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THE EFFECT OF DOMINANT LOGIC ON COMPANY PERFORMANCE - Evidence from Finnish forest sector companies

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ABSTACT

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This study is investigating the relationship between a company's dominant logic, interpreted as a shared mental model for this study, and the company's performance when the business environment is dynamic. More specifically, this study is investigating how the width of a company's dominant logic is related to performance in a dynamic environment and what sort of relationship there is between innovation related characteristics within a company's dominant logic and performance in a dynamic environment. This study is motivated by available research data from small- and medium-sized Finnish companies from the forest sector.

This study is using responses from CEOs and other executive management team members to a questionnaire in Spring 2020. Regression analysis is used to test the hypothesis that a higher number of characteristics within the dominant logic of a company is positively associated with the company's performance in a dynamic environment and that, in a dynamic environment, companies with dominant logic characteristics related to innovation will be associated with better performance than companies with no such characteristics within their dominant logic.

The results do not show that the width of company's dominant logic profile in a dynamic environment would lead to statistically significant differences in its performance. In addition, the results do not show statistically significant differences in performance in a dynamic environment between companies that have innovation characteristics in their dominant logic profiles and those that do not have. Therefore, the regression analysis does not support either hypothesis of this study. Further research is encouraged to study similar relationships between dominant logic and company performance in different industries or to study relationships between a company's dominant logic and management's attention, strategy decisions, or specific actions in the Finnish forest sector.

Keywords: Dominant logic, company performance, environment dynamism, forest sector

TIIVISTELMÄ

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Laskentatoimi

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KESKEISEN LOGIIKAN VAIKUTUS YRITYKSEN SUORITUSKYKYYN – Tutkimustodisteita suomalaisista metsäalan yrityksistä

Pro gradu -tutkielma
2022
58 sivua, 14 taulukkoa, 5 kuvaa
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Apulaisprofessori Anni Tuppura

Tässä tutkimuksessa tutkitaan yrityksen keskeisen logiikan, joka tässä tutkimuksessa on tulkittu jaetuksi ajattelumalliksi, ja yrityksen suorituskyvyn välistä suhdetta liiketoimintaympäristön ollessa dynaaminen. Tarkemmin tämä tutkimus tutkii, kuinka yrityksen keskeisen logiikan laajuus kytkeytyy yrityksen suorituskykyyn ja millainen suhde on yrityksen keskeisen logiikan innovaatioihin liittyvillä ominaisuuksilla ja yrityksen suorituskyvyllä dynaamisessa toimintaympäristössä. Tämän tutkimuksen motiivina on ollut tutkimusaineisto pienistä ja keskisuurista suomalaisista metsäalan yrityksistä.

Tutkimuksessa hyödynnetään toimitusjohtajien ja muiden johtoryhmän jäsenten vastauksia keväällä 2020 tehtyyn kyselyyn. Regressioanalyysillä testataan hypoteeseja. Ensimmäinen hypoteesi on, että suurempi määrä ominaisuuksia yrityksen keskeisen logiikan sisällä liittyy positiivisesti yrityksen suorituskykyyn dynaamisessa ympäristössä. Toinen hypoteesi on, että dynaamisessa ympäristössä yritykset, joilla on innovaatioon liittyviä keskeisen logiikan ominaisuuksia, yhdistetään parempaan suorituskykyyn kuin yritykset, joilla ei ole tällaisia ominaisuuksia keskeisessä logiikassaan.

Tulokset eivät osoita, että yrityksen keskeisen logiikan laajuus dynaamisessa ympäristössä johtaisi tilastollisesti merkittäviin eroihin yritysten suorituskyvyssä. Tulokset eivät myöskään osoita tilastollisesti merkittäviä eroja suorituskyvyssä dynaamisessa ympäristössä yritysten välillä, joiden keskeisessä logiikassa on innovaatioon liittyviä ominaisuuksia, ja niiden yritysten välillä, joilla ei ole. Siksi regressioanalyysi ei tue kumpaakaan tämän tutkimuksen hypoteesia. Jatkotutkimukset voisivat tutkia samanlaisia suhteita keskeisen logiikan ja yrityksen suorituskyvyn välillä eri toimialoilla tai tutkia yrityksen keskeisen logiikan ja johdon huomion, strategiapäätösten tai toimien välisiä suhteita suomalaisissa metsäalan yrityksissä.

Avainsanat: Keskeinen logiikka, yrityksen suorituskyky, toimintaympäristön dynaamisuus, metsäteollisuus

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Helsinki, 3.1.2022
Ilmari Niklander

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1 INTRODUCTION

The purpose of this chapter is to introduce the topic of this study. The aim is to discuss the background of this study, present the research questions, provide a brief overview of the forest sector in Finland, and review the delimitations of this study.

1.1 Background and motivation

Companies globally are currently navigating through some significant changes in their business environment that require their attention now and in the future. These major changes are often called megatrends. In Finland, the Finnish Innovation Fund Sitra publishes megatrends. Their latest list of the megatrends from 2020 include, for example, a prediction that technology is becoming embedded in every aspect of a business, which seems like a trend or change that most companies, regardless of their industry and location, are going through. Sitra's other megatrends cover topics such as, urgency of ecological reconstruction, strengthening of relational power, the aging population trend, and the economy seeking its directions (Dufta 2020). By looking at this list, it appears that most companies are operating in dynamic environment. In a dynamic business environment, companies will focus on certain information, make different decisions and ultimately perform better or worse than other companies in the same industry. This study is investigating the relationship between a company's dominant logic, interpreted as a shared mental model for this study, and the company's performance when the business environment is dynamic. It is interesting to see how company performances can vary in dynamic environment, and if a company's dominant logic or characteristics of dominant logic can be used to predict performance differences.

The concept of dominant logic has been the interest of academic studies since its introduction in the 1980s. In many empirical studies, dominant logic is used to explain different corporate outcomes (Engelmann et al. 2020). Such studies have found companies' dominant logic to affect their operational and strategical activities, such as information scanning emphasis (Garg et al. 2003) or acquisition strategies (Côte et al. 1999). Previous research shows that dominant logic can also explain performance differences between companies. Furthermore, direct connection between dominant logic and performance have been investigated and established (von Krogh et al. 2002). This study will build on the

previous studies and investigate the relationship between dominant logic and company performance. More specifically, this study will empirically research small- and medium-sized companies operating in the forest sector in Finland. This study will investigate what kind of characteristics can be found from companies' dominant logic and see what type of relationship there is between a company's dominant logic and performance when considering the environment dynamism and trying to control other factors, which might explain performance difference.

This study's focus on the forest sector offers an industry specific setting for empirical testing. This is in line with previous research around dominant logic, which have often focused on certain industries (e.g., Hadida and Paris 2014, Ellonen et al. 2015), and more specifically, companies or industries going through changes (e.g.von Krogh et al. 2002, Garg et al. 2003). Changes in environment often put stress on companies and in dynamic environments, some companies perform better than others (von Krogh et al. 2002, Garg et al. 2003). Some industries might be more dynamic than other industries. Finnish forest sector can be seen dynamic at least in some level. Companies in the Finnish forest sector are investing over 300 million euros annually for research, development, and innovation activities. These investments have resulted in new business areas and products, such as renewable textiles, new construction materials, and biobased fuels (The Finnish Forest Industries Federation d). This shows that the business environment in the Finnish forest sector is changing and developing. As aforementioned, this study takes into account environment dynamism when investigating the relationship between dominant logic and company performance.

Furthermore, the forest sector offers an interesting setting to study the relationship between dominant logic and company performance, because of its significance to Finland's economy. According to the Finnish Forest Industries Federation's 2017 statistics, the forest industry is the second largest industry in Finland after the metal industry. In 2017, the gross value of the forest industry was over 20 billion euros, which was almost 20% of the gross values of all industries together. The forest industry is also a significant employer in Finland, accounting for 15% of all industrial jobs in 2017 (The Finnish Forest Industries Federation b).

The forest sector provides a variety of products and services, as well as constantly developing though new research and innovation activities. Currently, the forest industry can be divided into multiple subindustries. The subindustries used by the Finnish Forest Industries Federation are paper and carboard, pulp and lumber (The Finnish Forest Industries Federation a). In this study, the subindustries are classified according to Statistics Finland Standard Industrial Classification TOL 2008, which have similarities to the subindustries used by the Finnish Forest Industries Federation. The Finnish Forest Industries Federations' statistics show that production levels within the forest industry have grown significantly from the 1960's. However, in recent years, statistics show a declining trend in paper and cardboard production whereas pulp and lumber production have continued to grow (The Finnish Forest Industries Federation a). This study acknowledges the subindustries and tries to control their effect on performance differences.

The importance of the forest sector to Finland's economy suggests that the performance of the forest sector companies might interest many parties. Investors or other parties reading companies' financial statements receive explanations for performance from the companies themselves. Companies explain their performance or results to the public in terms of changes in demands and market prices or investments in strategic projects (e.g. UPM 2021, Stora Enso 2021). The relationship between dominant logic and company performance might not be easily established as a link between sales price and sales revenue. However, dominant logic offers an interesting alternative view to study performance differences between similar companies.

Available research data provided motivation for this study. The data used for this study allows for an investigation into each company's dominant logic, performance and how dynamic a company perceives its environment. The data also includes information about the size of each company and their subindustries. This allows for an investigation of the relationship between dominant logic and company performance in a dynamic environment when the company size and subindustry are controlled.

1.2 Research questions

This study provides an opportunity to further add to previous research on the link between dominant logic and company performance in the setting of the Finnish forest sector. The

main objective is to investigate if a company's dominant logic explains performance differences in a dynamic environment.

As mentioned earlier, previous studies have linked the dominant logic to various company outcomes. Previous studies have also investigated the direct link between dominant logic and company performance. Von Krogh et al. (2000) found a connection between the bandwidth of dominant logic and company performance in a dynamic environment. In their study, the bandwidth of dominant logic considers both numbers of dominant logic characteristics and the strength of each characteristic in a company's dominant logic (Krogh et al. 2000). This study will investigate the characteristics within companies' dominant logic and see what sort of relationship they have with the performance of the company when the environment is dynamic. More precisely, this study will investigate whether the number of characteristics or width of a company's dominant logic affects company performance. To answer this question the first research question is formulated as:

Research question #1: How the width of a company's dominant logic is related with performance in a dynamic environment?

