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Finnish forest owner objectives as indicators for a diversifying use of forests on the road to a bioeconomy

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Academic Dissertation

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ABSTRACT

Non-industrial private forest (NIPF) owners are important forest ecosystem service providers and users. Along with the structural and general lifestyle changes of owners, their forest ownership objectives have become more diverse, strongly emphasizing intangible forest values alongside timber production. Therefore, NIPF owners and their versatile forest ownership objectives are a potential source of information for exploring the untapped future potential that could help the forest sector to retain its future viability on the road towards a bioeconomy.

This doctoral thesis aims to understand the drivers of demand for new forestry services and forest-based business opportunities from the perspective of NIPF owner objectives and forest meanings. Objectives and forest meanings are examined from methodological, socio-demographic and NIPF owner sustainable lifestyle perspectives, leading to more general examination of NIPF owner perceptions of future utilization prospects of forests and the forest sector. Thus, the objective of the thesis is to build a more in-depth understanding of NIPF owner objectives and to examine how this information could be used in the development and marketing of forestry services and other forest-related products and services.

The findings present a way to systematically analyse the objectives of forest ownership and also illustrate how certain segments of forest owners value aesthetics and biodiversity conservation over a traditional monetary value orientation. The results also indicate that the owners with the highest sustainable consumption orientation place a greater emphasis on multiple benefits of forests than owners who have a lower such orientation. The findings show that the future value creation of forests will be based on multiple aspects, and the widening of perspective beyond raw material dominance in the utilization of forests is important. Thus, recognizing customer pressure towards more diversified forestry services would be essential in meeting the versatile needs of forest owners but also from the perspective of developing new forest-based businesses.

Keywords: non-industrial private forest owners, forest ownership objectives, customer involvement, sustainable lifestyle, multiple use of forests, future use of forests

LIST OF ORIGINAL ARTICLES

In addition to this summary, this doctoral thesis consists of the following four articles, which are referred to by their Roman numerals. All the articles are reprinted with the permission of the publishers.

I Häyrinen L., Mattila O., Berghäll S., Toppinen A. (2014). Changing objectives of non-industrial private forest ownership: a confirmatory approach to measurement model testing. Canadian Journal of Forest Research 44(4): 290–300. https://doi.org/10.1139/cjfr-2013-0211

II Häyrinen L., Mattila O., Berghäll S., Toppinen A. (2015). Forest owners' socio-demographic characteristics as predictors of customer value: evidence from Finland. Small-scale Forestry 14(1): 19–37. http://dx.doi.org/10.1007/s11842-014-9271-9

III Häyrinen L., Mattila O., Berghäll S., Toppinen A. (2016). Lifestyle of health and sustainability of forest owners as an indicator of multiple use of forests. Forest Policy and Economics 67: 10–19. https://doi.org/10.1016/j.forpol.2016.03.005

IV Häyrinen L., Mattila O., Berghäll S., Närhi M., Toppinen A. (2017). Exploring the future use of forests: perceptions from non-industrial private forest owners in Finland. Scandinavian Journal of Forest Research 32(4): 327–337. https://doi.org/10.1080/02827581.2016.1227472

DIVISION OF LABOUR IN CO-AUTHORED ARTICLES

	I	II*	III	IV
Conception & design	LH, OM	LH, OM	OM, LH, SB, AT	OM, LH, MN, SB, AT
Planning & implementation	LH	LH	OM, LH, SB	OM, LH, MN, SB
Data collection	LH	LH	OM, LH	OM, LH, MN
Analysis & interpretation	LH, SB	LH, SB	LH, OM, SB	LH, OM, MN, SB
Writing the article	LH, AT, SB, OM	LH, AT, SB, OM	LH, AT, SB, OM	LH, AT, SB, OM
Overall responsibility	LH	LH	LH	LH, SB

LH = Liina Häyrinen, OM = Osmo Mattila, SB = Sami Berghäll, AT = Anne Toppinen, MN = Markus Närhi. *Article II is also a part of the doctoral thesis 'Towards service-dominant thinking in the Finnish forestry service market' (Mattila 2015).

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1. INTRODUCTION

1.1. Background to the research

Future forest use is influenced by a number of global developments and megatrends such as climate change, digitalization, urbanization, rapid population growth, decreasing biodiversity, and diminishing natural resources (Retief et al. 2016; IPCC 2018). Due to demographic change and economic growth, demand for renewable energy and other natural resources is constantly increasing, and experts expect a further increase in the future (FAO 2009). Also the recent climate report published by the Intergovernmental Panel on Climate Change (IPCC 2018) emphasizes the role of forests as carbon sinks. All these foregoing trends and changes require development towards a renewable natural resource based economy. Therefore, the role of forests in the promotion of sustainable development is highlighted globally in a number of policies and strategies (e.g. European Commission 2012; United Nations 2015).

In addition to a more sustainable use of natural resources, a more diverse use of forests is needed for future generations. Contributing to a bioeconomy has been proposed as one solution to the megatrends that have extensive effects globally. Often a bioeconomy is understood to be a driver for new renewable products and services and economic growth. While many definitions of bioeconomy exist, the concept in general refers to the transition from fossil-based fuels to a sustainable use of natural resources by taking advantage of renewable resources and new innovations (Staffas et al. 2013). However, according to Pülzl et al. (2014), in bioeconomy discourse, although sustainable development is supposed to be the main aim, economic aspects still dominate. Interest in a bioeconomy has increased rapidly in the past 10 years (Schmid et al. 2012), which can be seen from the increase in research in the area or the formulation of strategies and policies for a transition towards a bioeconomy at both national and international levels (McCormick and Kautto 2013; Staffas et al. 2013). Also in Finland, a bioeconomy and clean solutions were named as one of the five top initiatives in the Finnish government's parliamentary term 2015–2019. The strategic objectives of the Finnish bioeconomy strategy were named as: 1) a competitive operating environment for the bioeconomy, 2) new business from the bioeconomy, 3) a strong bioeconomy competence base and 4) accessibility and sustainability of biomass (Biotalous 2014). Furthermore, collaboration across disciplines and sectors has been indicated as an important factor in the transition towards a bioeconomy (European Commission 2011; McCormick and Kautto 2013). According to a study by Näyhä (2019), forest sector companies understand the concepts of a forest bioeconomy and a circular economy in various ways, and these concepts are strongly interlinked.

Globally forests are controlled and owned in variations of public and private ownership forms. At the European level, in countries such as the Nordic countries (except Iceland), France, Austria, Portugal, Spain and Slovenia, non-industrial private forest (NIPF) owners control more than half of the total forest area while, for example, in Turkey the figure is as low as 0.5% (Forest Europe 2015). There are variations across Europe in the nature of the ownership and management of forests as well as in the forestry mindset and structure due to historical differences (Wiersum et al. 2005; Forest Europe 2015; Keskitalo et al. 2017). According to Weiss et al. (2019a), at the European level, restitution and privatization processes in Eastern Europe and social and economic change in Western Europe have

stimulated the diversity of forest ownership in the last two decades. In particular, many countries in Europe as well as in the USA, where private forest ownership dominates, have experienced multiple changes in the structure of forest ownership and consequently also changes in NIPF owner objectives and service needs (Karppinen 1998; Butler and Leatherberry 2004). These changes have also impacted forest management and policy goals (Živojinović et al. 2015). In general, several studies have indicated that forest owners' decreasing dependence on forestry income, together with ageing of forest owners, urbanization and ownership fragmentation have been among the main trends of forest ownership change in Europe (Schmithüsen and Hirsch 2010; Živojinović et al. 2015), although comparisons between countries are somewhat challenging due to different conditions and variations in reporting (Keskitalo et al. 2017).

In Finland, NIPF owners control 60% of the country's forest land and 70% of the annual growth of wood stock (Luke 2019). Including both single- and jointly-owned forest estates (>2 hectares of forest area), Finland has 632,000 NIPF owners in a national population of 5.2 million. Overall, in 2013, 80% of the total volume of commercial fellings (approximately 45 million m^3) was harvested from forests belonging to NIPF owners (Finnish Statistical Yearbook of Forestry 2014). NIPF owners come from different socio-economic backgrounds and value different aspects of forests (Karppinen 1998; Hujala et al. 2013). Traditional business logic, which includes helping forest owners to manage their forest areas in order to grow timber and eventually cut down the trees, functions well for the majority of forest owners (Mattila 2015). At the same time, along with the changing lifestyles and intangible forest ownership objectives, an increasing share of non-traditional forest owners have different goals for their forest ownership. Therefore, forests can bring many other lifestyle benefits instead of, or in addition to, timber production. Today, according to Hänninen et al. (2011), the annual wood trade in Finland seems to be in the hands of fewer forest owners. Consequently, the diverse objectives and attitudes of owners related to forest ownership are seen as challenges from the viewpoint of the timber buying companies as well as other organizations that offer forestry services (Mattila 2015; Živojinović et al. 2015).

Karppinen (1998) stated that the objectives of individual owners are rather stable, and changes in objectives are mainly caused by structural change in forest ownership. As regards structural change in forest ownership (e.g. Ripatti 1994; Hänninen et al. 2011), owners born and raised in towns can have very different objectives for their ownership. Further, when the next generation of forest owners inherits the forests, the ownership will shift to individuals who may have only limited knowledge of forestry and who do not necessarily have incentives to actively manage their forests. In general, a need for guidance is increasing in forestry. An increasing selection of services in the timber trade is offered to NIPF owners, ranging from situation-specific advice to complete service packages (Toivonen and Kowalkowski 2019), and rapid digitalization is likely to add to the amount of services available in the future (Berghäll and Roos 2019).

From the opposite perspective, diversifying ownership can also be seen as an advantage in terms of the multifaceted policy goals for forests, which encompass tangible as well as intangible benefits (Weiss et al. 2019b). Further, as forest owners as consumers have come across the same trends in the markets, it is interesting to see whether their values are also reflected in their attitudes towards, and perceptions of, their forests. Alongside timber production, NIPF owners increasingly value other ecosystem services from forests or the existence of forests as such (Karppinen 1998; Majumdar et al. 2008; Urquhart et al. 2012; Weiss et al. 2019a). General lifestyle change and more recently especially an increasing

emphasis on green values can, thus, also impact forest owner perceptions of their forests in the future.

