

# Critical factors of competitiveness for the British Columbia secondary wood products industry

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## Abstract

*This study investigated manufacturing, business, and sustainability factors that were considered to be critical for the future success of British Columbia's secondary wood products sector. A qualitative research methodology was used to address the study's objectives. Findings indicate that improvements in the quality of managerial and entrepreneurial capacity will be particularly important. In addition, it appears that sustainability and competitiveness may become increasingly intertwined in the industry in the near future. The main contributions of this study are of an empirical nature and include the delineation of factors that may impact the competitiveness of BC's secondary wood products industry and the exploration of potential benefits that may be gained from sustainable business practices. Results may be used to inform firms' management and their stakeholders about internal manufacturing and business competencies that will likely have the most influence on firms' future strategies, as well as the importance of incorporating environmental sustainability into business strategies.*

**Keywords:** secondary wood products, British Columbia, sustainability, competitiveness

## 1.1 INTRODUCTION

Historically, structural wood uses have dominated demand for commodity softwood lumber in North America, with British Columbia (BC) being a top supplier of such products. Conversely, BC's secondary or value-added wood products manufacturers have yet to achieve the success of their upstream relatives. Further investment in and development of the secondary wood products industry may have not only economic, but also social and environmental benefits to the province (Kozak, 2005; Schultz et al., 2013). Some authors have previously discussed the impediments and potential solutions for further developments of BC's secondary wood products segments (Kozak & Maness, 2001; Kozak et al., 2003; Kozak 2005, 2007; DeLong et al., 2007; Schultz et al., 2013). However, there have been limited efforts in enabling and fostering growth in this sector and the

critical areas where management and policy makers should be centering their efforts to strategically advance the competitiveness and sustainability of this industry have yet to be identified. Importantly, recent global events, namely the 2008 global financial crisis and increasing globalization (and localization) (Buehlmann & Schuler, 2013), have introduced new challenges and opportunities for secondary wood products manufacturers. The search for new economies of scope, such as access to low-cost factors of production and new customers (Hesterly & Barney, 2015), coupled with the internationalization of markets and production strategies (Buehlmann & Schuler, 2013), have recently put increasing pressure on the competitiveness of BC's secondary wood products industry.

Since the 1990s, BC's secondary wood products industry has been slowly, but profitably, evolving (Stennes et al., 2005, Schultz et al., 2013). Opportunities arising from a more globalized economy, advances in information and communications technologies, and generational and capability changes in ownership and management have been cited as major drivers (Schuetze, 2005). More recently, a number of efforts from different government and industry actors<sup>1</sup> have attempted to catalyze BC's secondary wood products industry by addressing

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various constraints along the industry's value chain and by fostering a more enabling business environment (Schultz et al., 2013). However, BC's secondary wood industries continue to trail other producing regions (e.g. Eastern Canada, the United States' Great Lakes region, and Scandinavia) in the development and alignment of manufacturing and business strategies (Kozak & Maness, 2001; Kozak et al., 2003; Kozak, 2005; DeLong et al., 2007, Buehlmann & Schuler, 2013). Schultz et al. (2013, p. 19) note that there are "...numerous visions in play, different interests are pursuing different visions, and they are not necessarily in harmony." As such, and as a first step, there is a pressing need for consistent information that serves to identify the internal and external business issues deemed to be critical for further advancements of this industry. While this analysis needs to occur at an industry-wide level, it can be argued that the viewpoints of more prosperous firms are of particular interest in the identification of these factors of success.

Accordingly, this study uses a qualitative research design and inducts from empirical data and existing literature to identify manufacturing, business, and sustainability factors facing the secondary wood products industry of BC. It does so by drawing on extant strategic management theories to steer the inductive processes of data collection and analyses, as well as to structure the findings. Based on the results, this study puts forth a set of recommendations necessary to achieve a successful secondary wood products industry in the long run by advancing aspects of firm competitiveness in and alignment with the current and future market environments. Specifically, the following research questions were examined:

**What are the key manufacturing and business issues that will drive the future success of the secondary wood products industry in British Columbia and what role can sustainability play in fostering this success?**

The contributions of this study are of an empirical nature. Based on our data, we map factors that have the greatest chance of impacting the competitiveness of BC's secondary wood products industry according to their level of control and their position in the value chain. We also explore the potential benefits that can be gained from efforts revolving around sustainability. Practitioners and policy-makers can use this map to identify the issues that are most relevant to them and

tackle these issues accordingly. In addition, we make a number of more specific recommendations that may assist practitioners and policy-makers to determine actions that may increase the competitiveness and ensure the future success of BC's secondary wood products sector.

In the following section, a review of theoretical and empirical works that are pertinent to our research question is presented. Next, the methodology is described, including the presentation of the unit of analysis (i.e. the studied industry). The last three sections of the study present the findings and a discussion which contains recommendations for both internal and external decision-makers, the study's limitations, and the potential for future research.

## 1.2 BACKGROUND

Understanding competitiveness and firms' abilities to achieve competitive advantages has been the basis of theoretical developments by strategic management scholars for decades. Since the 1950s, several schools of thought have emerged and are usually categorized into two major realms, most notably market-based and resource-based frameworks. According to the former, competitive advantage arises from market power (Porter, 1980, 1985) by anticipating or influencing rivals' strategic moves within the market environment in order to gain a positional advantage (Shapiro, 1989; Teece et al., 1997). In the latter (Schumpeterian), rents stem from firms' innovations and differentiations based on unique and costly-to-imitate internal capabilities that are (re) deployed to contribute to overall performance (Grant, 1991; S. Hart, 1995; Teece et al., 1997; Teece, 1998; Ward & Duray, 2000). "These [frameworks] are in many ways complementary and a full understanding of firm-level, competitive advantage requires an appreciation of all approaches and more" (Teece et al., 1997, p. 511).

Additionally, firms' links to the task environment (e.g. customers, suppliers, creditors, associations, and unions) and to the societal environment (e.g. economic, technological, political and legal, and socio-cultural contexts) invariably affect competitiveness (Wheelen & Hunger, 1983; Ward et al., 1996). In general, the further the sources of competitiveness depart from a firm's internal variables (i.e. moving toward the societal environment), the more difficult they are for management to control (Swamidass & Newell, 1987; Ward & Duray, 2000; Husso & Nybakk 2010).

More recently, it has been posited that strategic management must now recognize the need to not only integrate different strategic frameworks, but to also adapt to rapidly evolving, complex external environments and trends related to internationalization, technology, and sustainability (Drejer, 2002; Harris & Twomey, 2010). In particular, and given the increasing calls for firms to advance their social and environmental legitimacy over the past two decades (Elkington, 1994; S. Hart, 1995; Bansal & Roth, 2000; Savitz & Weber, 2006; Harris & Twomey, 2010), the role that sustainability plays on internal and external strategic issues may be of interest to theoreticians and practitioners alike.

Based on the aforementioned observations, firm-level competitiveness of this industry could be defined as the ability to identify internal (controllable) manufacturing and business strategies that take into consideration external (uncontrollable) factors, as well as sustainability issues, to profitably deliver products and services to their customers (S. Hart, 1995; Bansal & Roth, 2000; Ward & Duray, 2000; Robinson, 2004; Brown & Blackmon, 2005). The differences between, as well as the importance of, manufacturing and business strategies are discussed below, followed by a discussion of the literature connecting sustainability and business strategy.

### ***1.2.1 Business and Manufacturing Strategies***

In today's dynamic and global marketplace, the alignment and synchronization of manufacturing and business strategies are critical factors in determining firms' abilities to be competitive. From Skinner's (1969, 1974, 1985) "manufacturing mission" to Brown and Blackmon's (2005) more recent "strategic resonance," frameworks and terminologies surrounding competitiveness have evolved over the past decades to reflect changes in manufacturing and business strategies (Teece et al., 1997). Understanding these different perspectives can help to clarify some of the issues affecting the secondary wood products sector in BC.

Manufacturing strategy determines how firms' resources are best allocated and transformed, and how manufacturing processes contribute to overall performance (Hill, 1980; Hayes & Wheelwright, 1984; Ward & Duray, 2000). Manufacturing strategy involves the best combination of internal competencies that make up the functions of operations (Amoako-Gyampah & Acquah,

2008), such as cost, flexibility, dependability, innovativeness, quality of products, and processes (Corbett & Van Wassenhove, 1993). Conceptually, manufacturing strategy is often associated with the resource-based theory of the firm (Brown & Blackmon, 2005; Paiva et al., 2008), which states that firms' competitive advantages stem from idiosyncratic and difficult-to-imitate resources and capabilities (Grant, 1991).

In contrast, business strategy is market- and customer-oriented and deals with competition competencies. Business strategy involves the identification of target markets and the deployment of core competencies to continuously and profitably deliver products and services that customers value more than those of competitors (Drejer, 2002; IMD, 2005; Ward et al., 2007). Significantly, business strategy can be related to the literature on marketing, e.g. marketing mix (price, product, promotion, and place), marketing orientation (Corbett & Van Wassenhove, 1993; Hunt & Lambe, 2000), and the market-based theory of the firm (Brown & Blackmon, 2005). The latter also argues that competitive advantages (Porter, 1980, 1985) stem from firms' abilities to foresee and create barriers to competitors.

Skinner's (1969) contribution to the literature had a long-lasting influence on the dominant view of competition in which manufacturing was at the core of firm success. Manufacturing was sovereign and firms would outperform competitors by being as efficient as possible in all internal competencies. In other words, manufacturing drove business strategy. This view of competition was later revisited and a number of fundamental changes have occurred to inform more recent competition contexts, namely: "(1) static to dynamic rates of change; (2) stable to volatile environments; (3) mass production to responsive and customized production contexts; (4) enterprise-specific to network industry structures; (5) transformation of physical assets to information and knowledge; and (6) top-down to two-way path strategic processes" (Brown & Blackmon, 2005, p. 798).

