic of Business	Recommended Intervention
Team	<p>Provide education and coaching on triple bottom</p> <p>Group brainstorming to generate a sustainability vision</p> <p>Owners/Operators:</p> <p>Name environmental coordinators or a committee</p> <p>High-Level Managers:</p> <p>Employee suggestion process with clear follow-through</p> <p>Teams to address specific issues or sustainability projects</p>
Relationships	<p>Workshops for suppliers on the framework for sustainability and the company’s new expectations</p> <p>Partnerships with suppliers to develop ecologically, socially just and economically sustainable solutions to specific problems</p>

Cont.	
Element or Characteristic of Business	Recommended Intervention
Knowledge and Innovation	<p>Develop baseline information (with industry-specific metrics)</p> <p>Documentation of experiments and learning to generate more learning, recording problems, attempted solutions, results, knowledge gained, etc.</p> <p>Owners/Operators:</p> <p>Awards, recognition of team results, individual initiatives, company-wide achievements</p> <p>Provide on-going coaching</p> <p>High-Level Managers:</p> <p>Provide the resources to try new ideas</p> <p>Provide mechanisms for sharing what is learned</p>
Leadership	<p>Provide education and coaching on triple bottom line</p> <p>Include sustainability criteria into financial reporting requirements, capital requests, purchasing decisions</p>

Cont.	
Element or Characteristic of Business	Recommended Intervention
Leadership (continued)	<p>Owners/Operators:</p> <p>Have leadership team develop a sustainability vision statement</p> <p>Introduce the business case for the triple bottom line</p> <p>Have leadership communicate the importance of sustainability to the business through videos, annual reports, memoranda to employees, speeches</p> <p>High-Level Managers:</p> <p>Make sustainability initiatives and progress a part of all regular business meetings</p>
Reputation	<p>Annual reports</p> <p>Sustainability reports</p> <p>Labeling of products</p> <p>Partnerships with scientific groups, academic, environmental groups to strengthen knowledge base, increase access to information, communicate goals, develop shared objectives to accelerate the move toward sustainability</p> <p>Partnerships with community groups such as schools, civic organizations, business associations to communicate the sustainability vision</p>

Cont.	
Element or Characteristic of Business	Recommended Intervention
Planning or Goal Setting	<p>Owners/Operators:</p> <p>Incorporate sustainability goals into the business plan</p> <p>High-Level Managers:</p> <p>Sustainability management systems</p>

Table 14: Element of Business and Relevant Sustainability Intervention (Adapted from Nattrass & Altomare (1999). The Natural Step for Business)

Conclusion

This research project sought to answer the question: For decision-makers within Ontario SMEs, what are the mental models that direct their choices around the social and environmental aspects of their business? The goal was to identify the mental models of mainstream businesses in order to better guide the design of strategic tools to help these SME leaders improve the sustainability of their businesses. In order to answer the question, a design probe was created to collect insights from twelve Owners and Operators as well as High-Level Managers of Ontario SMEs. The result was that six mental models were identified and 3 insights were gained. The mental models include:

1. **Prevailing Logic** Tradeoffs vs. Synergies
2. **Focus of Attention** Team Player vs. going it alone
3. **Time Orientation** Firefighters vs. Planners

Additionally, the insight section outlines that the mainstream SME decision-makers are shifting along a spectrum of business sustainability depending on their role, and the context of the choices at hand. It was found that these business leaders are also ready to consider taking action on a triple bottom line provided the right support, but that currently the mindset is to aim for 'good enough' rather than strong sustainability.

As in the previous related study on SME leaders of sustainability (McCammon, 2013), these insights captured the importance of thinking that is creative, global, long-term, systems-oriented, and collaborative. This is information that has been highlighted in various secondary research sources as well.

This paper proposes additional recommendation for consultants, policy makers or NGOs working to increase sustainability in Ontario at SMEs:

- Identify entry-points for intervention
- Support strategic initiatives and institutionalize sustainability

- Educating decision-makers on the risks of inaction around sustainability is a priority
- Understand what the decision-maker sees as their greatest influencer of success

Further Areas of Research

Another area of research to pursue includes: understanding in more detail when and how do mainstream SME business leaders decide to shift from the 'less' to 'more' sustainable side of the spectrum of business sustainability framework. Information on the decision-making process or necessary context would be useful for creating tools and tailoring support for this group to transition towards greater sustainability.