In addition to changes in forest ownership structure, changes have taken place also in the market and institutional environment of forest services in recent years in Finland. The aim of the renewal of the Finnish Forest Centre and Forest management association laws as well as the removal of the compulsory forest management association fee was free competition in the markets. Also, renewal of the Forest Act has brought more freedom for the NIPF owners when making forest management choices. It has been estimated that these changes have an effect on services available in the current markets (Mattila et al. 2013). Currently, forest services offered to NIPF owners are mainly focused on securing industrial timber procurement (Mattila 2015), but diversifying needs of forest owners indicate that forestry service organizations have to attach more importance to the diversification of their service repertoire.

1.2. Research objectives

Key actor perceptions of the future and of the challenges and opportunities of forest use will affect their strategies and actions and their relative capacities to realize their visions and, on the other hand, influence future forest use (Lindahl and Westholm 2012). As NIPF owners act and influence as important key actors of forest ecosystem service providers and users, they are a potential source of information for exploring the untapped future potential that could promote the Finnish forest sector on the road towards a forest bioeconomy. This doctoral thesis aims to understand the drivers of demand for new forestry services and forest-based business opportunities from the perspective of NIPF owner objectives and forest meanings. Objectives and forest meanings are reached from three different perspectives including methodological, socio-demographic as well as the sustainable lifestyle perspective of NIPF owners, leading to a more general examination of NIPF owner perceptions of the future prospects of forests and the forest sector in the final article.

Sub-study research objectives

While forest owner objectives have been studied extensively from several viewpoints, none of the previous studies have systematically tested the measurement model for latent ownership objectives using the 21–22 objective statements that are widely used in Finland (e.g. Kuuluvainen et al. 1996; Karppinen 1998; Favada et al. 2009). Thus, the objective of article I is to build a foundation for a stronger methodological analysis of ownership objectives by employing an additional methodological approach to test ownership objectives and to understand and explain NIPF owner objectives in a more statistically rigorous manner. (Article I)

Along with the structural change and changing forest ownership objectives, it is possible that some NIPF owners do not find forestry services in the market that motivate them to become interested in their forest, and consequently they might also become alienated from their forests. The objective of article II is to build a more in-depth understanding of NIPF owner objectives and to explore how information about the socio-demographic characteristics of owners could be used in developing and marketing forestry services. Thus, the objective is also to provide some new insights into why timber supply-oriented forestry

service offerings seem to be failing to meet the needs of a growing segment of NIPF owners in Finland. (Article II)

Despite the placing of more emphasis at the societal level on the ecological awareness of consumers and the potential of green marketing (Peattie 2001; Belz and Peattie 2012), sustainable consumption and the lifestyle aspects of NIPF owners have not been a focus in any of the previous studies. Thus, these aspects of forest owners are still largely unknown. The theoretical aim of the study is to validate a measurement model for forest owners engaged in pro-environmental consumption behaviour and its effect on the meaning of forest for owners. The empirical aim is to identify different consumer categories among NIPF owners by classifying them into groups based on their sustainability orientation and to determine how the valuation of various uses of forests differs between these groups. Consequently, the objective is to identify groups of people with non-traditional views of forest usage and to provide a better understanding of the needs of potential new customers. (Article III)

In the forest owner context, customer involvement in new service and product development has not been widely studied. Due to the long experience of forest owners in forest use and management, the study aims to shed some light on the important role that forest owners could play when identifying innovative ideas for forest utilization in the future. The aim of the study is to explore how forest owners in Finland recognize the future utilization prospects of forests. The research questions are: 1) Which linkages between forests and other industrial branches are recognized as most important in the development towards a forest bioeconomy? 2) How do sustainability-oriented forest owners perceive the current state and future of the forest-based sector in Finland? (Article IV)

2. CONCEPTUAL BACKGROUND AND EARLIER LITERATURE

2.1. Conceptual framework

Chapter 2 presents the earlier literature and the principal concepts and themes of the thesis that are discussed in the individual articles. Selected concepts and themes include: 1) NIPF owner objectives (articles I, II and III), 2) sustainability-oriented consumers (articles III and IV) and 3) customer involvement in new service development (NSD) (article IV) (Figure 1). To clarify the position of the concept of services in the thesis, the concept is considered to touch upon all the four articles at some level. However, as the concept of services can include various meanings depending on the context of how and where it is used, the thesis is able to provide a limited view of services. Consequently, the relevance of the concept is acknowledged and it is presented briefly before the principal concepts. The purpose of Figure 1 is to represent how the principal concepts and themes are positioned within the four individual articles. Thus, based on the results for the main concepts 1), 2) and 3) of the individual articles, the thesis argues that their outcome leads to a diversifying use of forests. Therefore, starting with an introduction to the concept of services, the following chapters present the conceptual background in more detail.

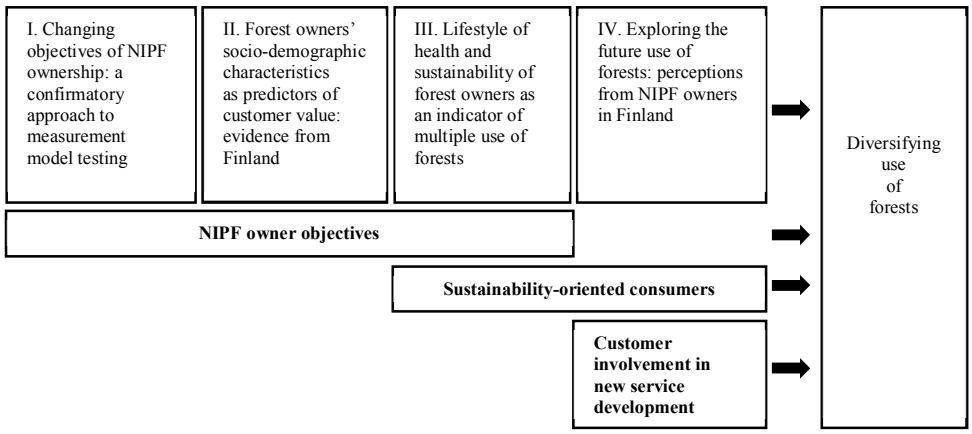

Figure 1. Main concepts discussed in the thesis in individual articles I–IV. NIPF = non-industrial private forest.

2.2. The concept of services

The interest in services has increased generally in both research and in the markets (Lusch and Vargo 2019). Overall, services account for 73.5% of the total gross value added of European Union countries in 2017 compared with 71.9% in 2007 (Eurostat 2019). While the concept of service is multidimensional in itself, services are also researched from multiple perspectives (Kunz and Hogreve 2011) and research is published in generic service research journals and application journals (see e.g. Christophe et al. 2011). Services can be approached, for example, from three different perspectives following Pelli et al. (2017): 1) services activities separate from primary production and manufacturing processing (i.e. how production is organized), 2) services outputs separate from tangible products (i.e. what is offered to the customer), and 3) service as a strategic orientation (i.e. how value is created). In contrast to products, commonly used features of services have been intangibility, heterogeneity, inseparability and perishability (Zeithaml et al. 1985; Moeller 2010). However, in the literature the traditional distinction between physical products and intangible services is often questioned (e.g. Vargo and Lusch 2004a; 2008). Traditionally, value creation has been examined from the perspective of goods-dominant logic that focuses on the value that a firm has embedded in goods or services, with value therefore added by increasing some features of the goods or services. By contrast, the main arguments of service dominant logic (SDL) is that service is the fundamental basis of exchange, goods are only distribution mechanisms for service provision, and value is co-created by multiple actors and always includes the beneficiary (Vargo and Lusch 2004a; 2008; 2016). Accordingly, Vargo and Lusch (2004b) define service as 'the application of specialized competences (knowledge and skills), through deeds, processes, and performances for the benefit of another entity or the entity itself'.

Although there are a number of studies relating to service marketing phenomena in general, research on forest services is still quite scant (Berghäll 2018). However, interest towards services has also gradually increased in forest sector research in recent years (Näyhä

et al. 2015; Pelli et al. 2017). Thus, in the forest context, Hetemäki and Hänninen (2013) have divided forest sector services into three categories: 1) forest-related (directly related to forests such as nature tourism or carbon sequestration in forests), 2) forestry-related (e.g. forest management planning, advisory services), and 3) industry-related services (related to the manufacturing of forest-based products, for example innovations, logistics, marketing of products). Further, regarding services offered solely to NIPF owners, Mattila et al. (2013) divided services into four categories: 1) forestry operational services, 2) wood trading related services, 3) property administration services, and 4) information services. Typically, forestry-related services are seen as support services that are needed to obtain forest-related services from forests (Näyhä et al. 2015). According to Toivonen and Kowalkowski (2019), instead of understanding services as add-ons to material products, companies should adopt a deeper view of services that requires knowledge acquisition from diverse customer contexts and a thorough design of customer encounters in order to support the customers' own value creation.

In addition, there is ample research on the benefits that people obtain from forests, referred to as ecosystem services. Ecosystem services include: 1) provisioning services such as food, water, timber and fibre, 2) regulating services that affect climate, floods, disease, waste, and water quality, 3) cultural services that provide recreational, aesthetic and spiritual benefits, and 4) supporting services such as soil formation, photosynthesis, and nutrient cycling (MEA 2005). Näyhä et al. (2015) state that forest-related services are often understood to be the forest ecosystem services that forests produce.

Following the categorization by Hetemäki and Hänninen (2013), forest sector services discussed in this thesis mainly focus on groups 1 (forest-related services) and 2 (forestry-related services), although some elements of the third group (industry-related services) can be recognized.