In today's global production systems and markets, manufacturing competencies must be carefully aligned with market requirements. A well-defined business strategy will guide the corresponding manufacturing strategy needed to produce the best products to compete in the market(s) selected. The literature offers a number of theoretical and empirical studies highlighting the importance of a clear and efficient relationship between a firm's

manufacturing and business strategies (Williams et al., 1995; Ward et al., 1996, 2007; Ward & Duray, 2000; Sun & Hong, 2002; Chang et al., 2003; Bell et al., 2004). Corbett & Van Wassenhove (1993, p. 109) argue that there need not be a trade-off between the two strategies and that they are, in fact, “two sides of the same coin”. The authors also state that developing a link of internal competencies with the competitiveness requirements of the market is a means of securing long-term survival. Terminologies, such as strategic fit (Miller, 1992; Miles & Snow, 1994) and strategic flexibility, gained the favor of practitioners and researchers with the introduction of production initiatives like lean manufacturing (Warnecke & Hüser, 1995), just-in-time (Schonberger, 1982a, 1982b), flexible manufacturing (Goldhar & Jelinek, 1983; Nemetz & Fry, 1988), total quality management (Kanji, 1990), mass customization (Pine, 1993; C. Hart, 1995), and supply chain management (Chen & Paulraj, 2004). Recently, strategic resonance has been proposed as a more updated theoretical framework relating manufacturing and business strategies (Brown & Blackmon, 2005). The authors propose that strategic resonance combines market-led and resource-driven views to “...prevent the firm from being excellent in the wrong things...” and “...from chasing after businesses and markets in which it cannot hope to compete. The strategy process becomes ongoing and changing, adapting to ensure that customer requirements and organization-wide capabilities continue to resonate” (Brown & Blackmon, 2005, p. 800). Such resonances, therefore, must stem primarily from firms’ human capital; that is, the ability of (strategic) management to recognize the nuances of manufacturing and business priorities (Youndt et al., 1996; Mathews, 2006).

### ***1.2.2 Sustainability and Strategic Management***

Usually, manufacturing and business strategies must continually deal with internal and controllable sources of changes along the value chain in order to enhance the competitiveness of organizations. However, strategic decisions are also contingent on environmental dynamism, that is, “the degree of turbulence in products, technologies, and demand for products in a market” (Ward & Duray, 2000, p.124). Accordingly, the task and societal environments (e.g. external and uncontrollable factors) that affect both manufacturing and business strategies of firms also play a critical role (Wheelen &

Hunger, 1983; Swamidass & Newell, 1987; Ward et al., 1996; Ward & Duray, 2000). These uncontrollable factors can include, but are not limited to, competitors, input and demand conditions, the natural environment, business culture, government fiscal, monetary, and trade policies (Porter, 1985; Martin & Porter, 2000; Hunt & Lambe, 2000), and business megatrends<sup>ii</sup>, such as the “sustainability imperative” of the last decade (Lubin & Esty, 2010, p. 44).

With the aforementioned megatrend, a significant field of study on the relationship between sustainability<sup>iii</sup>, as a new variable in the external environment of firms, and competitiveness has emerged (S. Hart, 1995; Carroll, 1999; Bansal & Roth, 2000; Wagner & Schaltegger 2003; Harris & Twomey, 2010); the concepts of the triple-bottom-line and corporate social responsibility (or corporate responsibility) are notable examples of this trend (Elkington 1994; van Marrewijk & Werre, 2003). The central arguments underpinning these sorts of concepts revolve around firms’ abilities to demonstrate the financial dimension of businesses (i.e. economic sustainability), as well as greater accountability, transparency, and contributions to long-term societal well-being (i.e. social and environmental sustainability) (Adams et al., 2004; Carroll, 1999). During the 1990’s, concerns about the quality of the natural environment were becoming increasingly commonplace, and a number of environmental management tools emerged as a means for businesses to legitimize their environmental performance (for a review of these tools and systems, see Kolk & Mauser, 2002). Concomitantly, organizations have also recognized the need to legitimize and demonstrate the social dimensions of their activities (Robinson & Tinker, 1997; von Geibler et al., 2006). Some benefits to companies incorporating sustainable practices include the potential for increased competitiveness, legitimacy, and ecological responsibility, access to potential new markets and to ethical investment funds, the ability to attract and retain top human resources, and the creation of non-tangible product values (Bansal & Roth, 2000; Lubin & Esty, 2010). For small- and medium-sized enterprises (SMEs), improved sustainable practices have benefited businesses by creating first-mover market access (Wagner & Schaltegger 2003) and providing certain reputational advantages (Miles & Covin, 2000). Furthermore, some dimensions of business sustainability, such as environmental performance and initiatives, governance and management, stakeholder and community engagement, and improvements in environmental processes, products,



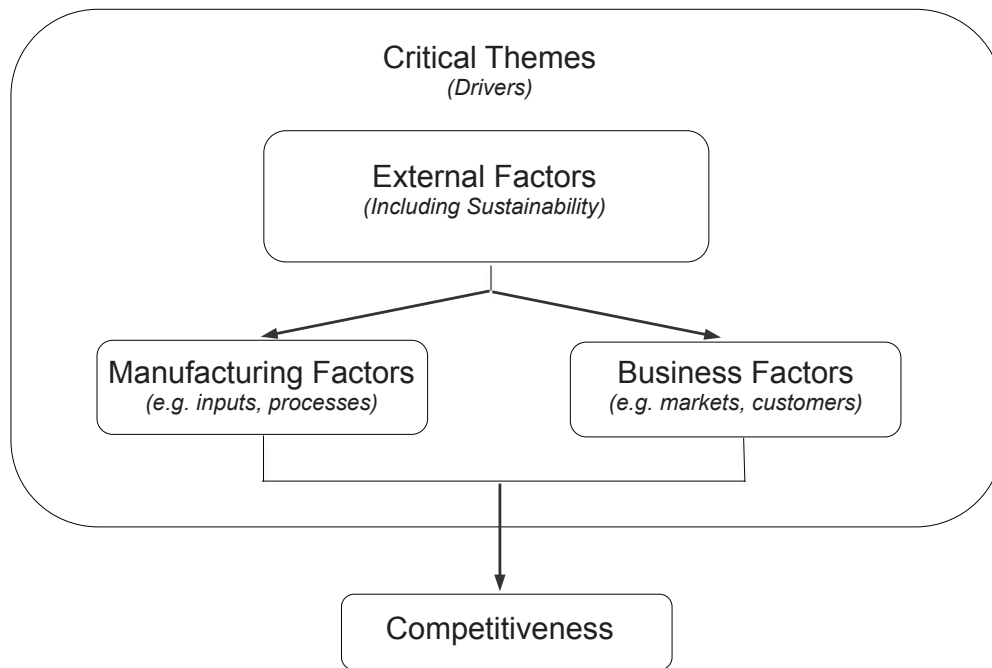


Figure 1. Framework guiding the implementation of this study

and services, were found to positively impact the competitiveness of SMEs (Lefebvre et al., 2003; Hitchens et al., 2003; Thorpe & Prakash-Mani, 2003). Little in the way of research on the secondary wood products industry in BC fully considers the interrelationships between firms' sustainable practices and competitiveness (Sharma & Henriques, 2005; Kozak, 2005). Therefore, this study also addresses the perceived significance that sustainability issues may have for the long-term competitiveness of BC's secondary wood products industry. The arguments that frame the analysis are summarized in Figure 1.

### 1.3 Methods

The methodological approach used in this study is based on qualitative analysis techniques, which are appropriate for the description, categorization, and exploration of connections from qualitative data for use in the development of fields that are difficult to communicate with quantitative methods (Tesch, 1990; Strauss & Corbin, 1998). This technique aims at building theory from textual information or data and is inductive in nature. In this vein, this study drew on two major sources of data for analyses: desk research (i.e. existing literature); and fieldwork (i.e. long<sup>iv</sup> interviews). For the fieldwork, Miles and Huberman's (1994) three sequential procedures of defining the unit of analysis, sampling, and instru-

mentation were considered and are presented next. Subsequently, a description of the data analysis, which followed a grounded theory approach (Strauss, 1997; Strauss & Corbin, 1998; Bazeley, 2007), is presented.

#### 1.3.1 Unit of Analysis

The focus and bounding of data collection was delimited to BC's secondary wood products manufacturing sector. In general, this industry is involved in the transformation of primary wood products (e.g. commodities traded in the open market, such as logs and lumber) into other (higher value) wood products with higher degrees of differentiation, higher degrees of finishing (directed to end-users rather than intermediaries), higher associated rates of employment per volume of raw material, and lower associated rates of use for raw materials (Kozak & Maness, 2001; Wilson et al., 2001; Schuetze, 2005; Cohen & Kozak, 2006). Examples of secondary wood products and processes, in ascending order of value addition, include: remanufacturing (i.e. further processing of commodity products); paneling; millwork; windows and doors; cabinetry; prefabricated homes and buildings; commodity furniture; and custom furniture (Kozak & Maness, 2001).

The vast majority of BC's secondary wood manufacturers are categorized as small- or medium-sized

enterprises (Cohen & Kozak, 2006). In Canada, small enterprises are comprised of firms with less than one hundred employees, while medium enterprises are those that have between one hundred and five hundred employees (Strategis, 2007). For SMEs, limitations of financial and human capital may hinder the implementation of sophisticated organizational strategies. On the other hand, management and ownership in the majority of SMEs comprise one or a few persons, which arguably should allow for faster and more efficient linkages between manufacturing and business decisions.