Furthermore, this study will take a deeper look at specific characteristics within a company's dominant logic profile. The goal is to investigate whether there is a link between having certain dominant logic characteristics present in a company's dominant logic and the performance of the company in a dynamic environment. Garg et al. (2003) found that in a dynamic external environment, emphasis in innovation related internal matters were associated with higher performance. Similarly, this study will investigate if a company's dominant logic profiles have innovation related characteristics and what sort of relationship those characteristics have with company performance in a dynamic environment. The second research question is therefore formulated as:

Research question #2: What sort of relationship there is between innovation related characteristics within a company's dominant logic and performance in a dynamic environment?

Both these research questions are based on previous research. Chapter 3 will introduce the concept of dominant logic and the link between dominant logic to company performance.

Chapter 3 will further introduce characteristics of dominant logic based on previous research as well as hypothesis development based on theory and previous research.

1.3 Sample and methods

This study investigates the relationship between dominant logic and performance to answer research questions 1 and 2 through ordinary least squares regression (OLS) estimation. The sample selected consists of data collected by LUT-university from 175 small- and medium-size Finnish companies from the forest sector in Spring 2020. The data consists of answers to a questionnaire by companies' CEOs or other members of the executive management team. Answers were obtained through phone interviews.

In this study, all variables for the research model are created form the questionnaire responses. This study is using answers obtained within the following areas:

- Size of the firm in terms of employees
- Main industry of the firm
- Performance evaluation against industry average
- Factors that contribute the most to long-term success
- Evaluation of environmental dynamism

Responses to the firm size and industry will be used for the creation of control variables. The company size is measured by the number of employees. The industry data includes subindustry information according to Statistics Finland Standard Industrial Classification TOL 2008, with the relevant subindustries for the study being:

- 02 Forestry and logging
- 16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
- Other subindustries

Other subindustries include paper and paper products as well as other subindustries.

Performance related answers will be used to study company performance and develop a dependent variable for the research model. In this study, company performance tries to

capture the overall performance, which includes the following: financial performance, market performance and strategic performance. This is possible, because the data includes performance related answers from the companies that cover a wide range of performance areas.

Companies' answers to factors that contribute the most to their long-term success will be used to identify dominant logic profiles of the firms as well as to identify characteristics within the dominant logic profiles. This data, after further analysis and categorizing, is used to create the following independent variables:

- number of characteristics within or width of company's dominant logic
- are innovation characteristics present within the dominant logic profile of a company.

Answers to environmental dynamism are used to see how dynamic companies see their environment and to develop an independent variable for environmental dynamism to be used in the research model. The data can show if there are differences between companies based on how dynamic they see their environment.

In this study, independent variables will be used to create interaction variables for the research model. In practice, this means using the dominant logic related variables with the environmental dynamism variable to study their interaction effect on performance when the company size and subindustry are controlled. All variables will be introduced in chapter 3.

1.4 Delimitations

The scope of this research paper is to investigate the link between dominant logic and company performance differences. Empirical research is using data from a sample of Finnish forest sector companies. Data was collected in early 2020 and presents answers from the participating companies at the time of the questionnaire. The data for this study is self-reported and it has not been verified against objective data. Research data is presented in detail in chapter 3.

1.5 Structure

This study contains five main chapters. Chapter two, after the introduction chapter, reviews existing literature relating to dominant logic and the link between a company's dominant logic and its performance. Hypothesis development will finish chapter two. Chapter three discusses data collection and research methods. Chapter four presents the findings of the study. Chapter five, finally, summarizes the results, analyzes the results further, reviews practical implications, and provides some suggestions for future research.

2 THEORY

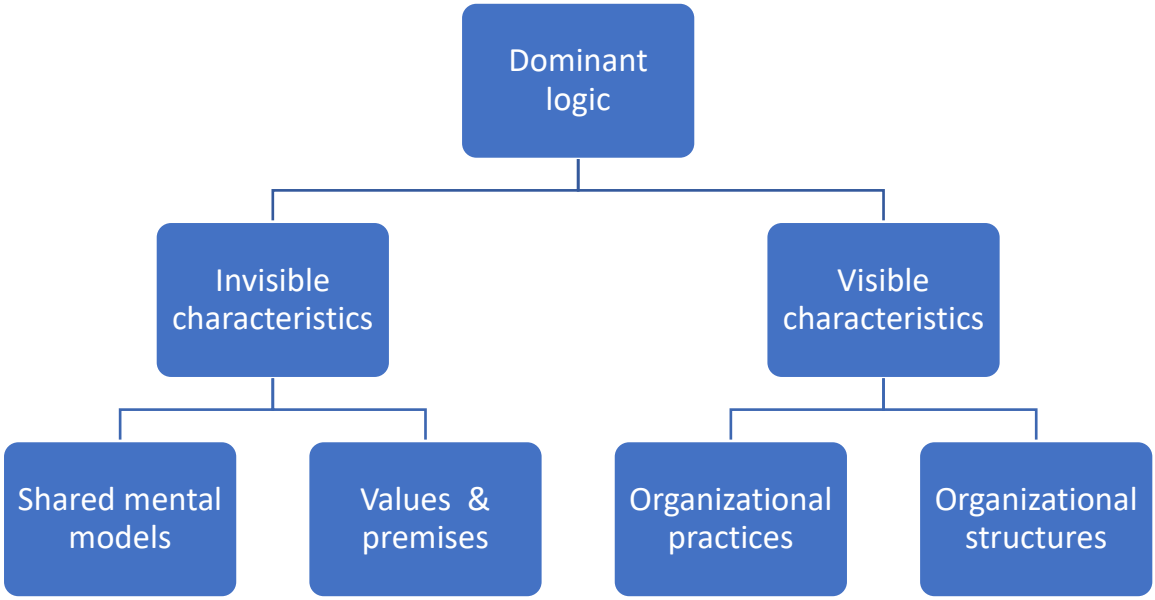
The purpose of this chapter is to present and review prior relevant academic studies. First, this chapter will introduce the concept of dominant logic. Then, the chapter will review previous studies and papers where dominant logic has been used as a shared mental model. This chapter will also discuss previous studies and their findings on the link between dominant logic and company performance. Furthermore, environment dynamism and company performance will be reviewed in the content of previous studies. This chapter will close with hypothesis development.

2.1 Dominant logic

The original concept of dominant logic comes from "strategic cognition, a field that focuses in the linkage of organizations members' cognitive structures with strategic choices and actions" (Engelmann et al. 2020, p. 3). The term dominant logic was first introduced by Prahalad and Bettis (1986). Prahalad and Bettis (1986, p.490) defines dominant logic "as the way in which managers conceptualize the business and make critical resource allocation decisions – be it in technologies, product development, distribution, advertising, or in human resource management". This conceptualization of business can be visible or invisible. Prahalad and Bettis (1986) further defines dominant logic as "a mindset of a world view or conceptualization of the business and the administrative tools to accomplish goals and make decisions in that business" (p.491) in which the part referring to world view is invisible and the part referring to administrative tools is visible.

As we can already see, the concept of dominant logic is complex. This has led to the situation, in which dominant logic has been interpreted in different ways in many previous studies. Engelmann et al. (2020), in their literary review of 94 studies, found the following four characteristics of dominant logic: shared mental models, values & premises, organizational practices, and organizational structures. Invisible cognitive characteristics include shared mental models and values & premises. Visible characteristics include organizational practices and organizational structures. Figure 1 illustrates the characteristics of dominant logic.

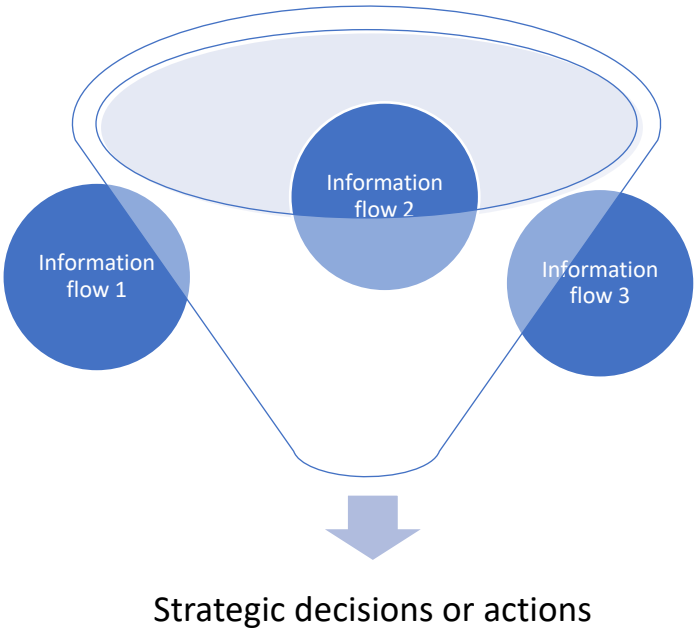
Figure 1. Characteristics of dominant logic



This study interprets dominant logic as an invisible cognitive characteristic and more precisely, as a shared mental model. Shared mental models can be seen as a mindset or worldview as interpreted by Prahalad and Bettis (1986). In this way, this interpretation is close to the original definition of dominant logic. Other definitions of shared mental models include Bouwen and Fry's (1991) interpretation of it as cognitive styles to frame problems. Engelmann et al. (2020) summarize the definition of a shared mental model as a "mental representation of 'the world' and of 'how things are'" (p.18).

The idea here is that an organization's shared mental model, like any interpretation of dominant logic, is linked to the organization's strategic choices and actions. Maijanen (2015a), for example, describes how managers use the organization's shared mental mindset to focus their attention on relevant information flows, which are used for strategic decisions. As we can see, shared mental models guide an organization's attention in its environment. This leads then to strategic choices and actions. Figure 2 illustrates how an organization's shared mental model can work as a funnel to process information flows. The organizations use their shared mental model to focus their attention on certain information flows, which are then used for the organization's strategic decisions or actions.