2.3. Review of forest owner objectives research

There is an extensive body of research on forest owner objectives globally. Beginning with Kuuluvainen et al. (1996), studies have found NIPF owner objectives to be multidimensional (see e.g. Urquhart and Courtney 2011). Key dimensions presented by the literature in the majority of studies are timber sales income, economic security, non-timber values, and self-employment opportunities (Kuuluvainen et al. 1996; Karppinen 1998; Kline et al. 2000; Favada et al. 2009). Owner profiling, often referred to as typologies, have been identified using both quantitative and qualitative methods (see Tables 1 and 2). According to Emtage et al. (2007), typologies help to understand complex relationships between various factors affecting peoples' behaviour and state that statistical approaches can provide breadth and generalization for the studies, while qualitative methods provide greater depth of understanding. Forest owners have been segmented, for example, on the basis of structural attributes of their forest properties, ownership objectives and management behaviour (Ficko et al. 2019). Thus, forest owner objectives, based on different typologies, have been studied from several viewpoints such as timber harvesting and forest management behaviour (Kuuluvainen et al. 1996), improving communication between forest owners and service providers or authorities on the field (Boon et al. 2004; Butler et al. 2007), reaching new forest owners (Hogl et al. 2005), recommendations for forest policies (Ingemarson et al. 2006), targeting forest management advice (Kendra and Hull 2005), fostering the production of non-

timber services (Kline et al. 2000), forest owner information needs (Toivonen et al. 2005) and the willingness and ability of owners to deliver public benefits of forests (Urquhart and Courtney 2011).

To form typologies, one very popular approach to owner objectives has been the division of forest owners into various objective groups using factor and cluster analysis methods. Table 1 shows a selection of studies using quantitative methods of segmentation (see more in Ficko et al. 2019). While there are numerous different owner typology studies, Tables 1 and 2 are meant to illustrate examples of different approaches rather than to give a comprehensive list of objective studies. For example, according to Boon et al. (2004), a comparison between earlier studies has shown that forest owners are inclined to fall within the following five groups: the economists, multi-objective owners, recreationalists, self-employed, and passive owners, whereas Urquhart et al. (2012) made a rougher division into production- and consumption-oriented owners that can be classified into further subtypes. Different forest owner objective studies, however, have used different theories as the basis of the study, and no constant universal model has been formed (see Blanco et al. 2015). Consequently, Hujala et al. (2013) notes that often typologies are used only once in a particular study and have no direct relation to other parallel segmentations. Further, forest owner objectives depend on cultural context (Kuuluvainen et al. 1996), which has been one cause of versatile objective measurements. Information on different types of owners can be used to inform policymakers and service providers (Hujala et al. 2013). Takala et al. (2017) used discourse analysis in the study of ownership objectives, challenged the concept of multi-objectivity and argued that the coexistence of the economic non-monetary objectives of forests is not always as non-problematic as often shown in the ownership typologies. Careful consideration is always needed before emphasizing the complementarity of these objectives because for some owners there is a conflict between these two as long as economic objectives means wood production. Therefore, although mainly quantitative, objectives and motivations of NIPF owners have also been identified using qualitative or mixed methods (Table 2).

In the Finnish context, forest owner objective studies have often used 21–22 NIPF owner objective measurements (e.g. Kuuluvainen et al. 1996; Karppinen 1998; Favada et al. 2009; Hujala et al. 2013). Although the background to the objectives in articles I and II is based on the seminal work by Kuuluvainen et al. (1996), the scale was originally used in Ihalainen (1990) with 21 objectives. In the studies that employed the scale (e.g. Kuuluvainen et al. 1996; Karppinen 1998), a typology of four main ownership groups was revealed (i.e. the investors, recreationalists, self-employed, and multi-objective owners) with a fifth group, the indifferent owners, emerging more recently (Favada et al. 2009). In the study by Kuuluvainen et al. (1996), objective grouping was used in the timber supply analysis and was later improved by Favada et al. (2009). By using the same variables in the studies, the approach has enabled the monitoring of forest owner objectives over time. However, the problem in the owner categorization using principal component and cluster analysis, is that results are not directly comparable with those of previous studies because different data sets might lead to different factor solutions even though the same variables are used in the analyses.

According to the review of forest owner typologies by Ficko et al. (2019), while earlier studies focused on enhancing roundwood mobilization, more recently the motivation behind studies has been the public demand for ecosystem services. Studies of forest ownership objectives have increasingly also emphasized the intangible dimensions of objectives. For example, in a Canadian study, Côté et al. (2015) observed that the importance of objectives related to relaxation, recreation and enjoyment has increased from the 1970s. Authors also

reported that often working in the forests was more important than supplementing income. Also Niskanen et al. (2007) stated that for some owners, forest as a symbolic asset may be more meaningful than economic profitability. More recently, in a study by Pynnönen et al. (2018), forest owner objectives were combined with preferred forest management style and it was found that a large share of forest owners are willing to manage their forests by combining economic and other objectives equally.

Table 1. Selection of quantitative studies classifying non-industrial private forest (NIPF) owners into different groups (modified from article I).

Study & location	Objective	Method of segmentation	Owner groups/typology
Kuuluvainen et al. (1996), n=146, Southern Finland	Identification of ownership objective groups, establishing the link between ownership objectives and observed harvesting behaviour	Principal component analysis & K-means cluster analysis	Multi-objective owners, recreationalists, self-employed owners, investors
Karppinen (1998), n=245, South-eastern Finland	Creation of a typology of owners based on forest values and long-term objectives of ownership to identify these types by owner and holding characteristics, and to analyse silvicultural and harvesting behaviour	Principal component analysis & K-means cluster analysis	Multi-objective owners, recreationalists, self-employed owners, investors
Kline et al. (2000), n=461, USA: 19 western Oregon counties & 19 Washington counties	Examination of forest ownership objectives and willingness to accept incentive payments to forego harvesting to improve wildlife habitat	Principal component analysis & hierarchical cluster analysis	Timber producers, multi-objective owners, recreationalists, passive owners
Boon et al. (2004), n=1553, Denmark	Identification of forest owner types	Hierarchical cluster analysis & K-means cluster analysis	Classic forest owner, hobby owner, indifferent farmer
Hogl et al. (2005), n=930, Austria	Identification of forest owner types	Principal component analysis & hierarchical cluster analysis	Farmer forest owners, part-time farmers, 'small-towners' with rural background, forest owners previously employed in agriculture, farm leavers, urban forest owners, forest owners unconnected with agriculture
Wiersum et al. (2005), n=1401, 8 European countries: Denmark, Ireland, the Netherlands, Austria, Germany, Hungary, Greece, Spain	Identification of ownership and management characteristics and rural area future perspectives	Factor analysis, hierarchical & K-means cluster analysis	Indifferent, environmentalist, multifunctional, self-interested
Kendra and Hull (2005), n=1518, USA: 6 counties in Virginia: Montgomery, Frederick, Spotsylvania, Bedford, Henrico, Chesterfield	Assessment of the motivations and forest practices of new forest owners	Principal component analysis & cluster analysis techniques	Absentee investors, professionals, preservationists, farmers, forest planners, young families

Ingemarson et al. (2006), n=1010, Sweden	Identification of different types of forest owners	Hierarchical cluster analysis	Traditionalist, economist, conservationist, passive owner, multi-objective owner
Butler et al. (2007), n=8051, USA	Categorization of owners according to attitudes and levels of engagement and interest in forest management, exploring some of the implications for communication efforts	Hierarchical cluster analysis, principal component analysis & K-means cluster analysis	Woodland retreat owners, working the land owners, supplemental income owners, ready to sell owners
Majumdar et al. (2008), n=1854, USA: 3 states: South Carolina, Georgia, Alabama	Characterization of forest owners based on their feelings about forest stewardship and their stated reasons for owning forestland	Hierarchical cluster analysis, principal component analysis & K-means cluster analysis	Multiple-objective group, timber owners, non-timber owners
Favada et al. (2009), n=3051, Finland	Examination of factors affecting NIPF timber supply using a consistent estimation method for a limited dependent variable mode	Principal component analysis & K-means cluster analysis	Multi-objective owners, recreationalists, self-employed owners, investors, indifferent owners
Urquhart and Courtney (2011), n=426, 3 areas in England: the Lake District National Park, the High Weald Area of Outstanding Natural Beauty, the county of Cornwall	Developing a quantitative typology of private woodland owners and understanding of the willingness and ability of traditional and new owner groups to deliver public benefits	Principal component analysis, hierarchical & non-hierarchical clustering techniques	Investor, individualist, private consumer, amenity owner, multifunctional owner, conservationist
Hujala et al. (2013), n=2106, Finland	Combining two previously documented owner classification frameworks to form and analyse customer segments for decision-support services	Factor analysis, K-means cluster analysis & cross-tabulation	Multi-objective learners, multi-objective thinkers, learning recreationalists, learning investors

Table 2. Selection of qualitative and mixed methods studies classifying non-industrial private forest owners into different groups.

Study & location	Objective	Method of segmentation	Owner groups/typology
Hugosson and Ingemarson (2004), n=14, n=16, Sweden	Proposing a theoretical model for empirical studies of objectives and motivations, and to depict motivations and objectives of small-scale forest owners	Qualitative, semi-structured interviews (both foresters and forest owners)	Owners motivated by conservation, utilities, amenities and economic efficiency
Kvarda (2004), n=22, n=1210, n=40, Austria	Drawing attention to the latent transformation of the ownership structure of forest owners and their interests in forests and forestry	Mixed methods, multiple sources: 1) 22 expert interviews, 2) 1210 structured questionnaires (350 land owners, 860 inhabitants), 3) 40 semi-structured, problem-centred interviews	Forest owner, forest farmer, farmer without a forest, only a land owner
Nichiforel and Schanz (2011), n=22, Romania	Understanding the behavioural patterns of private forest owners operating as institutional entrepreneurs by means of rent-seeking in a real-world context	Qualitative, forest owner interviews	Classic rent-seeking owners, entrepreneurial rent-seeking owners
Stanislovaitis et al. (2015), n=18, Lithuania	Aiming to provide detailed contextualized portrayals of private forest owners	Qualitative, content analysis of narrations	Forest businessmen, household foresters, passive forest lovers, ad hoc owners
Blanco et al. (2015), n=31 (publications), Europe and USA	Understanding of forest owner decision-making and its implications for forest land-use change by developing a forest owner functional typology based on a meta-analysis of information about forest owners and their decision-making strategies across the developed world	Meta-analysis of quantitative and qualitative information	Industrial productionist, non-industrial productionist, for-profit recreationalist, for-profit multi-objective, non-profit multi-objective, recreationalist, species conservationist, ecosystem conservationist and passive owner
Takala et al. (2017), n=24, 3 municipalities in Eastern Finland	Aiming to examine how private forest owners adhere to different discourses on forests when producing meanings for forests and forest ownership	Discourse analysis combining qualitative (content analysis) and quantitative (non-metric multidimensional scaling ordination analysis) methods	Forester, economist, distant economist, critical anti-economist, dutiful forest owner

2.4. Sustainability-oriented consumers

While bioeconomy goals have been discussed increasingly in research and policies, concern over sustainable development has directed the discussion also towards the sustainable lifestyles of individuals (e.g. IGES 2019). Consumers have increasingly realized that their consumption behaviour has an impact on the environment and thus they are likely to choose products that are more ecologically friendly or socially responsible (Laroche et al. 2001; Jaca et al. 2018). Consequently, marketing managers are also more interested in the green segment of consumers (see Belz and Peattie 2012).