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Appendix A: The Design Probe



The Influence of Mental Models on Decision-Making: Insights from Ontario SMEs

The purpose of this study is to understand the "mental models" of leaders within Small-to-Medium Enterprises (SMEs) in Ontario, and how these mental models influence decisions around social and environmental aspects. The goal of the research is to generate qualitative, exploratory insights into the nature of these mental models, which will be explored in a Masters Thesis.

Mental models: A mental model is a (mental) representation of the surrounding world, the relationships between its various parts and a person's intuitive perception about his or her own acts and their consequences (Wikipedia).

By gathering opinions and reflections from decision-makers like you, we hope to learn from your experiences and gain insights into the most appropriate tools to support a shift towards sustainability.

Contact Information

If you have any questions about this study or require further information, please contact the Faculty Supervisor using the contact information provided below. This study has been reviewed and received ethics clearance through the Research Ethics Board at OCAD University **2013-48**. If you have any comments or concerns, please contact the Research Ethics Office at http://www.ocad.ca/research/ethics_board.htm, research@ocad.ca.

Principal Student Investigator: Laura Read, Graduate Student Strategic Foresight and Innovation program OCAD University (647) 232-8763 lr11km@student.ocadu.ca	Faculty Supervisor: Nabil Harfoush, Assistant Professor Department of Design OCAD University (416) 977-6000 Ext. 4587 nharfoush@faculty.ocadu.ca
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Mental Models and Decision-Making - Laura Read OCADU - Dec 2013



What's Involved

Voluntary Participation

Participation in this study is voluntary. If you wish, you may decline to answer any questions or participate in any component of the study. Further, you may decide to withdraw from this study at any time, or to request withdrawal of your data (prior to data analysis in February, 2014) and you may do so without any penalty.

Confidentiality

All information you provide is considered confidential. While the Principal Student Investigator and Faculty Supervisor will know your identity, this information will not be shared with anyone else. Your name or company will not be associated with any of the published research findings. In the case of direct quotations your name will not be used, and any details that would compromise confidentiality will be omitted. Instead, a generic description will be used, in the format: "Participant #(number), (generic description of business)". For example, "Participant #2, packaged goods manufacturer".

Instructions

Step 1

Review this booklet and the questions provided. Consider your answers and make notes in the sections provided.

Step 2

Return this booklet with your notes and schedule a time to discuss your answers with the Principal Student Investigator.

An online form will be provided to indicate your availability.

Step 3

Meet with the Principal Student Investigator, over the phone or in person, at a mutually agreed upon time. This conversation will take thirty minutes to one hour of your time.



Questions
1 -2
of 15

Survey Questions

Question 1:

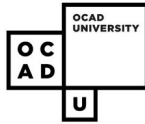
What does thinking about and planning for the future look like at your business?

Notes:

Question 2:

How far into the future does your business plan? Why?

Notes:



Questions
3 – 4
of 15

Survey Questions Continued

Question 3:

What has been your company's experience with implementing a long-term plan?

Notes:

Question 4:

List the elements required for success at your business. Place them in order of importance, starting with the most important. Why are some items ahead of others?

Notes:

-



Questions
5 – 6
of 15

Survey Questions Continued

Question 5:

What are the social and environmental aspects to your business? For example, fair wages, worker conditions, energy use, waste creation etc.

Notes:

Question 6:

What *internal* (i.e. size, revenues etc.) and *external* conditions (i.e. consumer trends, economic environment etc.) do you think should exist before it is possible for you to act on social or environmental aspects of your business?

Notes:



Questions
7 – 8
of 15

Survey Questions Continued

Question 7:

Please share an example from the past where you have had to consider different tradeoffs when making a business decision involving environmental or social aspects.

Notes:

Question 8:

What major elements have influenced the successes of your business in the past?