### 1.3.2 Sampling

This study drew from a small and purposive, rather than large and random, sample for an in-depth and contextual investigation (Kuzel, 1999; Carter & Dresner, 2001). The level of expertise of participants and the length of the interviews, not the number of participants, allow for a homogenization of the sample (Kuzel, 1999). In studies aimed at developing substantive theories – as opposed to more general or formal theories – as few as eight units will generally suffice when long, in-depth, or focused interviews are used (McCracken, 1988, p. 17; Strauss & Corbin, 1998; Kuzel, 1999). The choice for small and purposive samples is based on the idea that “the issue is not one of generalizability. It is that of access. It is more important to work longer, and with greater care with a few people than more superficially with many of them” (McCracken 1988, p. 17). Participants were selected according to their potential contribution to the study’s objectives and their knowledge of and expertise in, one or more aspects of BC’s secondary wood products industries. Specifically, two potential key informants<sup>v</sup> were identified and interviewed first. Secondly, theoretical sampling – i.e., “sampling on the basis of emerging concepts,” (Strauss & Corbin, 1998, p. 73) – was used to the extent that the drawing of sample elements was also dependent on reaching theoretical saturation – i.e. when no substantive additional data is found to further develop properties of the studied category (Strauss & Corbin, 1998; Merken, 2004). The selection of subsequent participants followed the basics of snowballing and gradual sampling techniques, where participants were asked to indicate other specialists for the themes under study (Kuzel, 1999; Flick, 2006). These procedures entail data analysis after each interview. Data collection took place between September 2007 and January 2008. Theoretical saturation was reached at 11 interviews and

the final sample included experts from different groups of stakeholders representing firm owners, manufacturing and business specialists, research and development institutions, and three levels of government (federal, provincial, and municipal). The final representation of the sample with a summary of the research process is presented in Table 1.

### 1.3.3 Instrumentation

Semi-structured interviews were used as the instruments for collecting data (Miles & Huberman, 1994; Bansal & Roth, 2000; Carter & Dresner, 2001; Flick, 2006). Semi-structured interviews allow for better focus, avoidance of data overload, and comparability between cases, thus enhancing internal validity (Weller & Romney, 1988; Miles & Huberman, 1994). After pretesting with non-participants, a final interview guide was developed. The interview guide was designed to address general and broad topics first and then to focus on specific topics about the study’s research questions<sup>vi</sup>. Examples of questions in the guide included: What are some of the key factors for BC’s secondary wood products manufacturers to increase and sustain their competitiveness in the long run? Which stakeholder(s) will have to play the major roles and why? Do you believe that there is a business case to incorporate sustainability initiatives into firms’ strategies? If so, which and how should sustainability issues should be considered?

Upon request, a copy of the topics and questions were made available to interviewees in advance. All participants formally agreed to digitally recorded interviews and were given a copy of the consent forms. Interviews lasted, on average, one hour with the exception of the interviews with participants from the industry, which lasted more than two hours and included site visits. All recorded interviews were transcribed and, along with field notes (e.g. memos and diagrams) and existing literature, formed the bulk of data for analyses.

### 1.3.4 Data Analyses

Fieldwork and secondary data were combined for analysis. Data analyses were performed with the assistance of computer software (NVivo version 8) and followed the procedures suggested by Bazeley (2007). Transcripts, field notes, and existing literature formed one single file for the software. Transcripts<sup>vii</sup> and field notes were analyzed through coding and additional documents were hyper-linked to these emerging codes in electronic formats.

Table 1. The research process

Stakeholder group (n=11)	Sampling	Analytical processes	Coding	Central category/theme
Business consultant	Key informant	Description	Open	n/a
Operations and management executive		Description	Open	n/a
Business owner	Theoretical with snowball techniques	Conceptual ordering	Open	MS, GP
Research and development specialist			Axial	
Product and process design and innovation specialist		Conceptual ordering  Theorizing	Open	MS, GP, LB
Research and development specialist				MS, GP, LB, RM
Operations and management executive			Axial	MS, GP, LB, RM, TM, PR, GP*
Federal government representative				Selective
Provincial government representative			MS, GP, LB, RM, TM, PR	
City mayor			MS, GP, LB, RM, TM, PR, SH, VC*	
Product and process design and innovation specialist			MS, GP, LB, RM, TM, PR, SH, VC*	

Notes: - MS=Management Skills; GP=Government Policy; LB=Labor; RM=Raw Material; TM=Target Markets; PR=Products; SH=Stakeholders.

\* Sustainability-related themes: GP="Green" Promotion; VC=Value Chain.

- Field notes (memos and diagrams) were also used for the analytical processes and coding procedures.

- Computer software allowed for the coding of relationships; that is, the types and directions of associations between codes were inductively recorded.

As proposed by Strauss (1987) and Stauss and Corbin (1998), the analytical process consists of developing open codes (with an initial examination of the data), which represent relevant ideas and concepts emerging from the text. Open coding allows for an overall description of the data and may represent ideas contained in a single word, a sentence, or an entire paragraph of all data sources, including the field notes. Open coding was performed with a microanalysis of the data (i.e. line-by-line analysis of textual data). After further inspection of all available data, open codes were dropped, merged, and moved into higher-level categories to form, through conceptual ordering, axial codes; i.e., the initial concepts preceding the central (final) categories. The last analytical process involved the use of selective coding to theorize (e.g. to integrate and refine) relationships within and between axial codes, serving as the grounding of the central categories. These sequential and circular analytical processes of describing, conceptually ordering, and theorizing served as the basis for this study's findings. The relationships between emergent central categories or themes, along with the revisited literature, served to support the recommendations presented later.

During data collection and analysis, several procedures were adopted in order to enhance the internal validity<sup>viii</sup> and reliability of the study (Flick, 1992; 2006; Miles & Huberman, 1994; Strauss & Corbin, 1998; Stendahl

et al., 2007), including the use of key informant and theoretical sampling with snowballing techniques, semi-structured interview instruments, digital audio recordings, different transcribers, direct coding of audio files, coding for theoretical saturation, and original quotes in the findings. Data were coded by one of the authors and verified by the other authors.

## 1.4 Findings

Analyses of internal and external manufacturing and business-related factors are presented first, followed by the results of the data analysis on the role of sustainability. Throughout, excerpts from the stakeholder interviews are used to illustrate key points. Later, in the discussion section, these results are aggregated and their theoretical interrelationships are used to guide the recommendations put forward.

### 1.4.1 Manufacturing and Business Themes

The central categories or themes that emerged during the coding processes are summarized in Figure 2. Themes were first ranked (denoted by the relative sizes of the circle) and then positioned in a two-dimensional space. Coding frequencies or critical points (e.g. total number of open codes<sup>ix</sup>) were used for the ranking, while the positioning was more conceptual, but aligned with the study objectives.

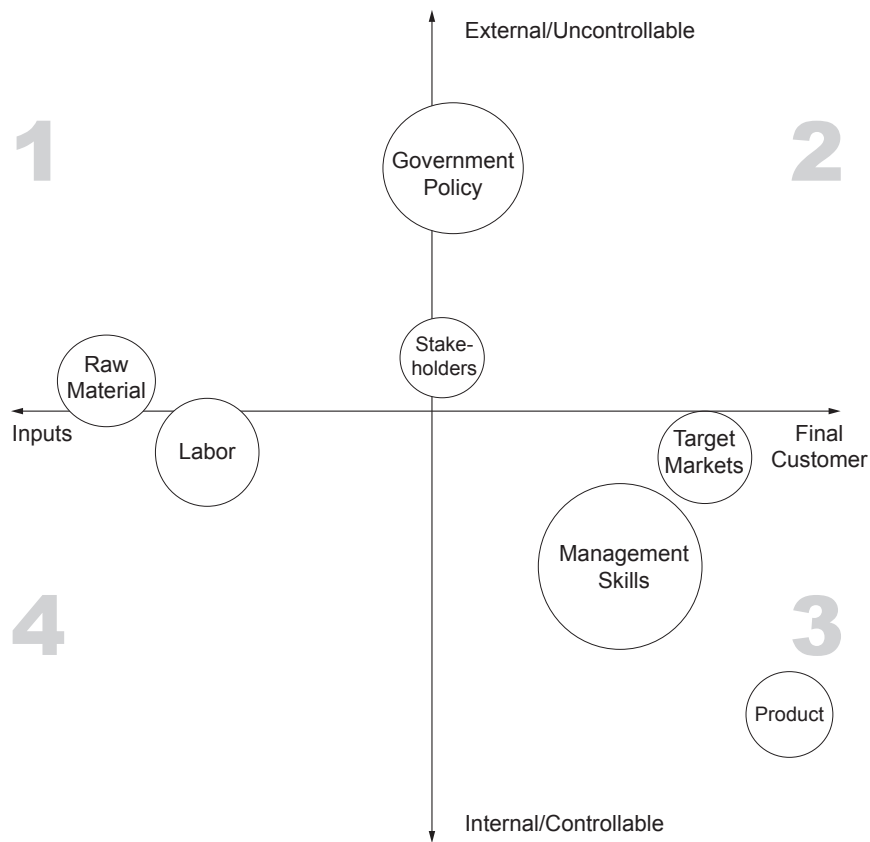


Figure 2. Ranking and placement of emergent themes along the value chain according to the degree of firm control

The horizontal dimension represents internal activities along firms' value chains. The vertical dimension represents level of control and influence that can be exerted by the firm on each of the emerged themes. For example, themes placed on quadrant 3 were considered to be: a) related to business-oriented strategies that are focused on the customer end of the value chain; and b) controllable and able to be dealt with internally. In total, seven major themes emerged from this study: 1) management skills; 2) government policies; 3) labor; 4) raw materials; 5) target markets; 6) products; and 7) stakeholders.