Green consumerism can be defined intellectually, morally and practically as a complex form of consumer behaviour (Moisander 2007). Both attitudinal and behavioural components have been commonly used to measure the environmental consciousness of consumers (Diamantopoulos et al. 2003; McDonald et al. 2012). According to McDonald et al. (2012), attitudinal factors include intentions, motivations and beliefs or values, while behavioural components consist of the kind of activity, the amount of the activity, and the consistency of the reported activities. Measurement is also frequently based on the self-reporting of the behaviour rather than actual behaviour (McDonald et al. 2012; D'Souza et al. 2007). This is known as the attitude–behaviour gap (Peattie 2010), which can lead to problems with social desirability bias (see Barbarossa and De Pelsmacker 2016). According to an extensive literature review by Diamantopoulos et al. (2003), the green consumer segment has been profiled using a large set of variables consisting of geographic, cultural, personality and socio-demographic measures. The socio-demographic approach is particularly widely used and easily obtained, but its relation to environmental behaviour has often generated inconsistent and conflicting results, indicating the limitations of employing this method in segmentation (Straughan and Roberts 1999; Peattie 2001; Diamantopoulos et al. 2003; Roos and Nyrud 2008; Thompson et al. 2010; McDonald et al. 2012). Thus, to understand and identify the underlying determinants of sustainable consumerism, emphasis should be placed on psychographic variables (Straughan and Roberts 1999).

One emerging concept in the segmentation of sustainable consumers is lifestyles of health and sustainability (LOHAS) (Natural Marketing Institute 2008; Ernst & Young 2008; Belz and Peattie 2012; Choi and Feinberg 2018). LOHAS builds on the foundational work of Ray and Anderson (2000), who conducted extensive research among US citizens that revealed a newly emerging subculture that consisted of creative citizens oriented towards a sustainable lifestyle. Belz and Peattie (2012) argue that LOHAS consumers make conscious decisions and believe that consumption habits can change the markets. In China, for example, LOHAS-oriented consumers have been found to be more willing to pay price premiums for children's furniture compared with consumers with no such orientation (Wan and Toppinen 2016). There is also evidence that consumers following a sustainable lifestyle also have a tendency to seek more information (Belz and Peattie 2012; Chen 2014), are dedicated to developing themselves (Yeh and Chen 2011), and like to experience new challenges (Chen 2014). Mohr (2011) argues that LOHAS consumers are a new social majority that will revolutionize the consumption markets in the future. In Finland, for example, it is estimated that LOHAS consumers form a third of the population (Korhonen 2012), whereas Belz and Peattie (2012) reported that the share in the USA is almost one-fifth of adults. Although demographic segmentation variables have been found only weakly to predict willingness to engage in sustainable consumer behaviour, the gender criterion has been the exception, as according to Belz and Peattie (2012), studies have shown that middle-aged women with children are more inclined to consider environmental and social criteria in their purchasing decisions compared with men. For example, in the study of a Chinese furniture market, women were more often associated with LOHAS orientation than men (Wan et al. 2015). Similar findings have been depicted among Hungarian consumers (Szakály et al. 2017). The concept of LOHAS has also faced criticism for being just a novel phenomenon that allows consumption without a guilty conscience (Bilharz and Schmitt 2011). Other criticism is related to the concept's rather varied measurement practices and consequently, it has been argued that the concept of LOHAS requires more careful research (Choi and Feinberg 2018).

Although the research based on the pro-environmental behaviour of NIPF owners is rather non-existent, there are studies of consumers' environmentally conscious behaviour and perceptions in a wood product context. The research conducted in Sweden and Norway showed that consumers who prefer eco-labelled wood products differ from the consumers with a low preference for these products in the way they prefer different product characteristics (Roos and Nyrud 2008) (see Table 3). A study by Thompson et al. (2010) in the USA indicated that consumers who reported preferences for environmentally certified products were also more likely to display environmentally conscious behaviour. Further, in a study of wooden terrace materials, Holopainen et al. (2014) argued that elderly and female consumers, in particular, are more likely to search for more sustainable consumption options. Toivonen (2011) argues that wood product manufacturers should pay more attention to communicating environmental quality and endow products with detailed environmental information particularly if environmental quality is intended to differentiate the product in the markets. However, Thompson et al. (2010) emphasize that consumers should have confidence in the meaningful environmental benefit of the product in order to show a preference for green products and to pay price premiums for them.

Table 3. Examples of sustainable consumer behaviour studies in the wood product context.

Study & location	Objective	Main results
Toivonen (2007), UK, n=40	To examine whether B2B customer perceptions of environmental product attributes are structured as one or several dimensions, the importance of environmental quality, and how environmental quality relates to other product attributes from the customer perspective	In addition to sustainable forestry and environmental issues, also health impacts of wood products are very important. The environmental quality (EQ) is a two-dimensional and information-related matter. It is important for manufacturers to add detailed environmental related information to products if the EQ of the product is used to differentiate from the competitors.
Roos and Nyrud (2008), Sweden and Norway, n=95, n=106, n=94, n=95, n=210	To distinguish and describe consumers that assign high value to the eco-labelling of wood products	Consumers who preferred eco-labelled wood products focused less on the product type than consumers that reported a low preference for eco-labelled wood properties. These consumers presented a low price sensitivity, were more often women, included a higher share of married couples/cohabiters and a secondary education, had less advanced plans concerning purchase, and had preferences for product warranty.
Thompson et al. (2010), USA, n=303, n=478	To investigate whether a relationship exists between demographic and psychographic characteristics and reported environmentally conscious intentions	Consumers who report the strongest preferences for environmentally certified forest products are more willing to pay a premium for certified products, more likely to display environmentally conscious behaviour and more likely to perceive that green consumer purchases effectively benefit the environment. These characteristics are most common among females and those familiar with the concept of environmental certification.
Toppinen et al. (2013), Finland, n=227	To investigate consumers' perceptions of environmental and social sustainability of wood products	Perceived environmental and social sustainability of wood products was observed to be a two-dimensional construct consisting of 'General environmental and social sustainability' and 'Specific social sustainability' (product safety related) dimensions. The 'General' dimension also explains the consumer's self-declared willingness to pay for sustainable wood products.

		The most environmentally and socially conscious group can be profiled by gender (female), older age, and summer cottage ownership.
Holopainen et al. (2014), Finland, n=208	To examine the dimensionality of sustainability in perceived consumer value in the context of wooden products	Consumer value dimensions for sustainable and responsible wood products were identified to consist of 'Information and product origin', 'Consumer activity', 'Product image' and 'Quality'.
Wan et al. (2015), China, n=299	To investigate the presence of the lifestyles of health and sustainability from the perspective of the children's furniture market	83% of respondents preferred solid wood as raw material for children's furniture. Eco-friendly furniture contains the key attributes: natural, non-poisonous, and scentless material; adoption of environmental certification; verification of legal origin of wood.

2.5. Customer involvement in new service development

The benefits of customer involvement have been recognized as important in terms of new service and product development in various industries (e.g. Alam and Perry 2002; Magnusson et al. 2003; Lundkvist and Yakhlef 2004; Carbonell et al. 2009; Edvardsson et al. 2012). In the process of involving customers in NSD, potential users are invited to actively take part in NSD (Magnusson et al. 2003) by bringing unique knowledge to the service design process. According to Matthing et al. (2004), customers are seen as a vital resource for NSD rather than being a necessity. Alam (2002) conducted a study of the financial services industry and found objectives of user involvement focusing on development of a superior and differentiated service, reduction of cycle time, facilitation of user education, rapid diffusion of innovations, strengthening of public relations and maintaining a long-term relationship with customers. In the context of telecommunication services, Magnusson et al. (2003) found that customer involvement led to ideas for new innovative and useful services, and affected the quality of the generated ideas, but that involvement is also dependent on how it is managed. Thus, companies that utilize the potential of customer involvement will gain a competitive advantage. Further, findings of Carbonell et al. (2009) from a varied set of industries indicated that there is not a direct relationship between customer involvement and competitive superiority and sales performance, but rather customer involvement had an indirect effect by positively affecting technical quality and innovation speed of new service projects. In addition, a study by Melton and Hartline (2010) revealed that customer involvement in specific stages of NSD leads to better preparation for the product launch and improved marketability, which in turn leads to improved sales performance and project efficiency. Also, clarifying the roles of customers and front-line employees of organizations in different stages of NSD processes can lead to more efficient use of resources and improvements in project results in organizations (Melton and Hartline 2010).

In the forestry context, the literature on customer involvement in NSD is scarce. However, some research has been conducted on related areas such as nature-based tourism. Konu (2015a) evaluated the usability of the Delphi method in nature-based tourism studies and concluded that the method provided valuable information for the service idea generation and evaluation phases in NSD. In another study, Konu (2015b) indicated that application of an ethnographic approach in NSD enables quite intensive involvement of customers in NSD. Albeit in the forest owner context, customer involvement has hardly been studied, there are few interesting studies of NIPF owner innovativeness. According to Hansen et al. (2019),

NIPF owners can innovate by adopting technologies, concepts and services from the markets or conversely by creating their own technologies, concepts and services that they offer to the marketplace. In a Norwegian study by Nybakk et al. (2009) that examined forest owner innovativeness, it was found that an owner's higher level of learning orientation and social network are critical antecedents for their innovativeness. Moreover, innovativeness was found to be an important factor in obtaining high performance levels, and larger property size owners were more effectively able to turn innovativeness into higher performance. Furthermore, another Norwegian study examined factors that affect the NIPF owners' rate of starting new activities on their land (Lunnan et al. 2006). The research indicated that forest owners who reported higher entrepreneurial orientation have a higher probability of starting up new activities, suggesting that more emphasis should be placed on developing entrepreneurial attitudes among forest owners but also improving the institutional setting stimulating business activities. In a Europe-wide study, the main obstacles for innovative forest management were depicted as a lack of knowledge among private forest owners and related advisory systems, the traditional mindset of forestry professionals not reflecting the goals and needs of new forest owners, as well as a lack of entrepreneurial thinking (Živojinović et al. 2015).