Figure 2. Shared mental model as a funnel to process information flows



Since an organization's shared mental model is invisible, the measurement of it is complex and can be accomplished in many different ways. The measure of dominant logic as a shared mental model can then be accomplished through, for example, interviews (e.g. Bouwen and Fry 1991, Obloj et al. (2013), surveys (Maijanen 2015a) and from published materials, such as annual reports or vision statements (e.g von Krogh et al. 2000, Hadida and Paris 2014). As we can see, information to identify company's shared mental model can come from many sources.

Once the information is obtained, it needs to be analyzed to identify the organization's dominant logic. There is no straightforward approach to this analysis method. Engelmann et al. (2020) identified two main strategies for interpretation of dominant logic profiles when dominant logic is seen as a shared mental model. In the first interpretative strategy, dominant logic is "used as a 'container' that can be filled with empirical content; this content is regarded as 'the dominant logic of …'"(Engelmann et al. 2020, p. 19). "The second interpretive strategy to capture dominant logic as a shared mental model is to first characteristicalize it and then associate its characteristics with specific outcomes" (Engelmann et al. 2020, p. 19). An example of the first interpretive strategy comes form

Maijanen (2015b), where an organization's dominant logic at a specific time period is formed from the content of the organization's annual reports. Maijanen (2015b) considers content from annual reports to form the company's dominant logic, which is developing from period to period. Maijanen (2015b) describes the dominant logic with terms like moral surveillance, self-defense, countermoves, technical promises, and opening up. These terms describe the organization's shared mental model or mindset at specific time periods, where the current shared mental model impacts the development of the next one.

This study will capture dominant logic as a shared mental model by following the second interpretative strategy introduced above. This strategy was used, for example, by von Krogh et al. (2000) and Walters et al. (2005). Von Krogh et al. (2002) studied the link between dominant logic and financial performance. In their study, dominant logic profiles included internal characteristics of People, Culture, Product & Brand and external characteristics of Competitor, Consumer & Customers, Technology. They then measured a bandwith of the company's dominant logic by assessing both the number of characteristics in a company's domain logic profile and the number of scorings in each category.

Walters et al. (2005) studied the link between dominant logic and business strategy. Walters et al. (2005) used in their study external characteristics of Market Environment, Technological Environment, Political/legal Environment, Economical Environment and internal characteristics of Market Research, Product R&D, Basic Engineering, Financial Management, Cost Controls and Operational Efficiency. The characteristics in the study illustrated management emphasis in the external and internal scanning of environment.

Both examples (von Krogh et al. 2000, Walters et al. 2005) show that dominant logic profiles can include multiple characteristics. In both these examples, divided the characteristics to internal and external. Some other similarities (e.g. technology was identified as an external characteristic in both studies) can be seen among the characteristics within these studies.

Table 1 includes an overview of previous articles and studies, which used the shared mental model view of dominant logic. These articles were identified from the 2020 literature review of dominant logic studies by Engelmann et al. The overview of articles presents briefly the content of the article, how dominant logic was measured, identifies

dominant logic profiles, what dominant logic was seen to have an impact on within a company and what were the findings. This overview will be used to explain further the theoretical link between dominant logic and company performance.

Table 1. Overview of articles interpreting dominant logic as a shared mental model

Article	Content	Measure of Dominant Logic (DL)	DL profiles tested/found	DL is impacting to…	Test results
Bouwen and Fry (1991)	Innovation situation creates tension between dominant logic and logic of innovation. The article provides strategies or pathways to organizational innovations: Power model, Sales Model, expert mode, confrontational learning model.	DL measured from interviews of firms going through innovation projects.	Identified models/strategies: Power model (from an **authoritarian dominant logic**), Sales Model (**focus on acceptance of the users**, expert model (based on **expert management/analysis**), confrontational learning model (**"nondirective" approach**).	Organizational learning and innovation.	Confrontational learning model is required to long-term and lasting learning from an innovation project. However, all models can lead to some success in innovation projects.
Côte et al. (1999)	"The paper uses the notion of 'dominant logic' to explain how the firm's acquisition strategy and management strategy evolved". The paper investigates the dominant logic and acquisitions of a Canadian engineering firm.	DL measured from in-dept interviews, internal documents, and public documents.	3 structural characteristics and 5 elements of the firm studied: DL.A. Conceptualization of the role of the firm and acquisitions 1. Strength is in management of large projects 2. Multi-culturalism and Canadian identity DL.B. Criterial for choice and evaluation	Dominant logic is used to explain how a firm's acquisition strategy and management strategy evolved.	DL explains the acquisitions and management strategy of the firm. DL remains "until the inconsistencies it creates are revealed in a crises or series of crises."

			1. Short-term time frame, flexibility, opportunism DL.C. Organizing and management principles 1. Emphasis on individual autonomy and development 2. Emphasis on ad hoc collaboration and fluid structures		
von Krogh et al. (2000)	The paper studies the link between dominant logic and performance when changes occur in business. The study focused on two consumer electronic firms (Nokia and Ericsson).	DL measured from annual reports and other published materials like interviews and speeches.	Internal Conceptualization People Culture Product and Brand External Conceptualization Competitor Consumer and Customers Technology	DL or the bandwidth of DL is used to explain the financial performance of the firm.	"The empirical evidence shows that that differences in dominant logic lead to different strategic reactions to developments in the industry, and thus results in performance differences."

Crilly and Sloan (2012)	Study of 8 global corporations to investigate if the firm's DL "plays a critical role in directing attention to stakeholders". Ultimately, the attention to stakeholders is linked to social performance of the firm.	DL measured from companies' annual reports. Annual reports have been used to create a cognitive map.	**Firm-centric**: Production function conceptualization; **Industry network**: Business ecosystem conceptualization; **Extended enterprise**: Interdependence conceptualization. (Moving from an only inside focus to a more outside focus)	Corporate attention to stakeholders.	Firms with Extended DL scored higher in scope of attention than firms with Firm or Network DL. Also, Treat- opportunity ratio is lower for the firms with Extended DL than firms with Firm or Network DL.
Obloj et al. (2013)	Study of "an emerging dominant logic among recently established private-sector Chinese enterprises.	DL measured from interviews of CEO and top managers.	1. Sense-making of the environment 2. Action and choices 3. Simple routines 4. Learning from experience and critical events	Firm's decisions and actions.	Study "revealed that the dominant logic of the Chinese firms studied were surprisingly similar, despite resource and industry heterogeneity". "The emerging dominant logic became mostly a perceptual blinder that limited peripheral vision and opportunity seeking" –> self-limiting mindset.

Hadida and Paris (2014)	Study of the development of dominant logic in a digital music industry (fast changing industry, 21 companies studied).	DL is measured from official disclosures, mission and vision statements.	1. Self-categorization (positioning): a. Degrees of subversiveness 2. Innovation disclosure: a. Use b. Supply c. Prescription (none, technical, communities)	DL is used to understand the developing industry.	New DLs created that where clearly difference from the existing DLs.
Maijanen (2015a)	The study analyzes "how organizational cognition is structured in the case organization as it is heading toward the new dominant logic, but while the old logic still exists and affects the thinking (and doing)."	DL is measured from survey for all personnel (whole organization).	Mental mindsets: Clusters for the perception of the present state of affairs: Moderate customer orientation Asset development orientation Active renewal Status quo Competition oriented renewal Old way Clusters for desired directions of future change: Moderate change Customer oriented renewal Traditional way	Different mental mindsets develop when moving from old DL to new DL.	"Some clusters are strongly committed to the traditional way of thinking and doing (old dominant logic), and some are committed to the new logic, whereas some of the clusters be placed in-between the two extremes." "The organization is going throught the process in which the managerial-level new dominant logic is on its way to becoming an organizational

			Competition-oriented renewal Proactive renewal		level dominant logic."
Maijanen (2015b)	Study of path-dependency of dominant logic.	DL is measured from annual reports.	Development of dominant logic: Moral surveillance, Self-defense, Countermoves, Technical promises, Opening up	Current DL is impacting/directing the change in DL.	"The dominant logic evolves path-dependency through shorter change periods – the changes in the former period provide the direction for the changes in the following period".
Ellonen et al. (2015)	Study of the link between dominant logic and dynamic capabilities in the magazine publishing industry (four companies from Finland, the Netherlands, Hungary, and Russia).	DL is measured from primarily semi-structured interviews of editors-in-chief and publishers.	Finnish unit: print-oriented & conservative Russian unit: Digitally and brand oriented Hungarian unit: change oriented (needed for survival) Dutch unit: change oriented (innovation need)	DL is used to explain dynamic capabilities.	"Dominant logic and dynamic capabilities coevolve in innovation activities. They seem to have a reciprocal relationship that lead to iterative development, each reinforcing and further developing the other.

2.2 Performance

Organizational performance is critical for its survival. Satwinder et al. (2016) defines the organizational performance in generic terms as "a set of both financial and non-financial indicators capable of assessing the degree to which organizations goals and objectives have been accomplished" (p. 215). This means that the performance includes many different factors and in order to be measured, it requires some subjective information from the organization itself.

Table 2 illustrates some performance measures used in previous academic studies to measure company performance. Table 2 includes performance measures used to study the impact of dominant logic on performance (von Krogh et al. 2000, Garg et al. 2003) and a performance measure from Schilke (2014) that is adapted to this study.

Table 2. Examples of performance measures

Article	**Performance measure**	**Source of data**
von Krogh et al. (2000)	Relative market share	Dataquest (Objective)
Garg et al. (2003)	Against industry average: after tax return on total assets, after tax return on total sales, sales growth, and overall performance/success	Self-reported from a questionnaire with 5-point scale answers (Subjective)
Schilke (2014)	Against industry average: Strategic performance: strategic advances, larger market share, overall, more successful Financial performance: EBIT (earnings before interest and taxes), ROI (return on investments), ROS (return on sales)	Self-reported from a questionnaire with 5-point scale answers (Subjective)

It can be seen from Table 2 that some performance measures are more narrow than other. For example, von Krogh et al. (2000) measured performance by examining only market share when Schilke (2014) included a number of both financial and non-financial

measures. All performance measures presented in Table 2 use industry as a standard instead, for example, the organization's own goals and objectives.