*Management skills* emerged as the theme with the largest number of critical points gathered from the data analysis. Issues revolving around the need for business-oriented management skills and business-focused entrepreneurship were considered to be the most critical adjustments to be made for the achievement of a more successful secondary wood products sector. Not surprisingly, this is also directly related to Brown and Blackmon's (2005) concept of strategic resonance presented earlier, where skillful management is constantly realigning manufacturing and business strategies. Many managerial

capabilities and competencies, such as organizational climate and commitment to innovativeness (Crespell & Hansen 2009), are more intangible and socially complex by nature, thus making them hard-to-copy resources (Bonsi et al., 2008). In our study, there was a belief among participants that broader business-related issues were far more important to success than manufacturing issues, and that management and entrepreneurs in BC's secondary wood industry have not yet recognized this. Some of the criticisms within different aspects of management and entrepreneurship cited by participants included, but were not limited to: a lack of business orientation; risk aversion; entrepreneurs' manufacturing-oriented backgrounds; and an inability to enter the marketplace in a meaningful way. Historical and cultural characteristics of Canadian managers and entrepreneurs have been cited as hindrances to change, innovation, and business-oriented decisions (Martin & Porter, 2000). For example, one participant stated the following:

"...Canada has a huge problem with 'cultural change'. We are a manufacturing society... which means that people are paid very good wages to work in manufacturing plants, good benefits



and all that...so how do you get a society to understand that knowledge, knowledge of the marketplace, and that a different business model is required? When all of the examples that exist are almost in conflict with them...the reality is that we have a huge population that has a very good standard of living that is not based on knowledge."

Moreover, in BC, many secondary wood products manufacturers evolved from (and with) a primary (commodity) sector mindset. The primary commodity sector has unquestionably been the driving force of BC's economy for decades, and the business of adding value to wood products in the secondary sector represents a very different paradigm. Another participant shed some light on this argument by stating that:

"There are very few companies in BC's secondary industry, in my view, that really understand the business they are in... a lot of entrepreneurs [managers] come out of the primary industry, so they come with certain historical background, training, and experience... they come with a bias to a particular model that is in conflict to what they really need to be doing. They believe that if they focus on manufacturing they can ultimately be successful. Being a good manufacturer is critical in all businesses. It is not the driver in this [secondary wood products] business."

The criticisms mentioned earlier regarding some management and entrepreneurs' lacking capabilities were exacerbated by difficulties that some firms have in accessing capital. Access to capital has often been mentioned in the literature as being a critical deterrent to the BC secondary industry's investments in manufacturing and business innovations (Stennes et al., 2005; Schultz & Gorley, 2006; DeLong et al., 2007). However, our data showed that managements' inability to take advantage of existing and available capital was perhaps a more tangible issue. Participants from leading firms cited a lack of financial expertise in management as a likely reason for why it is difficult for firms to access capital (as opposed to capital being generally unavailable). One manager noted the following:

"A lot of these guys, frankly, are not very skilled at presenting their stories to a banker; your average secondary manufacturer doesn't sell themselves very well. Typically, they pledge their assets to the point that they cannot borrow any more money from the local government or banker. They don't

know [that] they could finance due receivables, that there might be some private capital or some venture capital out there. The managing side started at the shop and wore every hat...they have to keep the company going, but you get to a certain size and you've got to start bringing in professionals. There is a lot of R&D in the industry, but most don't even understand the R&D tax credits. There is a huge hole in this industry in that regard... a lot of investors are actually interested in the manufacturing world. What you have to do is to help the manufacturers tell their story right...put together these angel [investment] forms...pitch it in a way that helps the investor."

Not surprisingly, the literature indicates that management capabilities are the key requirements for venture capital and angel investment providers (Mason & Stark, 2004; Madill et al., 2005).

*Government policy* emerged as the second most discussed theme in the data analysis. Most of the critical issues under this theme related to government policies that could bring business-related benefits and, to some extent, manufacturing benefits, to the secondary industry. This theme presents something of a conundrum as policy reform is considered key for the future success of the secondary industry according to participants and, yet, it is challenging for SMEs' management to generate a competitive advantage from it. Despite its evident importance, the uncertainty of the benefits from such policies compromises the potential for strategic resonances between manufacturing and business activities. A lingering dependency on merely adequate business-oriented policies has historically been a critical competitive disadvantage to BC's secondary wood industry when compared to other producing regions of the world (Jaakko Poyry, 2001). One informant said the following about potential business-oriented policies that could spur on current businesses and attract new skilled management and entrepreneurship:

"To create an environment of aggressive business acumen...policies [are required] in terms of developing technology, innovation, and product development costs write-offs...faster write-downs on technology so that they can try things...to get out there and be in a position to be innovative and create some competitiveness."

Synergies between the primary (commodity) and secondary industries, particularly in value chain activities,

such as distribution and access to markets, were cited by other participants and in the existing literature (Schultz & Gorley, 2006) as a potential source of advantage to the secondary sector, exemplified in the following quote by a participant:

“Provincial government, on both forestry and economic development, can be instrumental...I think that developing linkages, business linkages and operating clusters between the primary and secondary sectors will offer some opportunities. Those linkages have never been strong and there is tremendous mistrust between the two, and usually a battle over access to fiber, which seems to be pretty absurd, but it is deep-rooted.”

Government policies were also cited as having great potential to soften the historic antagonism between the commodity and secondary sectors and to facilitate strategic management decisions and entrepreneurship on other critical issues, including tax incentives and improvements to accessing raw materials and labor markets.

*Labor* was the third most discussed theme to emerge from the analysis. Critical issues under this theme specifically refer to labor as a manufacturing competence and, therefore, offers an attainable level of control for management. Access to skilled labor in BC was cited by some participants and in the literature (Stennes et al., 2005; Schultz & Gorley, 2006; DeLong et al., 2007) as being an endemic hindrance to the secondary industry and something that government policy should address. Delving further into the analysis, it seems that the BC secondary industry must compete with the commodity sector, as well as with eastern secondary industries to attract skilled labor, particularly for entry-level positions in management. Some participants noted that training and upgrading the quality of existing labor could be an alternative. Here, partnerships between firms and government through post-secondary institutions could alleviate costs for those already doing in-house training and serve as an incentive for those firms currently not upgrading to improve the knowledge of their workforce. One firm’s manager made the following point:

“The training aspect is really hurting [the industry]...there is very little of it now...we have an industry that is unwilling to pay significant portions of the training cost; it is low on their priority list. What happens...is that if you don’t subsidize it heavily...then training will not happen. I mean,

our firm is actually one of the few that will actually send people for training, but I know the vast majority never will.”

Access to skilled labor is cited as having different impacts on firms depending on the degree of value addition. The furniture segment, for instance, suffers because it requires a more skilled work force than the remanufacturing segment. Interestingly, though, the management of some successful high value-added firms in BC seems to be able to attract and train their workforce to be in line with the business strategies of their firms.

Issues categorized under the theme *raw materials* ranked fourth in the analysis. The raw materials theme shares some similarities with the labor theme, as they are the two manufacturing competencies that present the greatest challenges to management for future success according to participants and the existing literature (Cohen & Kozak, 2006). Raw materials, however, offer fewer options for management to internalize challenges. The inherent characteristics of BC’s imperfect wood fiber markets (i.e. the government owns the majority of forest resources in this province) and traditional preferences to attend to the needs of the commodity sector mean that raw materials are constantly cited as a key deterrent to virtually all segments of the secondary industry, as stated by one informant:

“All secondary manufacturers complain about the supply-side. There is a problem there for them. Our manufacturers would have to have access to good quality and competitive wood fiber prices. That would be probably step number one...”

Security of raw materials for BC’s firms is almost entirely external to their value chains. Upon further analysis, and despite variation among participants, some opinions and examples from successful firms indicate a paradigm change occurring in the raw materials market. One participant punctually stated that:

“[The] secondary industry is about market focus and, if your focus is getting wood, then you are looking in the wrong direction.”

A business consultant added:

“Access to a new wood fiber basket that is international, not just local. I don’t think the local supply of wood is the biggest advantage to the secondary industry. I think that technology and design and business expertise to develop brand products is where the opportunities are.”

Two successful firms in the higher end of value-addition observed that they have either diversified to international wood suppliers and/or secured long-term contracts with local wood suppliers that tend to their specific demands. The last point is a good illustration of Brown and Blackmon's (2005) concept of strategic resonance. In these cases, managers aligned manufacturing with their business strategies and were able to internalize the challenges posed by raw material unavailability.

The theme *target markets* appeared next and comprised critical issues about having a business strategy in place that reaches both local and international markets. Analysis showed that most of the challenges of having such a business strategy when it comes to target markets could be dealt with internally by management. The participation of other stakeholders (i.e. industry associations) and even government were cited as possibly having a role in assisting firms to find newer markets. However, upon further review of the data from the more successful firms, target markets can also be considered a controllable part of firms' value chains. For example, some successful firms find newer markets by experimenting with customer-orientation and market-focused strategies in local markets. Then, when they find themselves higher up on the learning curve, they take a risk and venture out more internationally. When asked to describe what a successful model for operating in BC's secondary industry in the future would be, one interviewee recounted:

"Large components on export...so you are competing into high-end product lines, high-end niche markets, where you can get a decent margin to offset high costs and small markets for operating in BC."

Another marketing specialist made the following comment when asked a similar question:

"Manufacturers have to pay attention to what is needed in the market, to be more innovative, and to see how society is changing...they have to be more market savvy."

*Products* is a theme that emerged with a collection of critical issues mainly involving, but not limited to, product innovation, development, and design. Product development and customization are cited in the literature as part of business strategies and, therefore, a dimension of competitiveness (Corbett & Van Wassenhove, 1993; Tollin, 2002). Product development is also closely related

to the theme of management skills discussed previously. Our data suggest that successful product development programs of the future will be advanced in an almost diametrically opposed direction compared to today's model. That is, future products will be designed and produced only after a specific target market has been found, researched, and market-tested (and not the other way around, or worse, haphazardly). The manufacturing competencies necessary to generate new products will be set up accordingly. Here, once again, management of strategic resonance will be fundamental to aligning business strategies, focusing on specific markets, and using appropriate manufacturing strategies for getting the new products to markets. Participants also stated that a lack of design and a disconnection with designers were two crucial issues that needed to be resolved and that paradigm changes in product development would be required for the future secondary industry. As one product development consultant commented:

"Designers are trained to look at and to really understand the users. I don't think that our manufacturers take that whole product development process. I think that they are little bit more superficial. They look at their competitor's catalogue and say, 'these products are selling well, we will make something like that'...they just simply knock it off, doing something very similar without really being original."