As customers are regarded as co-designers of the new services (Magnusson et al. 2003), customer involvement is very closely related to SDL (e.g. Vargo and Lusch 2004a; 2008; 2016) as SDL considers customers as co-creators of value. Mattila et al. (2013) evaluated under the lens of SDL that the focus of forestry organizations on the optimization of raw material flows is not the optimal path to develop new services. Further, as the global economies become more service oriented, also forest sector firms recognize the need to compete on the basis of new innovative service offerings (Pelli et al. 2017). In a study of forest-related recreation services it was argued that innovations are more typically incremental rather than radical (Weiss et al. 2007). Against the backdrop of technology's critical role in NSD (Carbonell et al. 2009), there is an increasing amount of organizations that have invested in new digitalized service platforms to serve NIPF owners.

3. METHODOLOGY AND RESULTS

3.1. General

This thesis consists of four peer-reviewed published articles. It employs both quantitative and qualitative methods, although the methodological emphasis is quantitative. While the first three articles are purely quantitative, the methodology of the fourth article can be described as mixed method, as both quantitative and qualitative methodology are employed.

Data collection processes are described in the next three sections followed by a summary of the methods and results of the individual articles. More detailed description of the methodologies and analyses used can be found in all the four articles. In addition, Table 4 summarizes the methods, data sources and main results of the four individual articles of this thesis.

Postal survey for non-industrial private forest owners (articles I and II)

Articles I and II are based on the quantitative forest owner data collected through a postal survey at the turn of 2011/2012 (Appendix 1). The survey data were collected from a population of 300,000 Finnish NIPF owners, whose addresses were received from the register held by the Central Union of Agricultural Producers and Forest Owners. The register consisted of all NIPF owners in Finland (excluding Ahvenanmaa) who pay a forest management fee collected by forest management associations. The aim was to ensure the representativeness of all geographical areas in Finland, and therefore a sample of 2047 forest owners was selected by stratified random sampling weighted by the amount of NIPF owners in each forest management association. Consequently, 557 utilizable responses were received. The response rate was 27%.

The questionnaire consisted of owners' socio-demographic characteristics and ownership objective statements (and questions on forestry service experiences that are not reported in the context of this thesis). Due to limited resources, the non-response bias was analysed by comparing the background characteristics (age, gender, residential area, basic education, vocational education, professional status, living on the forest holding, forest ownership form) of on-time (n=404) and late respondents (n=153) (Lindner et al. 2001). On-time respondents diverged significantly from late respondents in terms of age, as the mean age of on-time respondents was 61, while late respondents were 64 years old on average. Other comparisons did not reveal significant differences at the 0.05 probability level, and as the age difference between on-time and late respondents was also relatively minor, it was considered that this difference did not distort results or affect sample representativeness. When exploring the forest owner background characteristics in the data, overall they showed similarities to characteristics identified in a previous nationwide study (Hänninen et al. 2011). NIPF owner objectives were identified by asking owners to rate the importance of the 22 objectives using a scale from 1 to 5, where 1 indicates the weakest motivation and 5 indicates the most important motivation (1 = not important at all, 3 = I don't know, 5 = very important). Prior to analysis, the answer 'I don't know' was recoded as 1, which also changed the other alternatives (1 = I don't know, 2 = not important at all, 5 = very important). Thus, respondents were not forced to answer statements, because when aiming for one-dimensional measures, an 'I don't know' answer was considered to indicate a lower intensity in attitude when compared with a meaningful answer of 'not important' or a higher attitude intensity (important or very important).

Telephone interviews for non-industrial private forest owners (articles III and IV)

Article III is based on the forest owner data collected through a telephone survey in August 2013. An external market research agency was employed to conduct interviews (Appendix 2). The sampling and contact information were based on the nationwide customer database of the Finnish Forest Centre, which includes around 300,000 NIPF owners. As the average age of forest owners is 60 years (Hänninen et al. 2011), the current age structure of the forest owners was not followed, instead focusing on younger owners because the aim was not to achieve an absolutely representative sample of landowners, but more to show the future behaviour of the owners. Hence, the sample was collected by selecting approximately 20% of forest owners from five age classes (under 30, 31–39, 40–49, 50–59 and over 60 years of age). The questionnaire was pre-tested, modified and refined before starting the final

questionnaire round. In the actual study phase, 402 respondents were interviewed, from which the responses of 394 were suitable for analysis for article III and 278 for article IV. Questions included structured questions on the socio-demographic background of NIPF owners (not utilized in the context of the thesis articles) and their perceptions of sustainability-oriented consumption behaviour, and a measurement scale consisting of statements on the meaning of forest.

The sustainability orientation of forest owners was measured by 10 statements on a five-point scale (1 = strongly disagree… 5 = strongly agree). Since nine of the measurement items were positive and one of them was the reverse (statement 4), it was recoded (1=5, 2=4, 3=3, 4=2, 5=1) to correspond with the rest of the statements. In addition, 18 statements concerning 'the meaning of forest' and 'forest ownership and use of forest' were presented and respondents were asked to answer from 1 (not important) to 5 (very important). These questions were used in article III. In addition, the final part of the questionnaire included an open-ended question and thus, forest owners were asked to consider which other related or supporting sectors could be utilized when considering the future utilization prospects of forests. This question was utilized in article IV.

Forest owners focus groups (article IV)

Focus group discussions were used to enrich the data of article IV collected during the telephone interviews. Focus group participants were therefore purposefully selected from the sample of telephone interviewees. Forest owners were again contacted by phone and invited to join a focus group meeting. The aim was particularly to identify and select a subsample of forest owners, who, based on the structural equation modelling of the first-stage interview data (reported in article III), showed high involvement in environmental and social sustainability and forest ownership issues. This setting for the focus group discussions was developed from the quantitative part of the data collected through a telephone survey, as in article III it was found that more sustainability-oriented forest owners value multiple forest aspects higher than other owners. With this background, the hypothesis was that also the pro-environmental lifestyle of owners affects how they utilize or value forests, and consequently this could lead to more in-depth views on the sustainable use of the natural resources, contributing to future service and product provisioning. Forest owners from less sustainability-oriented groups were also accepted to join the focus groups, as it was believed that the discussions would be more fruitful if they involved participants with different viewpoints in the groups. The final sample of owners therefore consisted of 11 participants placed in two sustainability-oriented groups as well as 5 participants forming two less sustainability-oriented groups. The orientation of one attending forest owner was not identified as she accompanied another forest owner. The qualitative research data were thus collected in four focus group meetings in January and February 2014, consisting in total of 17 NIPF owners. Participant age varied from 26 to 68 years, with a total of eight females and nine males. The groups varied in size from three to six participants and the focus group meetings ranged from 40 to 89 minutes in length, with a mean of 69 minutes. The focus group interviews were audio-recorded and transcribed, and the discussions were led by a moderator.

The pre-selected topics covered the following themes: 1) the significance of being a forest owner (why they own a forest, what it means to own a forest, what they think about different ways to use forests, their objectives), 2) the current state of the forest sector in Finland, 3) the future of the Finnish forest sector (overview, potential, new ways of using forests, forest-

based products substituting non-renewables) and 4) future plans as a forest owner (willingness to keep the forest estate, how to develop the sector from the viewpoint of an owner, networking, communication and information sources) (Appendix 3).

Table 4. Summary of methods and results in the four articles. NIPF = non-industrial private forest.

Article	I	II	III	IV
Method	Quantitative, descriptive data analysis, exploratory and confirmatory factor analysis	Quantitative, descriptive data analysis, exploratory factor analysis, one-way analysis of variance	Quantitative, exploratory and confirmatory factor analysis, one-way analysis of variance	Quantitative and qualitative, descriptive data analysis, content analysis
Data sources	Postal survey in 2011–2012	Postal survey in 2011–2012	Telephone interviews in 2013	Telephone interviews in 2013 and 4 focus group discussion sessions in 2014
Target population	Finnish NIPF owners (n=557)	Finnish NIPF owners (n=557)	Finnish NIPF owners (n=394)	Finnish NIPF owners (n=278 & n=17)
Main findings	The empirical measurement model structure of NIPF owner objectives consisted of four latent variables: sense of economic security, recreation and leisure time, source of income, and forest aesthetics and conservation.	A four-dimensional structure was identified behind NIPF owner objectives. The owner segments (gender, education, residential area) value objectives differently.	NIPF owners with the highest sustainability orientation place a greater emphasis on multiple benefits of forests than owners with a lower orientation towards sustainable behaviour.	NIPF owners consider the highest potential for strengthening the forest sector to come from bioenergy and construction businesses. New possibilities founded on forest-based recreational services, cooperation with nature-based tourism and in increasing value-added wood products were identified. NIPF owners emphasized future value creation to be based upon various forest ecosystem services and in diversifying the utilization of forests beyond the dominant raw material-driven mindset.

3.2. Article I: Changing objectives of non-industrial private forest ownership: a confirmatory approach to measurement model testing

The first article aimed to systematically test the objectives of forest ownership by testing the validity of the developed measurement scale using the structural equations modelling technique (article I). The first part of the study applied a previously established scale (e.g. Kuuluvainen et al. 1996; Karppinen 1998; Favada et al. 2009) for measuring NIPF owner objectives using exploratory multivariate methods to build an empirical multidimensional latent factor structure. In contrast to previous studies, the exploratory analysis was further deepened by developing a test of the latent factorial structure by estimating a confirmatory structural model (Hair et al. 1998).