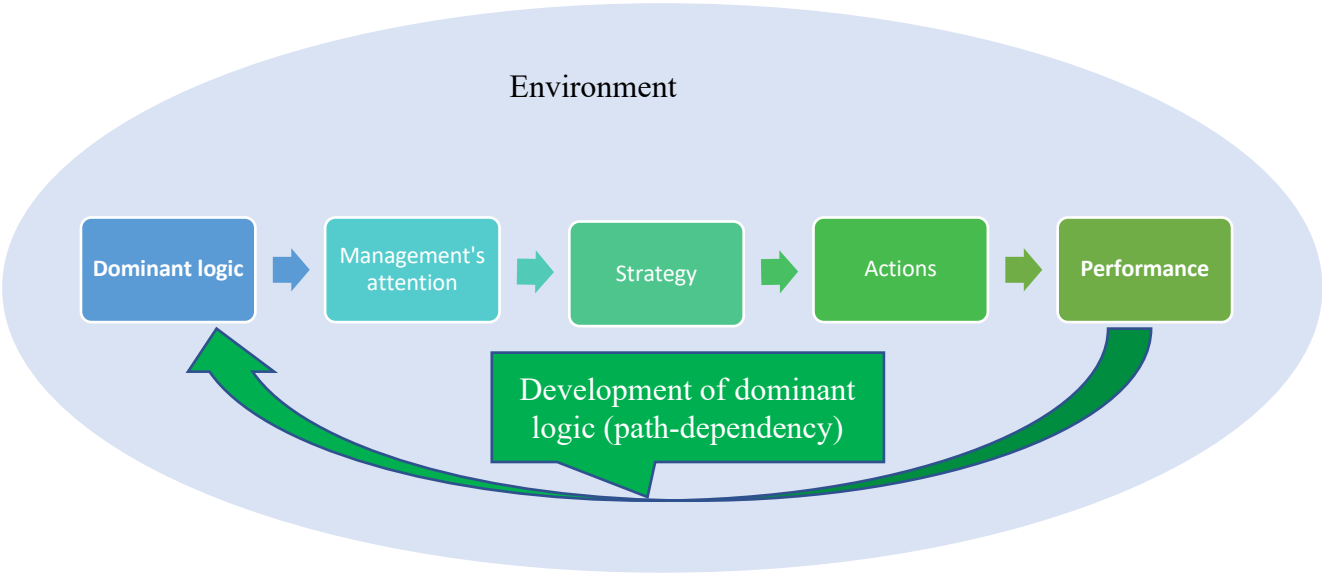
Table 2 also illustrates that both subjective and objective performance measures are used. Self-reported subjective measures have been found to be "highly correlated with objective measures of firm performance" (Garg et al. 2003, p. 733) and "with careful planning, subjective measures can be successfully employed to access organizational performance" (Satwinder et al. 2016 p. 214). According to Garg at al. (2003), subjective measures are even preferable over objective measures when "capturing the perspective of organizational members and when studying managerial behavior and decision making (p. 733).

This study's self-reported measure of performance is adapted from Schilke (2014). Actual objective performance measures are not available for this study. Garg at al. (2003) support the multicharacteristic self-reported measure of the performance used in this study and adapted from Schilke (2014).

2.2 The link between dominant logic and performance

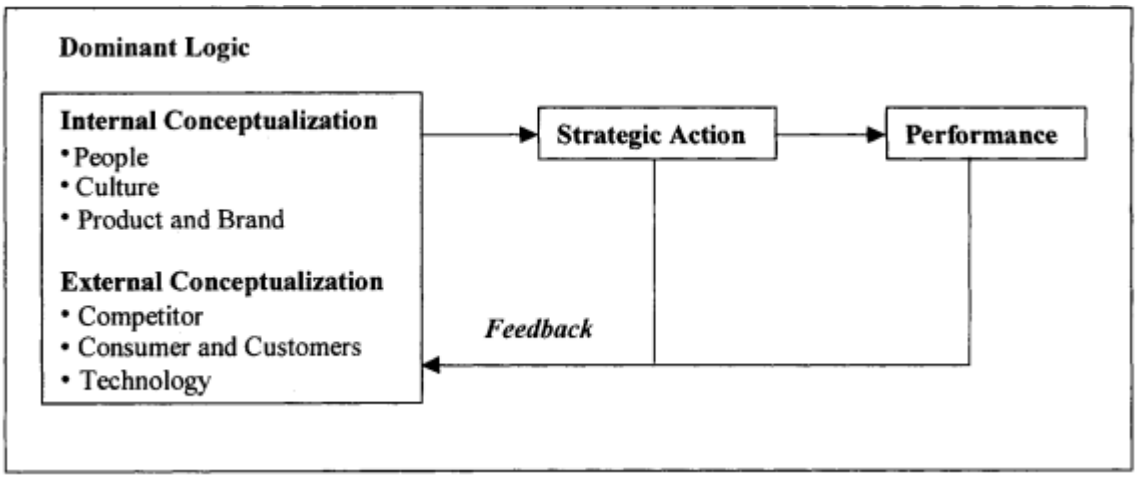
The overview of the articles in Table 1 shows that dominant logic can be seen to have influence on many aspects within a business, starting from how dominant logic develops from previous dominant logics (Maijanen 2015b) to how dominant logic effects a company's attention (Crilly and Sloan 2012)) and strategy (Côte et al. 1999), or even decisions and actions (Obloj et al. 2013), to all the way to company's performance (von Krogh et al. 2000). Figure 3 illustrates the connection from dominant logic to performance and how that develops into new dominant logic. Environment is included in the figure to illustrate the effect of specific setting in previous studies. Previous studies have, in many cases, included changing or dynamic environments (e.g. Hadida and Paris 2014, and von Krogh et al. 2000).

Figure 3. The connection of dominant logic to performance based on an overview of articles interpreting dominant logic as a shared mental model



A similar illustration of the link between dominant logic and performance comes from von Krogh et al. (2002) in Figure 4. Von Krogh et al (2002) illustrates the development of the dominant logic with feedback from strategic action and performance. This is in line with the conclusion from Prahalad and Bettis (1986) that companies' dominant logics are seen to develop through reinforcement of management effective performance in business settings.

Figure 4. Elements of dominant logic and the link to performance from von Krogh et al (2002, p. 86)



The change of a company's dominant logic is difficult and takes time. Prahalad and Bettis (1986) compared change in dominant logic to "the shift from the Ptolemaic view of the universe (earth-centered) to the Copernican view of the universe (sun-centered) in astronomy" (p. 492). This is to illustrate how difficult it is to change shared mental models. Prahalad and Bettis (1986) use another example from the game of chess where decisions of good players are based on previous games. If the rules of the game would change, it would mean that the experience from previous games would lose its relevance. This example, however, illustrated the need for change in dominant logic that comes from changes in environment.

As this study is focusing on the direct link between dominant logic and company performance, it is important to keep in mind that the link is complex, as there are steps between a company's dominant logic and performance. Added complexity also comes from the environment and constant development of a company's dominant logic though feedback. As feedback from performance can lead to the development of dominant logic meaning, there seems to be a link connecting performance to dominant logic.

Previous studies have investigated and found a link between dominant logic and company performance. Studies like von Krogh et al. (2002), Crilly and Sloan (2012), and Garg et al. (2003) have established a link between dominant logic and company performance. Von Krogh et al. (2002) found a link between dominant logic and financial performance, Crilly and Sloan (2012) found a link between dominant logic and social performance, and Garg et al. (2003) found a link between financial and overall performance.

Von Krogh et al. (2000) found a connection between the bandwidth of a company's dominant logic profile and their financial performance. The case study was done in the telecommunication industry by researching the dominant logic and performance of Nokia and Ericsson during significant changes in their core business. Dominant logic was measured from annual reports and other published materials like interviews and speeches. The bandwidth of the company's dominant logic assesses the number of categories in the company's dominant logic profile and the number scoring to each category. The performance was measured by market share. Von Krogh et al. (2000) found that "the empirical evidence shows that that differences in dominant logic lead to different strategic

reactions to developments in the industry, and thus results in performance differences" (p.83).

Crilly and Sloan (2012) found that a company's dominant logic is linked to their attention to stakeholders, which is then linked to their social performance. The study measured dominant logic profiles for eight global companies from their annual reports. The study included two companies from four different industries. Dominant logic profiles established were firm-centric (production function conceptualization), industry network (business ecosystem conceptualization), and extended enterprise (interdependence conceptualization). The scope of attention was obtained via interviews that asked management to identify stakeholders relevant to the company. The study found that the extended enterprise dominant logic scored highest in the scope of attention.

Garg et al. (2003) found that in a dynamic environment, a CEO's attention to the task sector of external environment and innovation related internal functions were connected to high performance. The task sector in the Garg et al. (2003) study included market, technology and competitive items that were identified as important by CEOs. Innovation related internal functions included product R&D, market research and basic engineering items identified by CEOs as being important (Garg et al. 2003). Company performance was measured by self-reporting comparison against industry averages in various financial key figures and overall performance. Garg et al. (2003) measured environmental dynamism from multi-item scale questions given to companies' CEOs. Control variables in the study included the size of the company measured by the number of employees and the overall level of a CEO's scanning of environment. The study included 105 single-business manufacturing firms. The data for the study was collected by questionnaires sent to firms' CEOs. (Garg et al. 2003)

As these examples show, the link between dominant logic and performance has been established in previous studies in different settings. The theory therefore suggests that a similar link between dominant logic and company performance could be found in this study. However, the settings and research questions have been somewhat different in previous studies.

2.3 Environmental dynamism

Environmental dynamism influence both the firm-level constructs and firm performance as well as the allocation of management's time (Garg et al. 2003). According to Garg et al (2003), "dynamism describes the rate and unpredictability of change in a firm's external environment" (p. 24). Moreover, Schilke (2014) defines dynamic capacities as a two-characteristic concept, which includes as fundamental characteristics both "volatility (rate and amount of change) and unpredictability (uncertainty)" (p. 181). Therefore, the degree of environmental dynamism should be assessed according to both the degree of change and predictability of the change.