Notes:



Questions
9 – 10
of 15

Survey Questions Continued

Question 9:

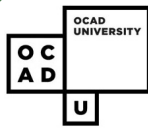
What forces could prevent you from reaching your business goals in the future?

Notes:

Question 10:

What are the risks to your business? Place the risks you identified into a list with the most potential for negative impact at the top.

Notes:



Questions
11 – 12
of 15

Survey Questions Continued

Question 11:

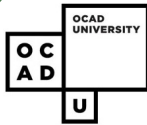
At what point does something become a risk to your business?

Notes:

Question 12:

Do you think there are potential social or environmental risks to your business?

Notes:



Questions
13 – 14
of 15

Survey Questions Continued

Question 13:

In what ways do social and ecological aspects play a role in your business success or failure?


Notes:

Question 14:

Are you aware of *other* organizations that have acted on the social or environmental aspects of their business? What were the outcomes in your view?

Notes:

Question
15 of 15



Survey Questions Continued

Question 15:

What could make you choose to consider social or ecological aspects in your business planning? Why?

Notes:

Publication of Results

Results of this study may be published in the thesis and Executive Summary documents of the Principal Student Investigator. As a participant, you will receive a summary of key insights from the final project. This summary will be sent to you electronically, in coordination with the completion of the thesis project. The expected date is March, 2014.

Thank You

Mental Models and Decision-Making - Laura Read OCADU - Dec 2013

Appendix B: Research Ethics Board Approval



Research Ethics Board

November 15, 2013

Dear Laura Read,

RE: OCADU 141 "The Influence of Mental Modes of Decision-Making Around Impact Assessment: Insights from Ontario SMEs."

The OCAD University Research Ethics Board has reviewed the above-named submission. The protocol and consent form dated November 15, 2013 are approved for use for the next 12 months. If the study is expected to continue beyond the expiry date (November 14, 2014) you are responsible for ensuring the study receives re-approval. Your final approval number is **2013-48**.

Please note that on your Consent Form under "Publication of Results" that you have noted "direct quotations will not be used without your permission". You need to add a check box at the end of the form where participants specifically agree to that.

Before proceeding with your project, compliance with other required University approvals/certifications, institutional requirements, or governmental authorizations may be required. It is your responsibility to ensure that the ethical guidelines and approvals of those facilities or institutions are obtained and filed with the OCAD U REB prior to the initiation of any research.

If, during the course of the research, there are any serious adverse events, changes in the approved protocol or consent form or any new information that must be considered with respect to the study, these should be brought to the immediate attention of the Board.

The REB must also be notified of the completion or termination of this study and a final report provided. The template is attached.

OCAD U Research Ethics Board: rm 7520c, 205 Richmond Street W, Toronto, ON M5V 1V3
416.977.6000 x474



Research Ethics Board

Best wishes for the successful completion of your project.

Yours sincerely,

A handwritten signature in cursive script, which appears to read 'Tony Kerr'.

Tony Kerr, Chair, OCAD U Research Ethics Board

OCAD U Research Ethics Board: rm 7520c, 205 Richmond Street W, Toronto, ON M5V 1V3
416.977.6000 x474

Appendix C: Insights from Ontario's SME Progressive Leaders

McCammon, B. (2012). How Mental Models Influence Decision-Making: insights from leaders of sustainable SMES. Page 46.

Insights & Implications

Overview of Key Insights

The analysis of the design probe data revealed five key insights about the relationship between SME leaders' mental models and their core strategic decision about sustainability. The five insights are summarized here, and then each is explored in more depth on the following pages, including the supporting data and the implications for both SME leaders and designers of strategic tools for these leaders.

Insight 1:

Many of these leaders see their greatest contribution as "Catalyzing Larger Impacts".

Insight 2:

SME sustainability needs to be seen as a whole, not just a sum of the parts.

Insight 3:

Even for these forward-looking leaders, there is a gap between long-term aspirations and short-term goals.

Insight 4:

Experiencing "how the rest of the world lives" may be a key factor in developing more actionable mental models of sustainability.

Insight 5:

The dissemination of mental models is a crucial challenge to the sustainability of these SME companies.