From an exploratory factor analysis of 22 items measuring forest owner objectives, a four-dimensional structure was identified in the background objectives of NIPF owners. These dimensions were labelled as *a sense of economic security (factor 1)*, *utilization of forests for recreation and leisure time (factor 2)*, *forestry as a source of income (factor 3)*, and *forest aesthetics and conservation (factor 4)*. Next, after a confirmatory testing process, results from the four-dimensional model were found to support the validity of the developed 16-item measurement model.

Based on the findings, the paper argues that the logical NIPF owner objective structure in Finland consists of experiential forest value, as perceived in current and future time contexts, as well as of current and future economic objectives. As the theoretical structure divides forest owner objectives into the evaluation of the present objectives, supplemented with a psychological evaluation of the future objectives, the paper suggests a novel classification of NIPF owner objectives. The main result is illustrated in Figure 2, which shows how a 2 × 2 objective map is divided into two categories based on current–future time dimensions. Conceptually these are user-value related objectives and objectives tied to more long-term goals. The model thus combines (direct) monetary benefits gained from forests in the first period, potential monetary benefits gained at a later period, direct experiential benefits of forests, and perceived future experiential benefits. The result is strongly situational in the sense that current objectives can be evaluated as part of a normal rational decision-making situation, whereas the future use and future monetary values of forest ownership both represent the outcome of a more psychological process dictated by the general living conditions of the individual at the time of measurement. Therefore, while the monetary and recreational value of forest ownership can be evaluated with relatively high cognitive consistency, the evaluation of future forest ownership objectives is likely to contain more affective, subconscious and even unconscious psychological elements. The model therefore reflects these issues through the two evaluations of the expected future.

Overall, these results indicate the existence of a more general and statistically stable interpretation of forest owner objectives. Consequently, the results also have implications for developing forest owner targeted services – if organizations that provide forestry services more clearly recognize the emerging dimensions of NIPF owner objectives, this insight can help service providers to develop better services for owners.

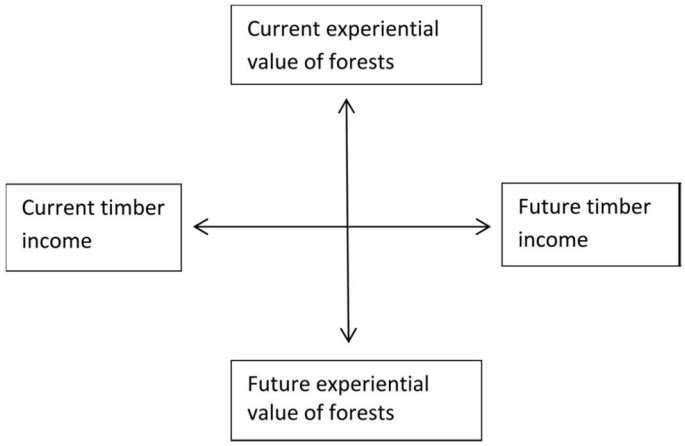

Figure 2. Dimensionality of the forest owner objective structure.

3.3. Article II: Forest owners' socio-demographic characteristics as predictors of customer value: evidence from Finland

The objective of the second article was to build a more in-depth understanding of NIPF owner objectives and how information on owner socio-demographic attributes could be used in developing and marketing forestry services.

The postal survey data were analysed using exploratory factor analysis and one-way analysis of variance. According to the results, a four-dimensional structure of NIPF owner objectives consists of *a sense of economic security (factor 1)*, *recreation and leisure time (factor 2)*, *forestry as a source of income (factor 3)*, and *aesthetics and conservation of forests (factor 4)*. The data analysis revealed that statistically significant differences occurred between ownership attributes and four specific objective dimensions. Gender, education and residential area are the key variables that affect the perceptions of ownership objectives. *Aesthetics and conservation* were more important for female owners than male owners. Males in turn considered *source of income* a weightier objective for ownership (Figure 3). *Income* objectives were not as important for academic upper secondary school graduates as they were for other basic education groups, whereas those who were academically educated emphasized *aesthetics and conservation* more than other groups (Figure 4). Differences in factor scores were also noted according to the level of vocational education attained by the owner. With *source of income*, owners with vocational school diplomas or owners with no degree received higher factor scores than owners in higher education classes. Further, the highly educated considered *aesthetics and conservation* more important than the other groups (Figure 5). Similar results were found between forest owner residential area backgrounds. Forest owners living in the countryside indicated *income* objectives as more important than those living in other areas. *Aesthetics and conservation*, however, was more meaningful for city dwellers than owners living in villages, small towns or the countryside (Figure 6).

Figure 3. Mean factor scores for four ownership objectives for male and female non-industrial private forest owners.

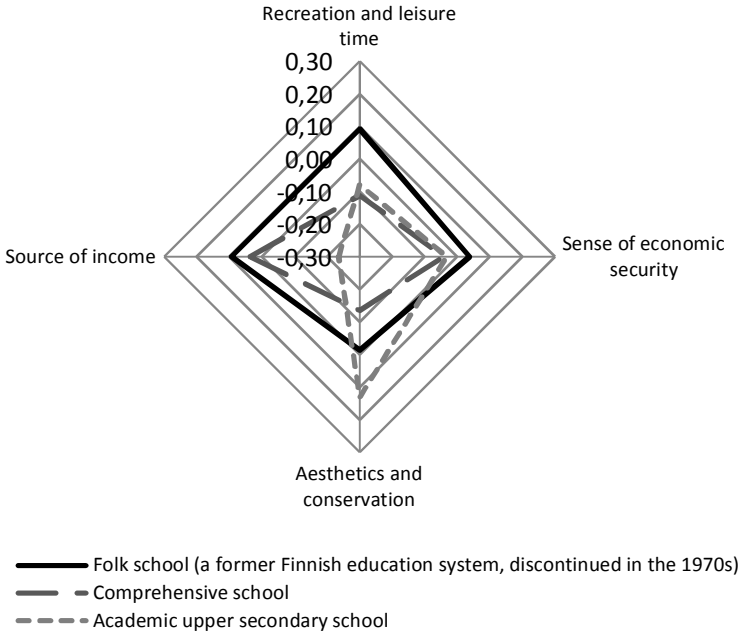

Figure 4. Mean factor scores for four ownership objectives for non-industrial private forest owners with different levels of basic education.

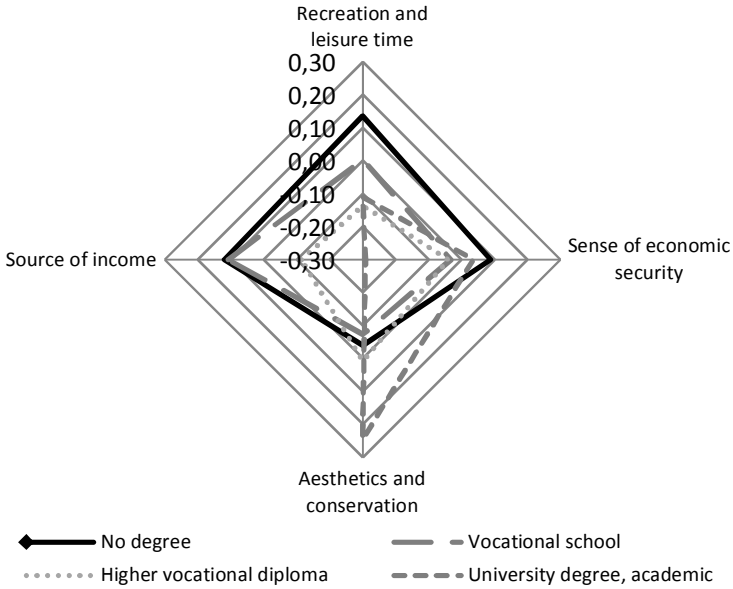

Figure 5. Mean factor scores for four ownership objectives for non-industrial private forest owners with a different level of vocational education.

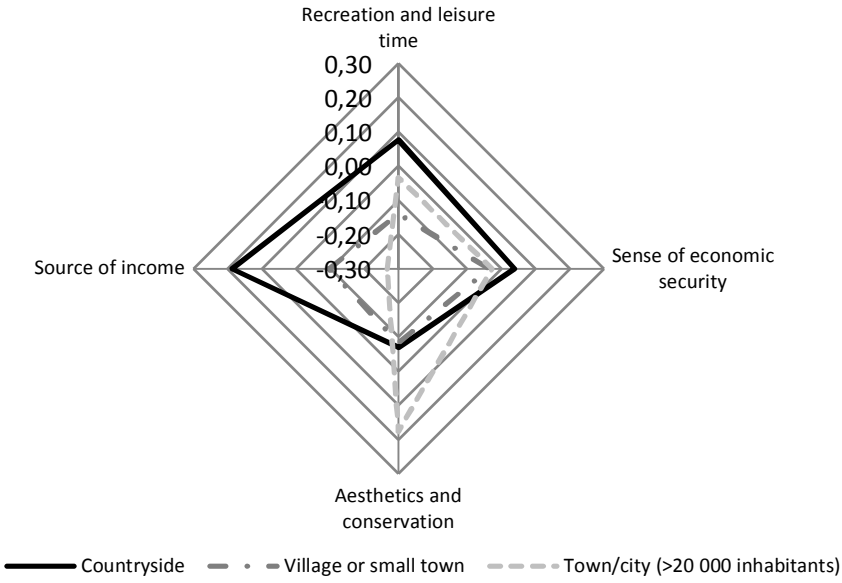

Figure 6. Mean factor scores for four ownership objectives for non-industrial private forest owners from different residential areas.

Thus, certain socio-demographic attributes of forest owners influence whether tangible monetary outcomes are considered secondary to intangible objectives. The results illustrated how a traditional monetary value orientation is only one of the four forest ownership motives. In particular, while aesthetic values and biodiversity conservation are key forest ownership motivations for a segment of NIPF owners, these aspects are not yet fully covered by dominant forestry service organizations. The results therefore offer some understanding of why currently available service offerings on the market are failing to meet the objectives of some NIPF owner groups. The recognition of customer pressure for more diversified service offerings is essential from the perspective of developing new business models for various customer needs.