A manager of a forward-thinking firm (according to participants) shed some light on this topic with the following remark:

"We operate on a higher end and customized product [market]...that people are willing to pay a premium for. That is where I see the future of BC. I mean, those companies that are making commodity products of any kind...taking low grade [wood] from the primary [industry] and upgrading it...pretty tough...the margins are awfully tight...I don't hold much hope for the secondary side in the commodities business."

*Stakeholders* was the next theme to emerge following target markets and products. In this study, critical points under the theme stakeholders specifically related to the role of industry associations and research and development (R&D) institutions. As mentioned earlier, SMEs may have an advantage over larger companies when it comes to linking operations with management.

SMEs usually have only one or a few people in charge of these sorts of activities. On the other hand, many activities related to business strategies (e.g. developing target markets) are likely understaffed, underperformed, or even nonexistent. A successful small business owner spoke to this issue:

“My focus is to keep the company going day after day. I don’t have the opportunity to think about what I can do globally when I am so focused on what I should be doing locally to keep everybody busy and going forward...I want to grow the company for the future, [but] I have to think of it in smaller increments...the bulk of the people in small businesses in BC are not going to think of it globally and they will be tied up in their own problems.”

In this context, stakeholders were cited as potentially having a key role in advancing the strategic business agendas of secondary wood products SMEs. Results show that the secondary wood sector in BC is closer to industry associations and research institutions than to the provincial and federal governments. Industry associations are, in fact, said to play a mediating role between the secondary industry and policy makers in the government. Participants agreed that BC’s secondary industry associations and R&D institutions are on the right track in supporting all levels of manufacturing and business activities of firms. They also agree, nonetheless, that the supporting role of associations and institutions has to reach a higher level, particularly on business strategy fronts. Examples of suggested roles emerging from the data included: identifying firms with the highest potential and progressive business strategies; encouraging these firms to cluster, exchange expertise, and jointly pitch proposals and ideas; helping these firms to develop target markets and products; and helping to foster and showcase a role-model type of business that other firms and new entrants could emulate.

#### 1.4.2 Sustainability

This study also gathered information regarding perceptions of sustainability and the potential impacts of considering these sorts of issues on SMEs operating in BC’s secondary wood industry. When asked whether or not there was a business case to incorporate sustainability issues into SMEs’ strategies, participants responded favorably. A similar pattern was observed when participants were asked whether or not there existed a relationship

between sustainable business practices and long-term competitiveness. Three major themes emerged as having the greatest potential for BC’s secondary industry. The first two themes revolved around the idea of “green” promotion; that is, the promotion of the “greenness” or “environmental friendliness” of the *industry* itself and its *products*. The third theme reflected firms’ *value chains* as being a potential driver to SMEs’ (environmental) sustainability and competitiveness. The following passage exemplifies these opinions:

“I think if they [the secondary industry] do not look at it [sustainability], their survival is in peril. Fundamentally, I do not believe that you can conduct business in today’s world without being cognizant of the question of sustainability or environmental friendliness. I think it really comes down to the recognition that we are in an evolving [market] that does not change direction instantaneously.”

Another participant added:

“It is a very long and complex process to start greening manufacturing. It changes every day. As there is new information, what was really environmental yesterday, today is an environmental nightmare. It is an ongoing thing and it is complicated...I would definitely say that every manufacturer today should start stepping toward that. I think it is a challenge, but I think it is a necessity. I don’t think you are to be in business in five years if you are not moving in that direction.”

Table 2 illustrates many of the major points made regarding promoting the “greenness” of the industry and its products, and the importance of firms’ value chains on SMEs’ environmental sustainability.

## 1.5 Discussion and Conclusions

This study examined many of the aspects that a successful secondary wood products sector in BC will have to consider in order to ensure future success, and leads to a number of recommendations for doing so. Recommendations were grounded upon the relationships that emerged within and between concepts and categories recorded during the coding processes. While themes were presented in the findings section based on a conceptual ordering, in this section, themes (and the consequent recommendations) are conveyed in a more logical, explanatory manner (see Figure 3). Specifically,



management skills to further develop business competencies are seen to have the most influence on firms' future strategies. The role of external agents, such as government policy makers, industry associations, and R&D institutions, are also seen as vital for advancing these competencies. Finally, the importance of incorporating environmental sustainability into business strategies is also discussed.

Manufacturing competencies have steadily improved in BC during the past decades with great advances in R&D, particularly in processing technologies. Such advancements were diffused throughout the commodity and secondary industries. Nevertheless, with limited or non-existent customer-oriented business strategies, several segments in the secondary industry were caught unprepared to compete against new entrants in an increasingly global business environment.

As can be seen from the third quadrant in Figure 2, advancements in the quality of business-related factors will be imperative for the future of BC's secondary industry. For such business-related strategies to evolve requires

both management skills and progressively-minded entrepreneurs. The model for a successful secondary firm in the future is one of customer-orientation. Proximity, availability, and quality of fiber will not be enough to ensure advantage. A successful model will be one that attracts talent by favorable business-related policies and incentives to open and operate businesses in BC. In other words, it would need to be like any other high-end, highly technological, and knowledge-based business, with the exception that it happens to use wood as a raw material<sup>x</sup>. The few existing value-oriented secondary wood manufacturers that currently exist in BC epitomize Brown and Blackmon's (2005) strategic resonance concept; that is, managers in successful firms are able to identify their target markets and tailor their manufacturing competencies accordingly. In the process, these managers are also able to internalize some of the traditional uncontrollable factors hindering business and manufacturing activities (e.g. business-oriented policies, resource-market supplies) and to integrate megatrends (e.g. sustainability) into strategy. Conversely, ordinary firms generally excel

**Table 2. Themes relating sustainability and business strategies**

Industry "greenness"	Product "greenness"	Value chain impacts
"We need a strong association like [existing association] to lobby not only governments, but the world on our behalf. Unfortunately, it is made up of small business and those people don't support it as much as they should, because they don't understand the benefit of it. We are thinking too small." – <i>business owner</i> .	"I think that we need to focus on niche markets and not on the mass consumer products anymore... there is still room for niche products, higher-end, specialty markets, ultra-contemporary, or children's furniture, or eco-certified furniture. There is a growing market for products that are stamp certified." – <i>designer</i> .	"We are seeing a major influence on the value chain. Architects have a real strong desire to get the LEED* points. So we have been urging our new supplier to get FSC** certified. I mean, there is no other way and we understand that they are going to proceed with that." – <i>operations and management executive</i> .
"There is absolutely no way that the industry, particularly the solid wood sector, does not meet the criteria of renewability...a lighter footprint. So, you are in a privileged position." – <i>business and R&amp;D consultant</i> .	"We have to do it with the green bandwagon. The North Americans are not going to pay for it, but the rest of the world is. We sell nothing but formaldehyde-free, green products to Japan.... So we can be on the leading edge today. We have to make sure that we are starting right now and then we can lead the rest of the world with formaldehyde-free green products." – <i>business owner</i> .	"The green building...it's taken off, it's going ballistic and if we don't get on the bandwagon... In two years' time, 50 percent of the [product] we provide will be FSC certified. We just finished putting a biomass heater and we will make sure that the glues we use are as environmentally friendly as they possibly can." – <i>operations and management executive</i> .
"Is there a secondary industry infrastructure initiative that is supporting value-added products from a green sustainable perspective? There isn't one that I know of. Can you do it as an individual company? Individual branding? Possibly, if you are big enough." – <i>business consultant</i> .	"I think it is a huge opportunity to effectively promote secondary wood products along the lines of green sustainability compared to the alternatives that are out there. It's green wood products compared to other alternative products in the same value-added category, whether it is furniture or finishings or accessories or whatever." – <i>business and R&amp;D consultant</i> .	"There is a business case [to incorporate sustainability initiatives into SMEs' strategies], but we have to go slowly with it...the smaller people like me...will not do it as readily as the big guys who have the dollars sitting with them." – <i>business owner</i>
	"You happen to have a product that fits most of the [renewability] criteria, you got to go with it. It may not be your prime feature, but it is one of the features, because as time goes by, it will become increasingly important and you need to practice for it when it is not as important." – <i>R&amp;D specialist</i> .	

\* Leadership in Energy and Environmental Design, a third-party green building certification system.

\*\* Forest Stewardship Council, a third-party forest and chain of custody certification scheme.