A company's perspective of environmental dynamism is relevant since management acts certain ways based on their perspectives (Garg et al. 2003). This supports the self-reporting measure of environmental dynamism. For example, both Schilke (2014) and Garg et al. (2003) use self-reporting measure for environmental dynamism. This study is adapting the model for measure from the study of Schilke (2014), which asks companies to evaluate the environmental dynamism of the industry in which they operate within the areas of production/service changes, environment demands on the company, change in marketing practices, unpredictability of changes and evolvement of new business models.

2.4 Hypothesis development

Research questions 1 and 2 were introduced in chapter 1. The hypothesis development to synthesize the research questions is done based on previous research.

As discussed earlier in the theory part of this study, a relationship between dominant logic and company performance has been established in previous studies (von Krogh et al. 2002, Crilly and Sloan 2012, and Garg et al. 2003). These studies show that positive company performance, whether it is financial performance (von Krogh et al. 2002, and Garg et al. 2003) or social performance (Crilly and Sloan 2012), has been connected to certain elements of a company's dominant logic like the bandwidth of dominant logic (von Krogh et al. 2000) or focus on innovation related internal functions (Garg et al. 2003).

The hypothesis to research question 1 is adapted from the von Krogh et al. (2000) study, where the bandwidth (takes into account both numbers of dominant logic categories within the company and the strength of each category) of dominant logic is used to explain performance differences between two firms. Von Krogh et al. (2000) found a connection between the bandwidth of dominant logic and company performance in a dynamic environment. Von Krogh et al. (2000) used two large international telecommunication firms, Nokia and Ericsson, in their study that covered the bandwidth of dominant logic and performance over multiple years. The set up for this study will be different as it covers multiple small- and-medium size firms from the forest industry and investigates data from only one point of time. However, regardless of the differences, the established link by von Krogh et al. (2000) can be adapted for testing. Therefore, the following hypothesis is formulated:

Hypothesis # 1: A higher number of characteristics within the dominant logic of a company is positively associated with company's the performance in a dynamic environment.

The hypothesis to research question 2 is adapted from the Garg et al. (2003) study, which found that, in a dynamic environment, managers place emphasis on certain external and internal matters, which were associated with higher company performance. Garg et al. (2003) found that in a dynamic external environment, emphasis in innovation related internal matters were associated with higher performance. Garg et al. (2003) performed their study in specific research settings. Similarly, the positive relationship between the innovation characteristics within a company's dominant logic and its performance in a dynamic environment can also be studied in the forest sector. Therefore, the following hypothesis is formulated:

Hypothesis # 2: In a dynamic environment, companies with dominant logic characteristics related to innovation will be associated with better performance than companies with no such characteristics within their dominant logic.

3 DATA AND RESEARCH METHODS

The purpose of this chapter is to present the research data and methods used in this study. The chapter will begin with the introduction of research data. Then all variables used will be introduced. Lastly, the research methods and model will be presented.

3.1 Data collection and sample

This study is using data from companies operating in the Finnish forest sector. A questionnaire to collect the data was targeted to small- and-medium size companies to scan companies' views and ideas about the forest industry and its future. The data was originally collected as a part of a larger survey. Relevant parts of the questionnaire for this study are included in Appendix 1.

541 companies were identified for the survey from which 49 companies were eliminated before the interview phase, because they were not suitable for the sampling frame or, for example, no phone number was available. 61 companies were not reached. Out of 433 companies reached, 258 companies did not want to participate in the survey. Therefore, the data collected includes answers from 175 participants.

Preliminary review of the data showed that three participants did not provide any answers to the performance related questions and one participant answered only one out of six performance related questions. These four participants were removed from the sample. Out of 171 remaining participants, four participants did not provide any answers to the dominant logic related question. These four participants were removed from the sample as well. After removing these eight companies from the data, 167 companies remain for the analysis.

Table 3 displays the sample after removals of insufficient data.

Table 3. Sample size

	Number of observations
Initial data	**175**
Less: insufficient answers to performance related questions	**-4**
Less: no answers provided to the dominant logic related question	**-4**
Final sample	**167**

3.2 Variables

Variables are presented in the order of dependent variables, independent variables, control variables, and interaction variables. The research model will be presented after presentation of the variables. Chapter 4 will present the descriptive statistics of the variables.

3.2.1 Dependent variable

A variable for a company's performance is created based on companies' answers to six performance related questions. These questions have been adapted from Schilke (2014). Three questions measure company's financial performance and three questions measure company's strategic performance. Each question asks participants to compare their company's performance against the industry average. The questions are the following (Schilke 2014 p. 189):

"Financial performance:

- Our EBIT (earnings before interest and taxes) is continuously above industry average.
- Our ROI (return on investments) is continuously above industry average.
- Our ROS (return on sales) is continuously above industry average.

Strategic performance:

- We have gained strategic advances over our competition.
- We have large market share.
- Overall, we are more successful than our major competitors."

Answer options for each question ranged from 1 to 5, with one meaning strongly disagree and five meaning strongly agree. A sum variable is created based on the average of all the questions.

3.2.2 Independent variables

This section will first introduce the control variables in the research model. Control variables in the model are the company size and subindustry. The focus of previous studies has often been with similar size companies operating in the same industry (e.g. von Krogh et al. 2000 & Walters et al. 2005).

After the control variables, the remaining independent variables, which are environmental dynamism, number of identified characteristics within dominant logic, and innovation characteristics within dominant logic, will be covered. Section 3.2.3 will then introduce the interaction variables.

Company size

The size of the company is determined by the headcount of company employees. This is in line with previous studies like Garg et al. (2003), which are using the firm size measured by the number of employees as a control variable.

For this study, the size of the company is divided into two categories. Small companies are those with less than 20 employees and large companies are those with 20 or more employees. Since the company size is a categorical variable, dummy coding is needed. Dummy coding is done using the indicator coding method with small companies as a reference category. This is the category that large companies are then compared against.

Subindustry

The subindustry information is obtained from participants' answers to the questionnaire. Subindustry information for each company is categorized by the Statistics Finland Standard Industrial Classification TOL 2008. Subindustries, therefore, are forestry, manufacture, and other.

Since the subindustry is a categorical variable, dummy coding is needed. Dummy coding is done using the indicator coding method with other chosen as a reference category. Other subindustry is used as a reference category. This is the category that forestry and manufacture subindustries then are compared against.

Environmental dynamism

Both research questions for this study investigate situations where the environment is dynamic. A variable for environmental dynamism is created based on companies' answers to five questions related to environmental dynamism. These questions have been adapted from Shilke (2014). The questions ask companies to evaluate how dynamic is the industry they operate in. The questions are the following (Schilke 2014 p. 189):

- "The models of production/service change often and in a major way.
- The environment demands on us are constantly changing.
- Marketing practices in our industry are constantly changing.
- Environmental changes in our industry are unpredictable.
- In our environment, new business models evolve frequently."

The answer options for each question ranged from 1 to 5, with one meaning strongly disagree and five meaning strongly agree. A sum variable is created based on the average of all the questions.

Characteristics of dominant logic

As mentioned in the theory part of this study, there is not one suggested way to describe a dominant logic profile for a company. This study has taken the approach to divide a company's dominant logic into characteristics (e.g. Ellonen et al. 2015, Krogh et al. 2000, Walters et al. 2005). Previous literature does not state the characteristics of dominant logic

(Ellonen et al. 2015). Therefore, the characteristics of dominant logic are established by authors. However, previous empirical studies have been used to guide the creation of the dominant logic characteristics (e.g. von Krogh et al. 2000 & Walters et al. 2005).

Dominant logic profiles for the companies are identified from the questionnaire's question: What factors contribute the most to your firm's long-term success? The participants have provided 0-6 open answers to these questions. In average, companies provided 2,7 answers. In total, the data included 527 answers. Many of the answers were the same or very similar with each other.

All 527 answers have been placed into groups according to similar responses. This grouping was first done by two individuals separately without naming the groups. This included, for example, to group together all answers related to customer relationship. A common list of groups was then combined after discussions and comparison work performed individually. The groups then received names to represent the answers. The result was 27 different groups. Ten answers did not fit any of the defined groups and were therefore excluded.

Table 4 displays the 27 different groups identified from the answers. These groups are divided into internal and external matters that companies perceive are the contributing factors to most of their long-term success. The internal category includes 19 groupings of answers, and the external category includes 8 groupings of answers.

Table 4. Grouping of similar answers

Internal
• Responsibility of business • Reputation • Products and quality • Technology and investments • Employees and their competence • Experience and competence • Versatility • Specialization • Organizational structure • Strategy • Leadership • Sales and marketing • Financial management and reliability • Reliability • Solvency and perseverance • Efficiency, productivity, and competitiveness • Entrepreneurial attitude • Ability to transform • Product Development, Innovation & Continuous Development
External
• General change in the operating environment • Market factors, cyclical factors & competition • Regulation and climate actions • Location and locality • Partnerships and networks • Customer relations • Raw materials • Availability and retention of employees

The 27 identified groups in this study are further combined to produce eight different characteristics of a company's dominant logic. Similar to previous studies (e.g. von Krogh et al. 2000 & Walters et al. 2005), these characteristics are either internal characteristics or external characteristics. Table 5 displays internal characteristics and groupings of the answers belonging to each characteristic. Internal characteristics identified in this study are people & organization, innovation, efficiency & finance, and product & brand.

Table 5. Internal characteristics of dominant logic

People & organization
• Responsibility of business
• Employees and their competence
• Experience and competence
• Organizational structure
• Strategy
• Leadership
• Reliability
Innovation
• Technology and investments
• Ability to transform
• Product Development, Innovation & Continuous Development
Efficiency & finance
• Financial management and reliability
• Solvency and perseverance
• Efficiency, productivity, and competitiveness
Product & brand
• Reputation
• Products and quality
• Versatility
• Specialization
• Sales and marketing

Table 6 displays external characteristics and groupings of the answers belonging to each characteristic. External characteristics identified in this study are economical & legal environment, local environment & relationships, customers & markets, and resources.