3.4. Article III: Lifestyle of health and sustainability of forest owners as an indicator of multiple use of forests

Article III aimed to understand forest owner orientation towards pro-environmental consumption and its relation to the meaning of forests for them. The measurement scale for LOHAS as well as for the meaning of forests was developed and tested using exploratory and confirmatory factor analysis. Next, one-way analysis of variance was used to test the statistical differences between the different LOHAS groups with regard to the meaning of forest dimensions.

From an exploratory factor analysis of 10 items measuring forest owner LOHAS orientation, a unidimensional solution was derived. Similarly, from 18 items measuring forest owner meaning of forest dimensions, a four-dimensional structure was identified. These dimensions were labelled as *health and sense of self-sufficiency*, *nature as such*, *heritage* and *monetary benefits from timber and non-timber forest products*. Next, in the confirmatory phase, both factor solutions for *sustainability orientation* and *meaning of forest* underwent a separate confirmatory factor analysis. After this phase, the two models were combined to build a simple structural equation model, in which the sustainability orientation measurement tool was used as the predictor of each of the factors acquired in the exploratory factor analysis. Hence, the confirmatory factor analysis was used to validate the results of the exploratory phases.

The results of the study indicated that the categorization based on LOHAS differentiates forest owners in perceptions of the meaning of forest. Thus, the owners with the highest sustainability orientation place a greater emphasis on multiple benefits of forests than owners who have a lower orientation towards sustainable consumption behaviour (Figure 7). These findings portray new types of nature-based and nature-originating value creation. The results highlight the business potential of new types of services catering to this forest owner group. Hence, focusing on the forest owners associated with the LOHAS lifestyle might offer some new business opportunities for developing more diverse forestry services in the future. These forest owners could be considered an interesting peer group for developing new service offerings in the changing forestry markets and involved more actively in the discussion of the potential of broader forest ecosystem service provision.

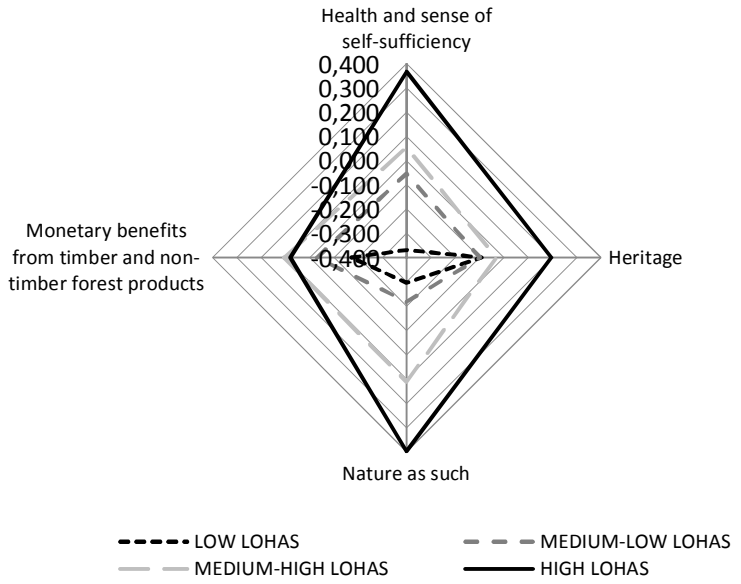

Figure 7. Four groups of forest owners depicted against the meaning of the forest factors (n=394). LOHAS = lifestyles of health and sustainability.

3.5. Article IV: Exploring the future use of forests: perceptions from non-industrial private forest owners in Finland

The objective of the fourth article was to identify forest owner perceptions of the future use of forests in Finland, their perceptions of the sectorial interlinkages and the current and future position of the forest sector. The research was an explorative study by nature and based on a mixed methods study conducted in the period of 2013–2014. The data were collected in two phases and analysed qualitatively and quantitatively.

First, transcribed data from the telephone interviews were content analysed mainly qualitatively by thematically categorizing speech, but the analysis also included a numeric part as the frequencies of the most commonly mentioned issues were calculated. Findings from the telephone interviews show that bioenergy, the construction sector and secondary manufacturing of wood products were most frequently recognized as potential future commercial uses of Finnish forest (Figure 8).

Second, the qualitative research data from focus group discussions were analysed by categorizing the outcome of discussions on two main themes. In the focus groups, new possibilities, for example, forest-based recreational services, cooperation with nature-based tourism, and increasing value-added wood products were identified (Table 5). Even though focus group discussions also recognized factors that inhibit the more diversified development of the forest-based products and services, the overall future of forests was seen as positive. Altogether, forest owners as a high-involvement group have a lot of insight for enhancing

value creation in the future based upon forest ecosystem services and in diversifying forest use beyond a dominant raw material-driven mindset.

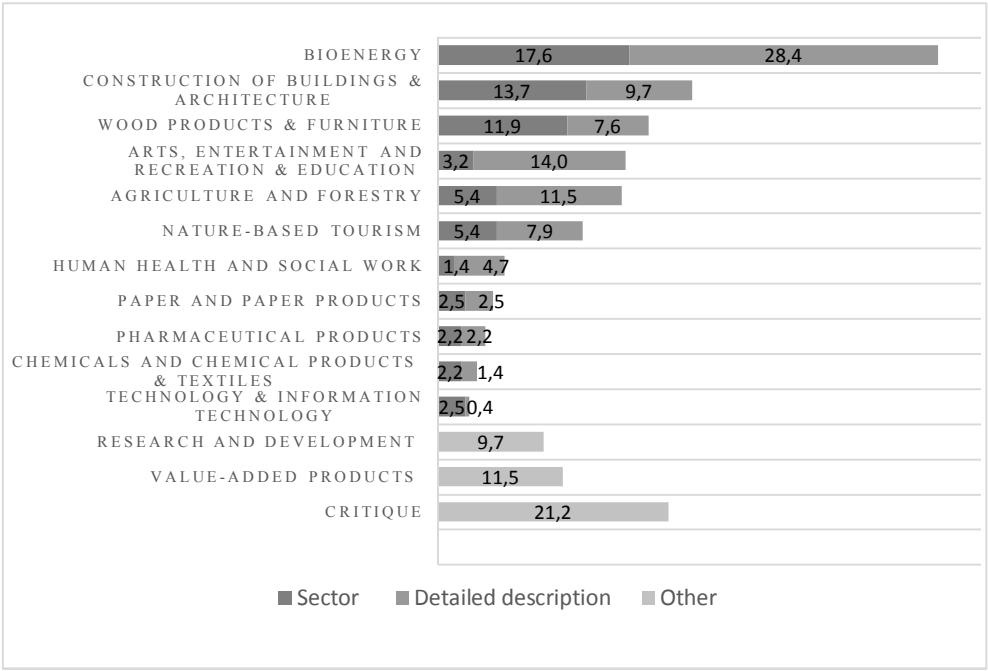

Figure 8. Related and supporting industry sectors in descending order of frequency. The last three categories focus on general issues related to research and development, whereas critique includes the share of non-industrial private forest owners giving critical remarks towards the nature of the current Finnish forest sector.

Table 5. Summary of the main findings from the four focus groups.

Group 1	• Potential in recreational and tourism activities: especially the role of Finnish nature; emphasis should be on other possibilities rather than timber trade, although economic aspects have to be taken into account • Information needed on existing and alternative forest management practices or use, not just traditional ones; the wish was to network with other forest owners • Forest sector needs to be renewed, sector is undergoing many changes; general resistance to clear-cuttings
Group 2	• Potential in travel, construction, composites, technological solutions in forest planning; challenges in commercialization • Overall future of forest sector was seen to be positive, new possibilities for using wood will be found in the future

Group 3	• Interest in diversification of forest business through value-adding and marketing, e.g. wood construction; a lot of potential in forest recreational experiences, e.g. the role of unique Finnish nature in attracting tourists and adventure travelling; confidence in Finnish know-how in the forest sector • Current state of forest sector is seen as challenging, e.g. high production costs; future of forest sector is seen as somewhat positive if forests are used in a more diverse and rational way
Group 4	• More emphasis should be placed on developing forest-based recreational services, e.g. health- and sport-related activities, potential also in nature tourism and value-added wood products; the wide range of benefits provided by nature are not appreciated enough, let alone commercialized due to extensive everyman's rights • Information needed on forest ownership in general as well as existing and alternative forest management practices • The masculine image of the sector was emphasized but increasing the share of female owners was seen as a positive sign; resistance to clear-cuttings

4. DISCUSSION AND CONCLUSIONS

4.1. Contribution of the thesis, and discussion

This thesis has investigated NIPF owner perceptions of forest ownership objectives, the meaning of forest, sustainable consumer behaviour, the future use of forests, evolving intersectorial linkages, and the position of the forest sector now and in the future. To summarize, this research provides further understanding of the forest ownership objectives and their relation to forestry service development, indicating development needs in services. The results indicate that there seems to be the potential to widen the perspective of forestry and forest services from tangible products also towards a more intangible direction. While most of the current forestry services seem to meet the objectives of the NIPF owners who are interested in timber selling (Mattila and Roos 2014), for some NIPF owners the industrially driven culture of timber production can be very inaccessible in the sense that traditional communication emphasizing cubic metres and monetary flows does not make owners develop an interest in their forests.

The first article of the thesis is strongly methodological. The measurement scale for NIPF owner objectives used in this study (22 objective statements) originates from the first nationwide forest owner research in Finland in 1990 (original amount of statements 21), and since then it has been applied in a number of studies (with small modifications during the years) (e.g. Kuuluvainen et al. 1996; Karppinen 1998; Hujala et al. 2013). In this earlier research, however, the structures (latent dimensions) that factor analysis has found have not been systematically tested using theoretically more appropriate confirmatory models (Hair et al. 1998; Maruyama 1998). Thus, in article I the measurement scale for the NIPF owner objectives was validated and it was found to be statistically relatively solid. The scholarly contribution therefore is that the confirmatory approach to ownership objectives could also

be applied in other forest-rich countries to validate the objective structure of NIPF owner data. In addition to its methodological merits, article I revealed a tentative model of how objectives can be interpreted in current and future dimensions (Figure 2), user-value related objectives (current timber income and current experiential value of forests) and objectives tied to more long-term goals (future timber income and future experiential value of forests). The limitation here is that recreation and leisure time (current experiential value of forests) and aesthetics and conservation (future experiential value of forests) dimensions do not exclude one another and, hence, forest owners can experience these dimensions at the same time revealing, however, that more research is needed in order to catch the deeper understanding of these latent dimensions. The message for the forest organizations is that they should recognize emerging forest owner objective dimensions in order to obtain insight into how to develop better services.