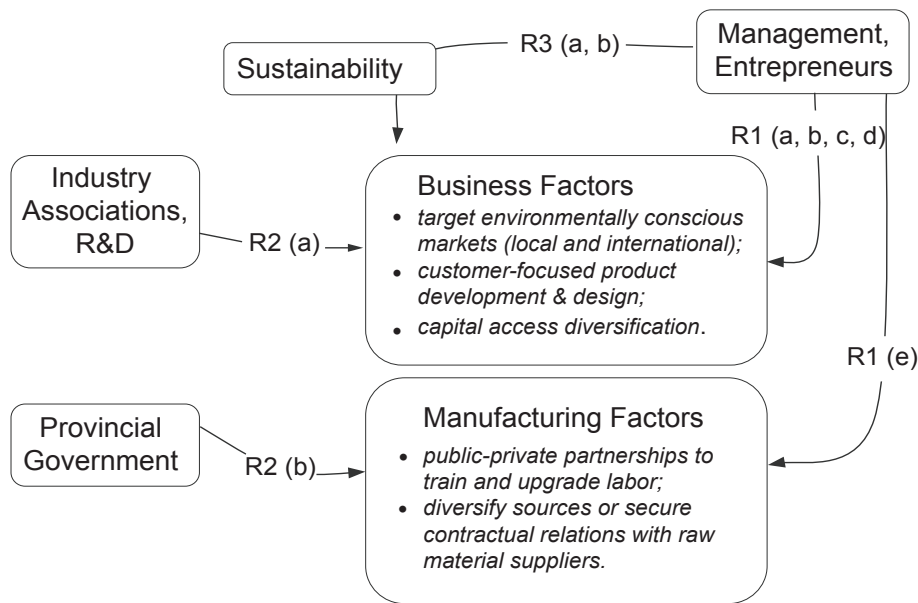


Figure 3. Conceptual framework representing the study's recommendations

at the wrong things, either by chasing after markets in which they cannot compete, by developing and maintaining products that are unwanted or uncompetitive in the marketplace, or by responding to megatrends in tactical, as opposed to strategic, ways. These considerations lead to the first set of study recommendations for BC's secondary wood industry. There is a need for current and new entrants to expand on managerial and entrepreneurial skills that are more business-oriented, as opposed to manufacturing-oriented. It is recommended that managers and entrepreneurs be able to:

- R1a. develop product bundles that are compatible with their target markets by offering higher levels of customization and diversity;**
- R1b. offset high costs of developing and maintaining the supply of a skilled workforce with higher returns from more business-oriented, customer-focused strategies;**
- R1c. learn from local markets and then expand into more demanding and profitable national and international markets;**
- R1d. diversify access to capital and showcase their businesses to a host of investor types;**
- R1e. diversify raw material markets or secure contractual relations with local suppliers.**

In the BC secondary wood products industry, SME management generally seems to be overly engaged

in addressing daily activities, and even the most entrepreneurial need help with advancing their business strategies. For existing firms, governments and especially industry associations will need to play a bigger role in helping SMEs to consider and venture into export markets. Successful cases could potentially then encourage others to follow suit. For new entrants, tax reliefs and incentives in the capital market would likely be a valid option to attract and retain entrepreneurial talent.

BC's government<sup>xi</sup> must still acknowledge the stronger political and economic influence of the commodity industry and the fact that the commodity sector is rooted in tradition and has a more entrenched culture. For example, during data collection, eventual discussions about the competitive advantage of BC's commodity sector were commonly about the large and unorthodox role of government. These facts, coupled with BC's generally undeveloped business conditions for secondary industries, are likely why the theme government policy ranked second in the analysis (Figure 2, quadrant 2). Structurally, the secondary wood industry has greater potential to be less dependent on the government. It follows then that the second set of recommendations for external stakeholders would be that:

- R2a. industry associations and R&D institutions focus on improving business strategies of SMEs by helping in the development of target markets, products, and collaborative strategies;**

***R2b. governments should be proactive and instrumental in removing barriers to skilled labor by offering public-private partnerships in training and upgrading labor.***

With regards to sustainability, there seems to be a tendency in the industry and among other stakeholders – including the participants of this study – to treat environmental issues as a proxy for sustainability, a much more encompassing term. Even in the literature, quantitative and qualitative studies on the environmental sustainability of SMEs are common (Talbot et al., 2001). Some of these studies have shown positive relationships between environmental sustainability and SME performance (Lefebvre et al., 2003; Rao & Holt, 2005; Roy & Thérin, 2007), while others have not (Clement & Hansen, 2002; Hitchens et al., 2003).

At a point in time where environmental sustainability will likely need to be addressed by most industrial sectors, the wood products industries may be at an advantageous position as far as environmental footprints are concerned. Due to the natural and renewable characteristics of wood as a raw material and advances in manufacturing technologies, secondary wood industries and their products are oftentimes perceived as being ahead of substitutes on the environmental sustainability agenda. In BC, however, these advantages have yet to be capitalized upon. Concepts, such as “green buildings” and “healthy housing,” should be the major drivers for a variety of secondary wood products companies (from low- to high-value-added) to incorporate environmental sustainability into their strategies. Although some SMEs may be able to tackle sustainability issues in the marketplace on their own, it makes sense for many to engage as part of value chains of larger companies selling to more environmentally conscious (niche) markets. The final recommendation states that environmental sustainability should be incorporated into firms’ business strategies, which in turn, could help firms to:

***R3a. promote the comparative advantage of wood products and wood industries against competing substitutes;***

***R3b. focus on more demanding and environmentally conscious target markets, both locally and abroad.***

One successful firm in this study exemplifies the benefits of targeting the right markets by selling to both environmentally conscious and “regular” markets locally and abroad. This, according to the owner, helps in eco-

nomics downturns, where premiums for environmentally friendly products may diminish over time.

The existing literature indicates that the secondary wood industry in BC is smaller and lags behind other competing regions in terms of value-creation (Jaakko Poyry, 2001; Wilson et al., 2001; Kozak & Maness, 2001; DeLong et al., 2007). These studies also point to the fact that the industry has faced constant challenges in accessing basic inputs, like raw materials and labor. Access to these inputs was also found in this study to still be a hindrance for most firms. However, results from this study suggest that management and entrepreneurship are likely more critical factors. This is confirmed by examples of existing successful firms and their ability to overcome most of these challenges by aligning manufacturing competencies with their business strategies. Management of these forward-thinking firms has also recognized the role of sustainability issues to their firms’ future strategies. As such, this study suggests that sustainability should be incorporated into firms’ core business strategies in the future.

Ultimately, and as a contribution to the existing body of knowledge, this study indicates that the ability to attract forward-thinking and entrepreneurial managerial capacity is perhaps the most critical factor for the future of BC’s secondary wood industry. Skillful management is required to increase firms’ competitiveness with strategic thinking that internalizes external obstacles and integrates issues of sustainability.

### ***1.5.1 Future Research***

Results from this study can be used as an entry point for the development of more formal theories that could expand the framework put forth for the studied industry into a more generalizable scheme. The emergent themes and their respective interrelationships may also serve as the basis for more quantitative types of research aimed at validating the interrelationships observed in this study. For example, if management skills are pivotal for the future success of this industry, research assessing the industry’s attractiveness (or the lack thereof) for undergraduate and graduate business management students ought to be undertaken. Moreover, the province’s extant sectoral innovation institutions, such as R&D institutions and universities, could play a greater role by transferring not only manufacturing and operations competencies, but also business-oriented ones. In this vein, future research could also include the efficacy

of business-oriented knowledge (if any) that is being mobilized into the management of existing firms.

### 1.5.2 Study Limitations

Data used in this study was part of a larger research project that was carried out in 2008 and 2009. Although BC's secondary wood products sector remains largely unchanged since then, implying that the aforementioned themes are current, contextual circumstances related to industrial, fiscal, and trade policies, as well as the global economic backdrop at the time of the study may have influenced the data from fieldwork. The research processes used in this study aimed at developing a conceptual framework that reflects the opinions of a specific group. As such, it is intended to explain phenomena of this specific population (e.g. BC's secondary wood products industry) and is, therefore, limited as far as inferences beyond the study context are concerned. The final sample contained a limited number of managers or owners representing the industry. Although interviewees referred to these participants as "successful cases" during the snowballing sampling process, the sample size was limited and additional research on this topic would benefit from a larger number of participants. In addition, opinions from participants in the earlier stages of the data collection influence the selection of which firms best represent successful cases in the industry<sup>xii</sup>.