Table 6. External characteristics of dominant logic

Economical & legal environment
• General change in the operating environment • Regulation and climate actions
Local environment & relationships
• Location and locality • Partnerships and networks
Customers and market
• Market factors, cyclical factors & competition • Customer relations
Resources
• Raw materials • Availability and retention of employees

In this study, these are categorized factors that companies perceive as the most important for their long-term success. However, in this study, these categories are seen to capture companies' dominant logic characteristics as well. A company's dominant logic profile can therefore be a combination of these characteristics or just one characteristic depending on the answers from the company. A company might have multiple answers grouped to the same category. Therefore, the number of answers does not necessarily equal the number of characteristics in a company's dominant logic profile.

Variables for the number of identified characteristics within the dominant logic respond to the first resource questions and innovation characteristics identified within the dominant logic respond to the second resource question are created based on this analysis.

Number of identified characteristics within a dominant logic profile

A variable is created for the number of identified characteristics within a company's dominant logic. This is adapted from the von Krogh et al. (2000) study, which created a numerical measurement of dominant logic characteristics including both the number of dominant logic profile categories scored by a company and the number of the scoring statements in each category. Von Krogh et al. (2000) called this measure Bandwidth and defined it as CS/TC*QS, where CS is categories scored by the company, TC is the maximum number of scoring categories, and QS is the number of scoring statements in each category.

This study will use only the number of categories scored by the company as a variable, which measures the width of a company's dominant logic profile. In this study the number of scoring categories is collected from a company's answers to the questions "What factors contribute the most to your firm's long-term success?" As mentioned earlier, on average, companies provided 2,7 answers to this question. Due to the low number of scoring statements, the effect of the number of scoring statements in each category is not taken into account for variable creation.

Innovation characteristics identified within a dominant logic profile

A variable is created that shows if a company has innovation characteristics within its dominant logic profile. Innovation characteristics are seen as innovation related internal orientation in a company's dominant logic profile. In this study, any company with at least one response that falls into an innovation category, is seen to have innovation characteristics within its dominant logic profile. This is a categorical variable with each company either having or not having innovation characteristics within its dominant logic profile.

3.2.3 Interaction variables

Interaction variables are created for the following variables:

- Environmental dynamism and number of identified characteristics within dominant logic.
- Environmental dynamism and innovation characteristic within dominant logic.

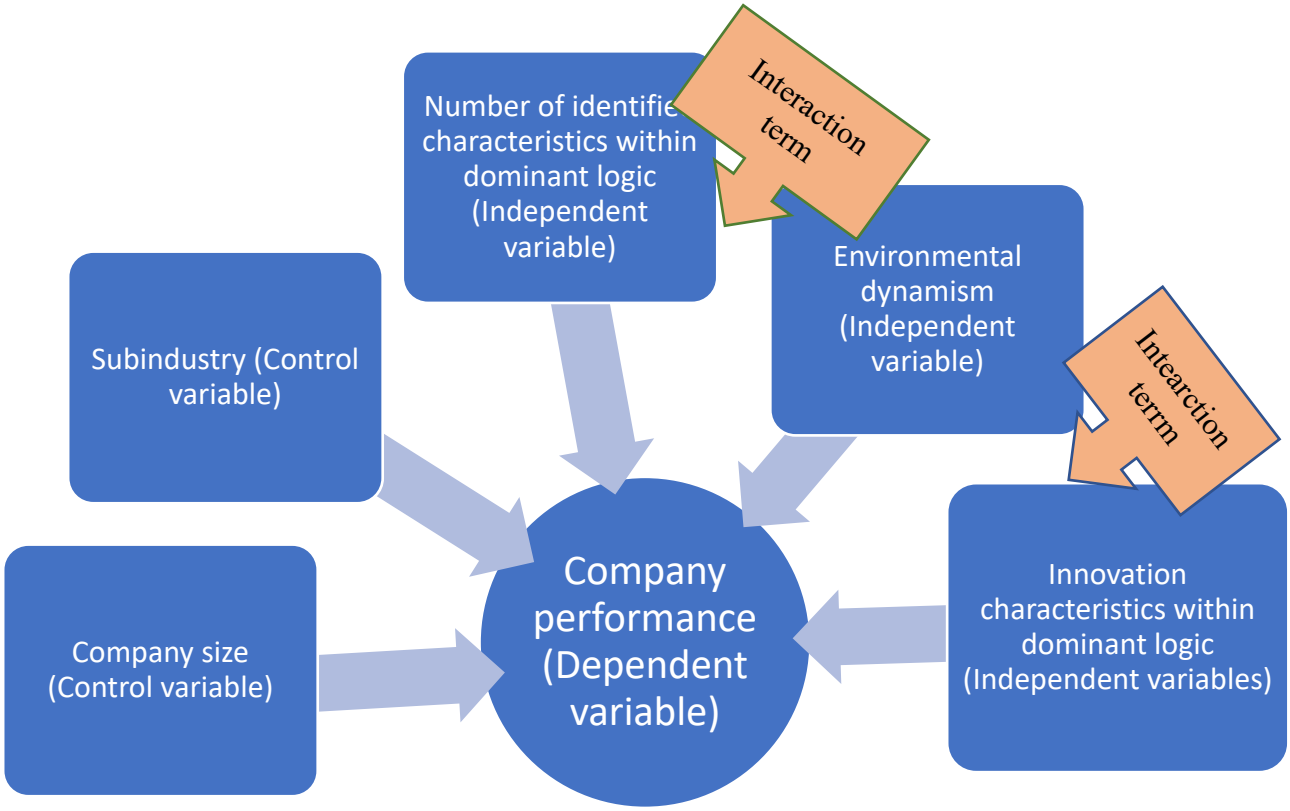
Original variables for the number of identified characteristics within dominant logic and environmental dynamism are continuous variables. Innovation characteristics within a company's dominant logic is a categorical variable. Original continuous variables scope and environmental dynamism have been centered by deducting the mean from the value for the creation of interaction variables. The interaction variable for the number of identified characteristics within a dominant logic profile and environmental dynamism is then created by multiplying centered variables. The interaction variable for innovation characteristics with a dominant logic profile and environmental dynamism is created by multiplying the centered environmental dynamism variable with the variable for innovation characteristics within the company's dominant logic profile.

3.3 Research methods and model

Ordinary least-scares (OLS) regression is used, with the statistical software package STATA, to respond to the research questions and test the hypothesis. Figure 3 illustrated the research model for this study.

This study includes multiple independent variables and interactions terms. A multiple OLS regression model allows the use of multiple independent variables. Multiple OLS regression considers all variables simultaneously. The model allows the calculation of the effect that one independent variable has when controlling or holding constant other independent variables in the model.

Figure 5. Research Model



OLS is used to predict the values of the dependent variable using multiple independent variables as well as interactions terms. The variables for this study are continuous or categorial with ‘dummy’ changes.

The interaction effect of environmental dynamism and number identified characteristics within a dominant logic is used to answer research question R1 and test hypothesis H1.

The interaction effect of environmental dynamism and innovation characteristics within dominant logic profile is used to answer research questions R2 and test hypothesis H2.

Both hypotheses will be tested with the follow econometric equation:

$PERFORMANCE = \alpha + \beta_1 FORESTRY + \beta_2 MANUFACTURE + \beta_3 LARGE + \beta_4 ED + \beta_5 SCOPE\ \beta_6 DL\ INNOVATION + \beta_7\ ED\ X\ SCOPE + \beta_8 ED\ X\ DL\ INNOVATION + e$, where:

PERFORMANCE = performance of a company

FORESTRY = dummy variable, assigned a value of 1 for companies within forestry subindustry

MANUFACTURE = dummy variable, assigned a value of 1 for companies within manufactory subindustry

LARGE = dummy variable, a value of 1 assigned if a company has 20 or more employees

ED = environmental dynamism of a company

SCOPE = Number of identified characteristics within dominant logic profile of a company

DL INNOVATION = dummy variable, a value 1 assigned to companies with one or more identified dominant logic characteristics within category change and technology, otherwise 0

ED X SCOPE = interaction variable of ED and centralized SCOPE

ED X DL INNOVATION = interaction variable of centralized SCOPE and DL INNOVATION

In the model, α is the average value of PERFORMANCE when each independent variable is 0 and e represents the error. In the model, β shows the average change in PERFORMANCE from a one-unit change in an independent variable when all other variables in the model are controlled or held constant.

Results of the regression analysis will be presented in the next chapter.

3.4 Reliability and validity

This study aims to use the most suitable research methods. Selection of specific methods have been based on practices from previous studies. However, some subjectivity is present in the development of the research model and variables, especially in the creation of the dominant logic profiles. As discussed earlier, there is no one suggested way for developing a dominant logic profile for a company. Furthermore, this study used answers to the open-ended question to develop dominant logic profiles. Other researchers could have identified different dominant logic profiles from the data used in this research. On the other hand, the reliability in this study has been strengthened by using two individuals separately going through the answers.

4 ANALYSIS AND RESULTS

The purpose of this chapter is to present the results of this study. The chapter will start with descriptive analysis of statistics and the correlation matrix for the variables used in this study. Then the results of the regression analysis will be presented for the two research questions.

4.1 Descriptive statistics

This chapter uses descriptive statistics to analyze the data. The Table 7 summarize the basic statistics for the variables.

Table 7. Basic statistics of the variables.

Variable	Mean	Std. dev.	Min	Max
Performance	3.386	0.824	1	5
Forestry	0.497	0.501	0	1
Manufacture	0.371	0.485	0	1
Other	0.132	0.339	0	1
Small	0.461	0.499	0	1
Large	0.539	0.499	0	1
ED	3.014	0.631	1	4.8
Scope	2.389	0.968	1	5
DL INNOVATION	0.341	0.476	0	1
ED*Scope	0.030	0.655	-3.023	2.685
ED*DL INNOVATION	-0.007	0.334	-1.214	1.386

As shown in Table 7, the mean of performance is above 3. This indicates that the participants, in general, see their own performance to be slightly above the industry average. Performance is normally distributed with the majority of answers falling between

2 and 4. The lowest response 1 received two responses and the highest response 5 received 4 responses.

The basic statistics for environmental dynamism show that on average, participants perceive that their environment is neither stable nor dynamic. Environmental dynamism is also normally distributed with the majority of answers between 2 and 4. The lowest response 1 received one response and the higher response was 4,8.

Industry variables show that almost half of the participants operate in the forestry subindustry. About 37% of participants operate in the manufacture subindustry and about 13% in the other subindustry. Table 8 shows that the average performance in the forestry subindustry is slightly lower than in the manufacture and other subindustries. Companies in the other subindustry, on average, see their environment more dynamic than companies in the forestry and manufacture subindustries.

Table 8. Performance and environmental dynamism by subindustry

Subindustry	**Average performance**	**Average ED**
Forestry	3,19	3,02
Manufacture	3,59	2,96
Other	3,55	3,15

Slightly over half (53.9%) of participants are identified as large companies employing 20 or more employees. Table 9 shows more detailed information about the companies' sizes in terms of the number of employees. The majority of the large companies in this study have less than 50 employees.

Table 9. Size of the companies

Employees	Number of companies
10-19	77
20-49	56
50-99	16
100-249	10
250-499	4
500-99	1
>999	3

Table 10 shows the average performance and environmental dynamism of categories small and large in this study. Average figures indicate that the performance of larger companies is better than smaller companies and large companies see that their environment is more dynamic than small companies.

Table 10. Performance and environmental dynamism by company size.

Company size	Average performance	Average ED
Small	3,17	2,98
Large	3,57	3,04

The average participants have about 2,4 characteristics within their dominant logic profile. Table 11shows the distribution of the companies by the scope of their dominant logic profile. Most of the companies have between 1 to 3 characteristics within their dominant logic profile. Basic statistics indicates that average performance does not seem to vary significantly between companies with different number of characteristics within their dominant logic profile. Companies with only one characteristic within their dominant logic seem to perceive that their environment is slightly less dynamic than companies with more characteristics within their dominant logic profiles, especially those with 5 characteristics within their dominant logic profile.

Table 11. Number of characteristics in dominant logic profile

Number of characteristics identified within a company's dominant logic profile	Number of companies	Average performance	Average ED
1	30	3,40	2,92
2	67	3,44	3,05
3	48	3,29	3,01
4	19	3,43	3,02
5	3	3,22	3,27

Innovation characteristics show in dominant logic profiles of 57 companies. 110 companies do not have characteristics of innovation in their dominant logic profile. Table 12 shows that those companies with innovation characteristics within their dominant logic profile have, on average, a higher score in their performance related questions than those that do have innovation characteristics within their dominant logic profile.

Table 12. Innovation characteristics in a dominant logic profile

Innovation characteristics in a dominant logic profile	Number of companies	Average performance	Average ED
Yes	57	3,50	2,99
No	110	3,33	3,03

Both interaction variables have their means close to zero since the original continuous variables have been centralized for the creation of these variables.

Overall, the basic statistics gives some interesting indicators. The basic data shows that the average company performance and environmental dynamism does not seem to vary clearly between companies having different number of characteristics within their dominant logic profile. Those companies that have innovation characteristics within their dominant logic profile seem to perform better on average than those that do not have such characteristics.

4.2 Correlation matrix

This section presents the correlation matrix of all the variables used for this study. The purpose of a correlation matrix is to observe if a change in one variable is correlated with other variables.

Table 13. Correlation matrix

		1	2	3	4	5	6	7	8	9	10
1	Performance	1.000									
2	Forestry	-0.242*	1.000								
3	Manufacture	0.195*	-0.764*	1.000							
4	Other	0.079	-0.387*	-0.299*	1.000						
5	Small	-0.245*	0.354*	-0.263*	-0.147	1.000					
6	Large	0.245*	-0.354*	0.263*	0.147	-1.000	1.000				
7	ED	-0.064	0.012	-0.069	0.081	-0.048	0.048	1.000			
8	Scope	-0.036	0.033	0.037	-0.102	0.025	-0.025	0.050	1.000		
9	DL INNOVATION	0.102	-0.236*	0.231*	0.018	-0.109	0.109	-0.025	0.285*	1.000	
10	ED*Scope	0.035	0.033	-0.101	0.096	-0.191*	0.191*	-0.024	0.006	0.102	1.000
11	ED*DL INNOVATION	-0,053	-0.075	-0.661	0.205*	-0.164*	0.164*	0.529*	0.131	-0.030	0.278*
* Denotes significance at p<0.05											

The correlation matrix in Table 13 shows that company performance does not correlate strongly with any of the independent variables. In addition, only industry and size related control variables correlate with performance with values that are significant at 5% level. There should be a low-level probability of multicollinearity issues since correlations between most of the independent variables are less than 0.5. Therefore, the data seems to fit for the regression analysis. However, the analysis of the correlation matrix does not provide preliminary support for the hypothesis.

4.3 Results from the regression analysis

This chapter analyzes the results from the regression analysis. Table 14 shows the results of the regression analysis.

Table 14. Regression results

Variables	Coefficient	Std error	t-value	p-value
Subindustry				
Other				
Forestry	-0.278	0.204	-1.36	0.176
Manufacture	0.002	0.205	0.01	0.991
Company size				
Small				
Large	0.313	0.137	2.29	0.023
ED	-0.029	0.120	-0.24	0.810
Scope	-0.022	0.069	-0.32	0.752
DL Innovation	0.075	0.144	0.52	0.602
ED*Scope	0.030	0.105	0.28	0.778
ED*DL Innovation	-0.214	0.243	-0.88	0.380

N = 167
Prop > F = 0.0309
R-squered = 0.0998
Root MSE = 0.80102

The results do not show that the scope of a company's dominant logic profile in a dynamic environment would lead to statistically significant differences in its performance. The results do not show statistically significant differences in performance in a dynamic environment between companies that have innovation characteristics in their dominant logic profiles and those that do not have. Therefore, the regression analysis does not support either hypothesis of this study.

In addition, it can be seen from the model that there are no statistically significant differences between companies operating in different subindustries. The model, however, shows that that size of the company measured by the number employees explains the performance differences between companies. With every variable held constant, large companies perform better than small companies.

The model also shows that environmental dynamism does not have statistically significantly impact on company performance. Furthermore, the scope of a company's dominant logic with other variables held constant do not have statistically significant effect on performance. The same applies to companies with DL innovation compared to those without.

The next chapter will discuss the possible reasons for the rejection of the hypothesis as well what implications this will have for further research.

5 CONCLUSION AND FURTHER RESEARCH

The purpose of this chapter is to discuss the findings in relation to previous studies. The chapter will evaluate the results and discuss the limitations to this study. Lastly, the chapter will discuss possible managerial implications and further research suggestions based on this study.

The study was motivated by available research data from the Finnish forest sector. The data allowed for a possibility to develop research questions to investigate if the width of a company's dominant logic and the innovation characteristics present in a company's dominant logic are related to company performance. This study was an extension to previous studies on the link between a company's dominant logic and performance.

As mentioned earlier, previous studies have taken place in different industries. In many cases, the industries were seen as dynamic in studies of corporate outcomes in relation to dominant logic (e.g. von Krogh et al. 2002, Garg et al. 2003). The Finnish forest sector, based on industry sector data, can be at least seen as somewhat dynamic (The Finnish Forest Industries Federation d). Therefore, the setting to study the relationship between dominant logic and company performance was promising.

The hypothesis development followed the theory section of this study. Hypotheses for this study were developed from previous studies (von Krogh et al. 2000 and Garg et al. 2003). However, the hypotheses were adapted for the particular data and setting of this study.

The variables used and the research model used to test the hypothesis development of variables for characteristics of the dominant logic was perhaps the most challenging as there is clearly no standard way for this based on previous research. Characteristics of dominant logic in this study, however, followed closely previous studies (e.g., von Krogh et al. 2000 & Walters et al. 2005), where both internal and external characteristic were found in companies' dominant logic. The possibility of different results in dominant logic characteristic analysis in this study is also discussed further in the evaluation of the results and limitations that will follow.

The results, however, showed no statistically significant evidence for a positive relationship between the width of a company's dominant logic and company performance.

In addition, the results show no positive relationship between innovation related characteristics in dominant logic and company performance in the empirical setting. The results show that both hypotheses of this study were rejected.

5.1 Summary of the results

The first research question was to investigate what sort of relationship there is between the number of identified characteristics within a company's dominant logic and performance in dynamic environment. A hypothesis that the higher number of characteristics within a dominant logic of a company is positively associated with the company's performance in a dynamic environment was developed. This hypothesis was tested with the regression analysis. The results show that the independent variable of the number of characteristics do not seem to have influence on company performance in a dynamic environment. The research model rejects this hypothesis.

The second research question was to investigate what sort of relationship there is between innovation related characteristics within a company's dominant logic and performance in a dynamic environment. It was hypothesized that in a dynamic environment, companies with dominant logic characteristics related to innovation will be associated with better performance than companies with no such characteristics within their dominant logic. This hypothesis was also tested with the regression analysis. The results shows that the independent variable of innovation characteristics within a company's dominant logic do not seem to have influence on company performance in a dynamic environment. The research model rejects this hypothesis as well.

5.1 Evaluation and limitations of the results

There could be multiple reasons the evidence did not support the hypotheses in this study. First, as discussed in the theory section of this study, the link between dominant logic and company performance is complex. Even though this study controlled the size of the company and the subindustry, other factors might remain uncontrolled that affect company performance. The dominant logic for the companies in this study was measured from the questions that asked the companies to list factors that contribute the most to their success.

As we can see, from the analysis of the answers in chapter 3, companies identified many internal and external factors. Especially, external factors, such as benefits of certain location and availability of employees, might very between companies located in different parts of Finland, and therefore provide companies in one location a better opportunity for good performance than in other location.

Secondly, the sample size of this study was 175 companies. This is a larger sample than, for example, used by Garg et al. 2003, who conducted their study using field surveys from 105 single business manufacturing firms. However, especially the number to companies with a higher number of characteristics within in their dominant logic profile was quite small in this study. The number of companies with 5 or 4 characteristics within their dominant logic were 3 and 19, respectively. 57 companies had innovation characteristics within their dominant logic, which is about one third of all respondents.