## 1.6 References

- Adams, C., Frost, G., and Webber, W. (2004). "Triple bottom line: a review of the literature" in Henriques, A. and Richardson, J. (Eds). *The triple bottom line, does it all add up? assessing the sustainability of business and CSR*. London; Sterling, VA.
- Amoako-Gyampah, K., and Acquah, M. (2008). "Manufacturing strategy, competitive strategy and firm performance: An empirical study in a developing economy environment" *International Journal of Production Economics*, Vol. 111, No. 2, pp. 575-592.
- Bansal, P., and Roth, K. (2000). "Why companies go green: A model of ecological responsiveness" *Academy of Management Journal*, Vol. 43, No. 4, pp. 717.
- Bazeley, P. (2007). *Qualitative data analysis with NVivo* (2nd ed.). Los Angeles: Sage.
- Bell, J., Crick, D., and Young, S. (2004). "Small firm internationalization and business strategy: an exploratory study of 'knowledge-intensive' and 'traditional' manufacturing firms in the UK" *International Small Business Journal*, Vol. 22, No. 1, pp. 23-56.
- Bonsi, R., Gnyawali, D. R., and Hammett, A. L. (2008). "Achieving sustained competitive advantage in the forest products firm: The importance of the resource-based view". *Journal of Forest Products Business Research*, 5(3). 1-14.
- Brown, S., and Blackmon, K. (2005). "Aligning manufacturing strategy and business-level competitive strategy in new competitive environments: the case for strategic resonance" *Journal of Management Studies*, Vol. 42, No. 4, pp. 793-815.
- Buehlmann, U., and Schuler, A. (2013). Markets and market forces for secondary wood products. *The global forest sector: changes, practices, and prospects*. New York (NY): Taylor & Francis, 77-98.
- Carroll, A. (1999). "Corporate social responsibility: evolution of a definitional construct" *Business and Society*, Vol. 38 No. 3, pp. 268.
- Carter, C. R., and Dresner, M. (2001). "Purchasing's role in environmental management: cross-functional development of grounded theory" *Journal of Supply Chain Management*, Vol. 37, No. 3, pp. 12.
- Chang, S., Yang, C., Cheng, H., and Sheu, C. (2003). "Manufacturing flexibility and business strategy: an empirical study of small and medium sized firms" *International Journal of Production Economics*, Vol. 83, No. 1, pp.13-26.
- Chen, I.J. and Paulraj, A. (2004). "Towards a theory of supply chain management: the constructs and measurements" *Journal of Operations Management*, Vol. 22, No. 2, pp.119-50.
- Clement, K., and Hansen, M. (2002). "Environmental incentives for Nordic SMEs" *Nordregio Report*, Vol. 7, pp. 91.
- Cohen, D.H., and R. Kozak. (2006). "Mapping the value chain of SMEs in the forest products industry" Environment Canada and the Canadian Forest Service, Ottawa, Ontario.
- Corbett, C., and Van Wassenhove, L. (1993). "Trade-offs? What trade-offs? Competence and competitiveness in manufacturing strategy" *California Management Review*, Vol. 35 No. 4, pp. 107-122.
- Crespell, P., and Hansen, E., (2009). "Antecedents to innovativeness in the forest products industry". *Journal of Forest Products Business Research*. Vol. 6 No. 1. 19 pgs.
- DeLong, D. L., Kozak, R. A., and Cohen, D. H. (2007). "Overview of the Canadian value-added wood products sector and the competitive factors that contribute to its success" *Canadian Journal of Forest Research*, Vol. 37 No. 11, pp. 2211-2226.
- Drejer, A. (2002). Strategic management and core competencies: theory and applications, Westport, CT, pp. 264.
- Elkington, J. (1994). "Towards the sustainable corporation: win-win-win business strategies for sustainable development" *California Management Review*, Vol. 36 No. 9, pp. 90-100.
- Flick, U. (1992). "Triangulation revisited: strategy of validation or alternative?" *Journal for the Theory of Social Behavior*, 22(2): 175-197.
- Flick, U. (2006). *An introduction to qualitative research* (3rd ed.). London England; Thousand Oaks, Calif.: Sage, pp. 448.
- Gilchrist, V. J. and Williams, R. L. (1999). "Key informant interviews" in Crabtree, B. F. and Miller, W. L. (Eds.). *Doing qualitative research* (2nd ed). Thousand Oaks, Calif.: Sage Publications, p. 71.
- Goldhar, J. D., and Jelinek, M. (1983). "Plan for economies of scope. *Harvard Business Review*, Vol. 61 No. 6, pp. 141-148.
- Grant, R. M. (1991). "The resource-based theory of competitive advantage: implications for strategy formulation" *California Management Review*, Vol. 33, No. 3, pp. 114.
- Harris, D. L. and Twomey, D. F. (2010). "The enterprise perspective: a new mind-set for competitiveness and sustainability" *Competitiveness Review*, Vol. 20 No. 3, pp. 258-266.
- Hart, C.W.L. (1995). "Mass customization: conceptual underpinnings, opportunities and limits" *International Journal of Service Industry Management*, Vol. 6 No. 2, pp. 36.
- Hart, S.L. (1995). "A natural-resource-based view of the firm" *Academy of Management Review*, Vol. 20, No. 4, pp. 986-1014.



- Hayes, R. H., and Wheelwright, S. C. (1984). *Restoring our competitive edge: competing through manufacturing*, New York: Wiley, pp. 440.
- Hesterly, W., and Barney, J. B. (2015). *Strategic management and competitive advantage concepts and cases*. Pearson Higher Ed.
- Hill, T. J. (1980). "Manufacturing implications in determining corporate policy" *International Journal of Operations and Production Management*, Vol. 1 No. 1, pp. 3–11.
- Hitchens, D., Clausen, J., Trainor, M., Keil, M., and Thankappan, S. (2003). "Competitiveness, environmental performance and management of SMEs. *Greener Management International*, Vol. 44, pp. 45–57.
- Hunt, S. D. and Lambe, C. J. (2000). "Marketing's contribution to business strategy: market orientation, relationship marketing and resource-advantage theory" *International Journal of Management Reviews*, Vol. 2 No. 1, pp. 17–43.
- Husso, M., and Nybakk, E. (2010). Importance of internal and external factors when adapting to environmental changes in SME sawmills in Norway and Finland: The manager's view. *Journal of Forest Products Business Research*, Vol. 7 No. 1, pp. 14.
- IMD (2005). "Competitiveness of Nations: The fundamentals". World competitiveness yearbook 2005. Institute for Management Development, World Competitiveness Center, Lausanne, Switzerland.
- Jaakko Pöyry (2001). Assessment of the status and future opportunities of Ontario's solid wood value-added sector. *New York, USA: Jaakko Pöyry*.
- Kanji, G. K. (1990). "Total quality management" *Total Quality Management*, Vol. 1 No. 1, pp. 3–12.
- Kolk, A. and Mauser, A. (2002). "The evolution of environmental management: from stage models to performance evaluation" *Business Strategy and the Environment*, Vol. 11 No. 1, pp. 14–31.
- Kozak, R. A., and Maness, T. C. (2001). "Quality assurance for value-added wood producers in British Columbia" *Forest Products Journal*, Vol. 51 No. 6, pp. 47.
- Kozak, R. A., Maness, T. C., and Caldecott, T. (2003). "Solid wood supply impediments for secondary wood producers in British Columbia" *The Forestry Chronicle*, Vol. 79 No. 6, pp. 1107.
- Kozak, R.A. (2005). "Research and resource dependent communities: a world of possibilities" *BC Journal of Ecosystems and Management*, Vol. 6 No. 2, pp. 55–62.
- Kozak, R.A. (2007). "Value-added wood products from British Columbia – getting beyond the rhetoric" *BC Forest Professional*, Vol. 14 No. 1, pp. 12–13.
- Kuzel, A. J. (1999). "Sampling in qualitative inquiry" In Crabtree, B. F. and Miller, W. L. (Eds.). *Doing qualitative research* (2nd ed.). Thousand Oaks, Calif.: Sage Publications, pp. 31.
- Lefebvre, E., Lefebvre, L. A., and Talbot, S. (2003). "Determinants and impacts of environmental performance in SMEs" *R&D Management*, Vol. 33 No. 3, 263–283.
- Lubin, D. A., and Esty, D. C. (2010). "The sustainability imperative". *Harvard Business Review*, Vol. 88, No. 2, pp. 42–50.
- McCracken, G. (1988). *The long interview* (Vol. 13). Sage.
- Madill, J. J., Haines Jr., G. H., and Rlding, A. L. (2005). "The role of angels in technology SMEs: a link to venture capital" *Venture Capital*, Vol. 7 No. 2, pp. 107–129.
- Martin, R. L., and Porter, M. E. (2000). "Canadian competitiveness: nine years after the crossroads" Centre for the Study of Living Standards (CSLS). Proceedings of the Conference on the Canada-U.S. Manufacturing Productivity Gap, Ottawa, Ontario, pp. 31.
- Mason, C., and Stark, M. (2004). "What do investors look for in a business plan? A comparison of the investment criteria of bankers, venture capitalists and business angels" *International Small Business Journal*, Vol. 22 No. 3, pp. 227–248.
- Mathews, P. (2006). "The role of mentoring in promoting organizational competitiveness" *Competitiveness Review*, Vol. 16 No. 2, pp. 158.
- Merken, H. (2004). "Selection procedures, sampling, case construction" In Flick, U., von Kardorff, E., Steinke I. and Jenner, B. (Eds.). *A companion to qualitative research*, London; Thousand Oaks, Calif.: Sage, pp. 165.
- Miles, M. B., and Huberman, A. M. (1994). *Qualitative data analysis: an expanded sourcebook* (2nd ed.). Thousand Oaks: Sage, pp. 352.
- Miles, M. P., and Covin, J. G. (2000). "Environmental marketing: A source of reputational, competitive, and financial advantage" *Journal of Business Ethics*, Vol. 23 No.3, pp. 299.
- Miles, R. E., and Snow, C. C. (1994). *Fit, failure, and the hall of fame: how companies succeed or fail*, New York; Toronto; Free Press, pp. 215.
- Miller, D. (1992). "Environmental fit versus internal fit" *Organization Science*, Vol. 3 No. 2, pp. 159–178.
- Nemetz, P. L., and Fry, L. W. (1988). "Flexible manufacturing organizations: implications for strategy formulation and organization design" *Academy of Management Review*, Vol. 13 No 4, pp. 627–639.
- Paiva, E. L., Roth, A. V., and Fensterseifer, J. E. (2008). "Organizational knowledge and the manufacturing strategy process: a resource-based view analysis" *Journal of Operations Management*, Vol. 26 No. 1, pp. 115–132.
- Pine, B. J. (1993). "Making mass customization happen: strategies for the new competitive realities" *Planning Review*, Vol. 21 No. 5, pp. 23.
- Porter, M. E. (1980). "Competitive strategy: techniques for analyzing industries and competitors" New York London: Free Press; Collier Macmillan.
- Porter, M. E. (1985). "Competitive advantage: creating and sustaining superior performance" New York London: Free Press; Collier Macmillan.
- Robinson, J. (2004). "Squaring the circle? Some thoughts on the idea of sustainable development." *Ecological Economics*, 48(4): 369–384.
- Robinson, J. and Tinker, J. (1997). "Reconciling ecological, economic, and social imperatives: a new conceptual framework" In Schrecker, T. (ed.). *Surviving Globalism: Social and Environmental Dimensions*, Macmillan, St. Martin's Press, London, New York, pp. 71–94.
- Rao, P., and Holt, D. (2005). "Do green supply chains lead to competitiveness and economic performance?" *International Journal of Operations and Production Management*, Vol. 25 No. 9/10, pp. 898.
- Roy, M-J., and Therin, F. (2007). "Knowledge acquisition and environmental commitment in SMEs" *Corporate Social Responsibility and Environmental Management*, Vol. 15 No. 5, pp. 249–259.
- Savitz, A and Weber, K. (2006). *The triple bottom line: how today's best-run companies are achieving economic, social and environmental success*, San Francisco, CA: John Wiley and Sons, pp. 320.
- Schonberger, R. J. (1982a). "Some observations on the advantages and implementation issues of just-in-time production systems" *Journal of Operations Management*, Vol. 3 No. 1, pp. 1–11.
- Schonberger, R. J. (1982b). "The transfer of Japanese manufactur-