Thirdly, this study identified dominant logic for the companies from the questionnaire's question: What factors contribute the most to your firm's long-term success? This is a single open-ended question that is answered with a word or a short sentence. As mentioned before in chapter 3, the analysis of the answers requires some judgement, and the research did not follow up with the companies on their answers to elaborate answers any further. This study found dominant logic profiles to include several characteristics. Similarly, the studies of von Krogh et al. 2000 and Walters et al. 2005 found several characteristics in dominant logic profiles as well. However, as mentioned before, there is no single way to establish dominant logic characteristics, and it is, therefore, possible that other research could have resulted in different dominant logic characteristics using the same data used for this study.

Fourthly, this study included companies from only the Finnish forestry sector. None of the previous studies that established the link between dominant logic and company performance studied companies in the forestry sector. As mentioned in the introduction of this study, megatrends are global and affect all the companies regardless of industry. The industry overview in chapter 1 also pointed out some new business areas and innovations relevant to the forest sector. However, it might be possible to argue that industries are different in terms of industry dynamics. Answers from the companies in this study identied the industry being somewhat dynamic with a mean of 3.014 on a scale between 1 and 5.

Some previous studies were conducted clearly in situations where that industry was going through some dynamic changes. For example, von Krogh et al. (2000) studied two telecommunication companies during the time in which the industry went through sudden and extensive changes, referred to as the "break point" in the industry (p. 88). Another example is from the study of Hadida and Paris (2014), where they focused on the development of the dominant logic in a fast-changing digital music industry. It is therefore possible that the results of this study could have been different if performed in a situation where the industry is clearly identified as going through some very rapid changes.

Fifthly, the companies participating in the survey were mainly small. Only eight companies employed 250 or more employees. Even though the size of the companies were controlled in this study, it is possible that the results would have been different if the study would have included, for example, only the large public forest sector companies in Finland. Previous studies, however, have focused on a wide variety of company sizes from large public telecommunication firms (von Krogh et al. 2000) to recently established private Chinese firms (Obloj et al. 2013).

As this study did not provide statistical evidence to support the hypotheses, the results of this study should be viewed with some reservation. However, the evaluation of the results provides some ideas for further research.

5.2 Managerial implications

The managerial implications of this study are limited as this study did not find evidence to support the connection between the width of dominant logic and performance nor the connection between innovation characteristics within a company's dominant logic and performance. However, as discussed earlier in this study, a positive association between the width of dominant logic and company performance has been previously established (von Krogh et al. 2002). Similarly, a positive association between innovation characteristics and company performance was established by Garg et al. (2003). It would be beneficiary to company owners and management to be aware of the previously established connection between dominant logic and performance. More practically, company owners or management could implement or make an effort to understand the measurement technics used in this study and previous studies to gain understanding of their company's dominant logic, performance, and environmental dynamism. This could

provide the owners or the management with more information about the current state of their company and enable them to follow developments through the years. As relevant evidence from future studies or other sources emerge, the management would then be in a better position to assess their companies' situation in light of the new evidence.

5.3 Further research

This study revealed several paths for further research. The direct link between dominant logic and performance differences is not widely studied, but as mentioned, some evidence of such a link has been established in previous studies (von Krogh et al. 2002, Crilly and Sloan 2012, and Garg et al. 2003). This study found no connection between the number of characteristics within a company's dominant and its performance in a dynamic environment. Neither did this study find a connection between innovation characteristics within a company's dominant logic profile and its performance in a dynamic environment. A similar study could be performed in another industry, which is clearly identified as going through significant changes. This could bring forward wider performance differences between companies within the industry. Another research possibility is to stay within the forest sector and take a step back with the analysis. A study could be conducted to investigate a link between a company's dominant logic and management's focus on their information attention (e.g., Crilly and Sloan 2012) or the company's strategy (e.g, Côte et al. 1999) or decisions and actions (e.g, Obloj et al. 2013).

REFERENCES

Bettis, R. and Prahalad, C.K. (1995). 'The dominant logic: retrospective and extension', Strategic Management Journal, Vol. 16, No. 1, pp.5–14.

Bowen, R. and Fry, R. (1991). Organizational innovation and learning. International Studies of Management and Organization 21: 37-51.

Côte, L., Langley, A. and Pasquero, J. (1999). Acquisition strategy and dominant logic in an engineering firm. Journal of Management Studies 36: 920-952.

Crilly, D. and Sloan, P. (2012). Enterprise logic; Explaining corporate attention to stakeholders from the 'inside-out', Strategic Management Journal 33: 1174-1193.

Ellonen, H-K., Jantunen, A. and Johansson, A. (2015). The interplay of dominant logic and dynamic capabilities in innovation activities. International Journal of Innovation Management 19: art. 1550052.

Engelmann, A., Kump, B. and Schweiger, C. (2020). Clarifying the dominant logic construct by disentangling and reassembling its characteristics. International Journal of Management Reviews

The Finnish Forest Industries Federation a. Metsäteollisuuden tuotantomäärät Suomessa 1960-luvulta lähtien. Viewed 2.11.2020.
https://www.metsateollisuus.fi/tilastot/metsateollisuus/

The Finnish Forest Industries Federation b. Metsäteollisuus on yksi suurimmista teollisuuden toimialoista. Viewed 2.11.2020.
https://www.metsateollisuus.fi/tilastot/metsateollisuus/

The Finnish Forest Industries Federation c. Metsäteollisuus Suomen kansantaloudessa. Viewed 2.11.2020. https://www.metsateollisuus.fi/tilastot/metsateollisuus/

The Finnish Forest Industries Federation d. Tutkimus ja innovaatiot. Viewed 3.11.2021.
https://www.metsateollisuus.fi/tutkimus-ja-innovaatiot

Garg, V.K., Walters, B.A. and Priem, R.L. (2003). Chief executive scanning emphases, environmental dynamism, and manufacturing firm performance. Strategic Management Journal 24: 725-744.

Hutcheson G.D. and Sofroniou N. (1999) The Multivariate Social Scientist: Introductory Statistics Using Generalized Linear Models. London: SAGE Publications Ltd. Available at:
http://search.ebscohost.com.ezproxy.cc.lut.fi/login.aspx?direct=true&db=e000xww&AN=309798&site=ehost-live (Accessed: 29 December 2020).

Hadida. A.L. and Paris, T. (2014). Managerial cognition and the value chain in the digital music industry. Technological Forecasting and Social Change 83: 84-97.

Maijanen, P. (2015a). Cognition as a driver and barriers of strategic renewal: Case if the Finnish Braodcasting Company. International Journal of Business Innovation and Research 9: 351-374.

Maijanen, P. (2015b) The evolution of dominant logic: 40 years of strategic framing in the Finnish Broadcasting Company, Journal of Media Business Studies, 12:3, 168-184.

Obloj, K., Weinstein, M. and Zhang, S. (2013). Self-limiting dominant logic: An exploratory study of Chinese entrepreneurial firms. Journal of East-West Business 19: 291-316.

Prahalad, C.K. & Bettis, R.A. (1986). The dominant logic: a new linkage between diversity and performance. Strategic Management Journal, 7, 485-501.

Schilke, O. (2014). On the contingent value of dynamic capabilities for competitive advantage: The nonlinear moderating effect of environmental dynamism. Strat. Mgmt. J., 35: 179-203.

Singh, S., Darwish, T. K. and Potočnik, K. (2016). Measuring Organizational Performance: A Case for Subjective Measures', British Journal of Management, 27(1), pp. 214–224

Statistics Finland. Statistics Finland Standard Industrial Classification TOL 2008. Viewed 2.11.2020. https://www.stat.fi/fi/luokitukset/toimiala/toimiala_1_20080101/0/

Dufta, M. (2020) SITRA. Megatrendit 2020. Viewed 3.11.2021. https://media.sitra.fi/2019/12/15143428/megatrendit-2020.pdf

Stora Enso (2021). Store Enso Annual Report 2020. Viewed 20.7.2021. https://www.storaenso.com/-/media/documents/download-center/documents/annual-reports/2020/storaenso_annual_report_2020.pdf

UPM (2021). UPM Annual Report 2020. Viewed 20.7.2021. https://www.upm.com/siteassets/asset/investors/2020/upm-annual-report-2020.pdf

von Krogh, G., Erat, P. and Macus, M. (2000). 'Exploring the link between dominant logic and company performance', Creativity and Innovation Management, Vol. 9, No. 2, pp.82–93.

Walters, BA, Priem, R., and Shook, CL. (2005). Small Business Manager Scanning Emphases and the Dominant Logic of the Business-Level Strategy. Journal of Small Business Strategy, 15 (2), 19-32.

Appendix 1.

Part of the questionnaire.

English translation from the original questionnaire that was in Finnish.

A. BACKROUNG INFORMATION

1) For your company:
    a. How many employees work in your company?
    b. What is the main industry of your company?

2) Evaluate the performance of your company. How well the following statemets describe your company: *(*On a scale of 1=strongly disagree 2 = somewhat disagree 3= neither agree nor disagree 4= somewhat agree, 5= strongly agree)

    a. Our EBIT (earnings before interest and taxes) is continuously above industry average.
    b. Our ROI (return on investment) is continuously above industry average.
    c. Our ROS (return on sales) is continuously above industry average.
    d. We have gained strategic advantages over our competitors.
    e. We have a large market share.
    f. Overall, we are more successful than our major competitors.

3) What factors do you think contribute most to the long-term success of your company?
    (open: 5-10 most important factors)

C. VIEW OF CHANGE ON OPEARATIONS, ENVIRONMENT AND BUSINESS

1) How well the following statements describe the industry (on a scale of 1 =strongly disagree – 5 = strongly agree)

    a. The modes of production are changed often and significantly.
    b. The environmental demands directed to us are constantly changing.
    c. The marketing practices in our industry are constantly changing.
    d. The environmental changes in our industry are unpredictable.
    e. New business models are frequently developed in our business environment.