- ing management approaches to U.S. industry" *Academy of Management Review*, Vol. 7 No. 3, pp. 479-487.
- Schuetze, H. G. (2005). "Wood in the west: a study of innovation and clustering in the secondary wood industry in three western provinces (B.C. Alberta, and Manitoba)" Centre for Policy Studies in Higher Education and Training (CHET). University of British Columbia, unpublished.
- Schultz, R. and Gorley, A. (2006). "What is a value added forest sector? Why is it important to competitiveness in British Columbia?" BC Forum on Forest Economics and Policy, Synthesis paper: SP 05-01, available at: [http://conservation-economics.com/pdf\\_pubs/synth\\_paper/SP0501\\_Defining\\_Value\\_Added.pdf](http://conservation-economics.com/pdf_pubs/synth_paper/SP0501_Defining_Value_Added.pdf) (accessed 2 November 2007).
- Schultz, R., Kozak, R., Merkel, G., Sunderman, R., and Thrower, J. (2013). "Growing the BC interior value-added wood sector," The Southern Interior Beetle Action Coalition. Available at: <http://www.sibacs.com/wp-content/uploads/2013/08/SIBAC-Value-Added-Report-Summary-Report-Final-June-27-2013.pdf>
- Shapiro, C. (1989). "The theory of business strategy" *RAND Journal of Economics*, Vol. 20, No. 1, 125-137.
- Sharma, S., and Henriques, I. (2005). "Stakeholder influences on sustainability practices in the Canadian forest products industry" *Strategic Management Journal*, Vol. 26 No. 2, pp. 159-180.
- Skinner, W. (1969). "Manufacturing – missing link in corporate strategy. *Harvard Business Review*, Vol. 47 No. 3, pp. 136-145.
- Skinner, W. (1974). "The focused factory" *Harvard Business Review*, Vol. 52 No. 3, pp. 113-121.
- Skinner, W. (1985). "The taming of lions: how manufacturing leadership evolved 1780 – 1984" In Clark, K. B., Hayes, R. H. and Lorenz, C. (Eds.). *The uneasy alliance: managing the productivity-technology dilemma*. Boston, Mass.: Harvard Business School Press, pp. 63.
- Stendahl, M., A. Roos, and M. Hugosson. (2007). "Product development in the Swedish and Finnish sawmilling industry – a qualitative study of managerial perceptions" *Journal of Forest Products Business Research*, Vol. 4 No. 4, pp. 24.
- Stennes, B., Wilson, B., and Wang, S. (2005). "Growth of secondary wood manufacturing in British Columbia, Canada. *Forest Products Journal*, Vol. 55 No 7/8, pp. 22.
- Stratis. (2007). "Canadian industry statistics" available at: <http://www.ic.gc.ca> (accessed 11 February 2007).
- Strauss, A. L. (1987). "Qualitative analysis for social scientists" Cambridge; New York: Cambridge University Press, pp. 336.
- Strauss, A. L. and Corbin, J. (1998). "Basics of qualitative research: techniques and procedures for developing grounded theory" London: Sage, pp. 336.
- Sun, H., and Hong, C. (2002). "The alignment between manufacturing and business strategies: its influence on business performance" *Technovation*, Vol. 22 No. 11, pp. 699-705.
- Swamidass, P. M. and Newell, W. T. (1987). "Manufacturing strategy, environment uncertainty and performance: a path analytical model" *Management Science*, Vol. 33, No. 4, pp. 509-24.
- Talbot, S., Lefebvre, E., Lefebvre, L. A., and Bourgault, M. (2001). "Environmental performance and managerial involvement in SMEs: some empirical evidence" in *Change management and the new industrial revolution, 2001, IEMC '01 proceedings*, pp. 260-265.
- Teece, D. (1998). "Capturing value from knowledge assets: the new economy, markets for know-how, and intangible assets" *California Management Review*, Vol. 40, No.3, pp. 55-79.
- Teece, D., Pisano, G. and Shuen, A. (1997). "Dynamic capabilities and strategic management" *Strategic Management Journal*, Vol. 18, No. 7, pp. 509-533.
- Tesch, R. (1990). *Qualitative research: analysis types and software tools*. New York: Falmer Press, pp. 344.
- Thorpe, J., and Prakash-Mani, K. (2003). "Developing value" *Greener Management International*, Vol. 44, pp. 17-32.
- Tollin, K. (2002). "Customization as a business strategy: a barrier to customer integration in product development?" *Total Quality Management*, Vol. 13 No. 4, pp. 427-439.
- von Geibler, J., Liedtke, C., Wallbaum, H., and Schaller, S. (2006). "Accounting for the social dimension of sustainability: experiences from the biotechnology industry". *Business Strategy and the Environment*, Vol. 15 No. 5, pp. 334-346.
- van Marrewijk, M. and Werre, M. (2003). "Multiple levels of corporate sustainability" *Journal of Business Ethics*, Vol. 44 No. 2/3, pp. 107-119.
- Wagner, M., and Schaltegger, S. (2003). "How does sustainability performance relate to business competitiveness?" *Greener Management International*, Vol. 44, pp. 5-16.
- Ward, P. T., and Duray, R. (2000). "Manufacturing strategy in context: environment, competitive strategy and manufacturing strategy" *Journal of Operations Management*, Vol. 18, No. 2, pp. 123-138.
- Ward, P. T., Bickford, D. J., and Leong, G. K. (1996). Configurations of manufacturing strategy, business strategy, environment and structure. *Journal of Management*, Vol. 22, No. 4, pp. 597-626.
- Ward, P. T., McCreery, J. K., and Anand, G. (2007). "Business strategies and manufacturing decisions" *International Journal of Operations and Production Management*, Vol. 27 No. 9, pp. 951.
- Warnecke, H. J., and Hüser, M. (1995). "Lean production" *International Journal of Production Economics*, Vol. 41 No. 1, pp. 37-43.
- Weiss, R. (1994). *Learning from strangers. The art and method of qualitative interview studies*. New York: The Free Press.
- Weller, S. C., and Romney, A. K. (1988). *Systematic data collection*, Newbury Park, Calif.: Sage Publications, pp. 96.
- Wheelen, T. L. and Hunger, J. D. (1983). *Strategic management and business policy*, Reading, Mass.: Addison-Wesley Pub. Co.
- Williams, F. P., D'Souza, D. E., Rosenfeldt, M. E., and Kassaei, M. (1995). "Manufacturing strategy, business strategy and firm performance in a mature industry" *Journal of Operations Management*, Vol. 13 No.1, pp. 19-33.
- Wilson, B., Stennes, B., Wang, S., and Wilson, L. (2001). "Secondary manufacturing in British Columbia: Structure, significance and trends" *The Forestry Chronicle*, Vol. 77 No. 2, pp. 301-308.
- Youndt, M. A., Snell, S. A., Dean, J., James W., and Lepak, D. P. (1996). "Human resource management, manufacturing strategy, and firm performance" *Academy of Management Journal*, Vol. 39 No. 4, pp. 836-866.

## 1.7 Endnotes

<sup>i</sup> See, for example, the British Columbia government's "Forestry Revitalization Plan," "Generating More Value from Our Forests," and "Working Roundtable on Forestry," the Forest Innovation Investment's "Value-Added Strategy," the "Vision 2020" document from the Forest Products Association of Canada, or the "Wood Works!" program from the Canadian Wood Council.

<sup>ii</sup> Previous business megatrends include, for instance, the quality and information technology movements (Lubin & Esty, 2010).

- <sup>iii</sup> In this study, the term sustainability refers to actions in the form of sustainable business practices taken by organizations in response to environmental and social demands.
- <sup>iv</sup> The term “long” is used here, but the study also used interviewing techniques based on other, similar methods, such as in-depth and focused interviews (Weiss, 1994; Gilchrist & Williams, 1999).
- <sup>v</sup> Key informant sampling involves selecting participants having an “information-rich connection with the research topic...[and] special knowledge and access to perspectives or observations denied the researcher through other means” (Gilchrist & Williams, 1999, p. 73), thus serving as convenient starting points.
- <sup>vi</sup> Following grounded theory procedures, questions were complemented as gradual sampling continued and as relevant concepts and categories emerged. A complete copy of the interview guide can be provided by contacting the authors.
- <sup>vii</sup> The computer software used for data analyses allowed for direct coding of digital audio files. This resource was used in addition to the transcribed data and also served as a means of improving the study’s reliability.
- <sup>viii</sup> In this study, explanations are provided that are group-specific, therefore, generalizability is not the main objective. Consequently, issues of external validity are not as much of a concern as internal validity and reliability (see Strauss & Corbin, 1998 and Miles & Huberman, 1994).
- <sup>ix</sup> For the most important theme, management skills, there were several hundred open codes within 36 different references (references here refer to the sources of data that were coded and included all interviews, field notes, and existing literature). In order to determine the relative importance of each theme (i.e., the size of each theme’s circle), management skills, with the most references, was set as 1, and the size of the remaining themes were set in relation to this reference as follows: government policies 0.7; labor 0.6; raw materials 0.5; target markets 0.5; products 0.4; and stakeholders 0.4.
- <sup>x</sup> The secondary wood products sectors of countries like Denmark and Germany epitomize such highly technological and knowledge-based business models, where strong links between local suppliers and manufacturers facilitate product and process innovations.
- <sup>xi</sup> It is worth noting the significant role placed on governments in the BC forestry context. This is likely related to the enormous influence which the government has had, as the primary owner of the publicly held resource, in the development of BC’s commodity industry.
- <sup>xii</sup> The amount of data from the successful cases, not the number of successful ones, coupled with data triangulation (the use of multiple stakeholders), improves the legitimacy of the data by confirming whether the reasons for the perceived success are shared among other stakeholders as a viable strategy or emerged simply by chance.