Article II indicated that the dominant forestry service organizations do not yet fully cover all aspects of forest ownership objectives, especially aesthetics values and biodiversity conservation motives, and consequently recognition of the more diversified needs of owners is essential in terms of developing new more diverse service offerings. Particularly among women, the highly educated, and city dwellers there can be owners whose needs in the forestry service markets are neglected to some extent as organizations' service offerings are mainly focused on raw-wood trade episodes and basic forest management activities. Based on the previous studies, the findings of article II seem to confirm the studies (e.g. Lidestav 1998; Lidestav and Ekström 2000; Palander et al. 2009) that found that female forest owners tend to value landscape and aesthetic values of forest more than males. In a study by Umaerus et al. (2019), female and male forest owners valued forest revenue on its own almost equally, but females were more interested in ecological, recreational or social values compared with men, suggesting that in management of forest properties female forest owners seem to be able to combine traditional production values and non-traditional values (ecological, recreational or social values) to a higher extent than male owners. In a study that covered 16 European countries, Follo et al. (2017) also concluded that gender matters in forest ownership, management, operations and the understanding of these. Researchers have also found in Finland that women tend to harvest less frequently (Ripatti 1998) but with larger quantities at a time compared with male owners (Kuuluvainen et al. 2014). Further, another interesting finding of article II is that the academically educated NIPF owners give aesthetics and conservation more importance than the timber production objective. Uliczka et al. (2004), Hallikainen et al. (2010) and Koskela (2011) also indicated a connection between more highly educated forest owners and pro-conservation values.

The third article contributes to tackling sustainable consumer behaviour among forest owners, which was a novel research approach in the forest owner context. Findings seem to reflect new potential in developing services based on the sustainable use of forest resources. For the forest service organization, the findings of article III are interesting in the sense that they indicate pressures towards more diversified service offerings and opportunities for creating business around intangible forest ecosystem services in the future, since optimizing raw material flows has dominated forest management (Mattila et al. 2013) and consequently other values related to forests have been of less importance. Furthermore, sustainability-oriented NIPF owners and their perceptions of the meaning of forest will also confirm the aspect that future forest use will be increasingly based on a combination of different ecosystem service uses and benefits (EASAC 2017). For example, in the USA, the business of wildland–urban interface forest entrepreneurs and their novel forest service portfolios

(Hull and Nelson 2011) are based on them finding a niche in fragmenting forests, adapting their services according to forest owner needs, and emphasizing environmental and amenity values in operations. Mattila and Roos (2014) stated that there is scope for emerging new service providers who do not consider NIPF owners as gatekeepers for easy raw material but are willing to take the diverse objectives of NIPF owners into account in the creation of novel business ideas.

The final article, article IV, strived to provide an overview of the future of the forest sector by studying NIPF owner perceptions of the future use prospects of forests and the position of the forest sector now and in the future bioeconomy. From the methodological viewpoint, the twofold data collection process of article IV was useful, providing insights into the research questions. While individual interviews revealed that bioenergy, the construction sector and secondary manufacturing of wood products were most frequently recognized as intersectorial linkages, the general talk within the focus groups mostly revolved around enhancing the potential of nature-based tourism and recreational activities by highlighting the unique features of Finnish nature. Relating to the construction sector, Toppinen et al. (2018) stated that wooden multistorey constructions in Nordic countries have evident future growth prospects in the shift towards a bioeconomy. Interestingly, while nature-based tourism was the sixth most popular theme mentioned in the interviews, in focus group discussions it was a more popular topic. Findings (also in article II) also suggested that female owners emphasize softer forest values more commonly than men, which could be promoted with gender-specific extensions and activities as suggested by Karppinen and Berghäll (2015). In the case of Sweden, Umaerus et al. (2013) found that female forest owners were more likely to engage in health- and tourism-related business activities, whereas men were more often engaged in traditional forest activities. Relating to this, although Finland has rich resources from the well-being tourism viewpoint, these resources related to forest therapy and relaxation have remained rather underutilized (Konu 2015b), which was also noticed among participants of focus groups in the study at hand. Furthermore, although interviews and focus group discussions provided a broad repertoire of opportunities from non-timber forest products to forest-based service ideas, the commercialization of these opportunities requires a radically new way of thinking as well as a transformation of mindset for the entire forest sector. For example, in the case study of non-timber forest products in three south-east European countries, Živojinović et al. (2017) emphasized the benefits of finding synergies between related sectors such as forestry, agriculture and tourism for more effective innovation support systems for non-timber forest products.

From the perspective of the forest service organizations, it could be useful for organizations to involve forest owners (customers) more intensively in the NSD process in order to understand the needs of their customers more comprehensively and to develop service portfolios based on customer interests. A study by Sigala (2012) from the hospitality industry shows that online platforms can be utilized based on the ideation processes of NSD and that companies should motivate customers not only to submit ideas but also to support them to co-create, refine and disseminate new ideas within the community. Interesting new business opportunities and platforms through rapid digitalization such as mobile applications of the largest forest industry companies have already been introduced in the forest sector (see also kuutio.fi, metsään.fi). Furthermore, many social media platforms provide a place for discussion and brainstorming together with forest owners that could generate novel insights for the sector. Thus, the online platform approach suggested by Sigala (2012) could also be applied in the forest owner context. In addition, from the communication viewpoint, digital

platforms provide various possibilities for service organizations to create communication channels to reach the 'passive' owners. Although it can be very challenging for forestry organizations to communicate with urban forest owners alienated from their forests, the rapid development of virtual reality tools, for example, will bring its own possibilities to forest service organizations to serve and communicate with various types of NIPF owners. In particular, the younger generation of forest owners could be approached, for example, through vloggers that are popular among the youth. Häggqvist et al. (2014) emphasize the meaning of carefully targeted communication in the study of Swedish forest owners.

4.2. Limitations

This thesis utilized three different NIPF owner data sets consisting of two quantitative data sets (n=557 and n=394) and qualitative data from the four focus group discussions (n=17), and consequently a versatile methodology was employed in the analysis phases. Therefore, the versatile data sets as well as various methodological stages can be considered as strengths of this thesis. Although the response rate was only 27% in the forest owner data utilized in articles I and II, a comparison of the socio-demographic characteristics of respondents with those in previous national NIPF owner questionnaire surveys provided similar results. However, generalization of the results to the whole forest owner population should only be done with caution. With respect to the statements used, 22 objective options give a limited view of study ownership objectives as forest owning includes multidimensional aspects that can be difficult to put into a few words by forest owners. Thus, it is possible that the ownership objective statements here do not necessarily reveal the fundamental reasons for forest ownership (see Ficko et al. 2019; Takala et al. 2017). Particularly in the case of qualitative data (telephone interviews and focus group data utilized in article IV) it must be kept in mind that article IV is a case study and cannot be generalized to the broader population. Further, as the first goal of article III is understanding the pro-environmental behaviour of NIPF owners, it must be noted that the LOHAS scale is employed as an explorative tool. Although according to the fit indices of the confirmatory factor analysis the LOHAS model worked rather well, it could benefit from further development. Concerning the second forest owner data set (n=394), utilized in articles III and IV, the data were collected by selecting circa 20% of forest owners from five age classes. In this case, as the aim was more to show the future behaviour of the owner, the representativeness of the sample was not an issue. In addition, respondents in the phone interviews (n=394) were contacted without prior notice and were interviewed immediately, whereas focus group members knew that they were invited to participate in the research data collection process. Thus, it is possible that focus group participants were mentally more prepared for the discussions, which could partly explain the more fruitful ideas in the focus group discussions. All in all, a few years have passed since the original data sets were collected (as well as the first article was published), and hence, some changes might have happened in the perceptions of owners. In spite of the limitations addressed, it is worth discussing the future research avenues that have arisen.

4.3. Future research and conclusions

It is evident that this thesis was able to provide answers to a limited set of research questions and, hence, some research gaps can be pointed out that could be filled in the future. For example, deeper understanding of female forest owner perceptions would be useful in the light of the results of this thesis and previous studies. Female forest owners with their more pro-environmental mindset as well as their interest in softer forest values could, in particular, promote sustainability issues in the sector as well as a combination of multiple benefits of the forest ecosystem. Regarding communication issues, an interesting future research theme could focus on forest owner social media use and behaviour as new forest owners, in particular, seek information actively from different media (Häggqvist et al. 2014; Côté et al. 2017); this is a relatively unexplored research topic. Because of the exploratory nature of the studies reported in articles III and IV, several unanswered research questions for future studies have arisen based on the results. Regarding article III, further research should be conducted focusing on the NIPF owner pro-environmental behaviour. It would be relevant to study, for example, whether the increasing and heated public discussion concerning forests and climate change has affected the perceptions of NIPF owners. A question also remains as to whether the organizations have expertise or desire to better serve sustainability-oriented NIPF owners. Moreover, forest ownership could be researched from the lifestyle perspective. As Côté et al. (2017) have indicated, forest ownership can also be seen as a lifestyle choice. From the forest organization point of view, it would be very interesting to conduct research on the perceptions of the companies, for example, how much and in what ways forest owners or other customers are involved in NSD processes.

Customer involvement in NSD has been recognized in various sectors, but in forest sector research it seems to be scarce. While in this thesis an effort to include forest owners as part of the discussion of forest sector future development towards a bioeconomy was tentative, it shows that forest owners have interesting insight into the future of the sector. As NIPF owners were considered an interesting key actor group in the forest sector that could potentially have an important effect when seeking sustainable and environmentally responsible business opportunities from forests, this could also be better acknowledged in the current forest organizations. In the forestry service markets, the companies that are willing to change their mindset towards multiple goals of NIPF owners will most likely gain a competitive advantage. Further, the debate regarding the forests' role in climate change mitigation will continue (Lindahl and Westholm 2012). Political aims relating to climate change mitigation efforts resulting in pressures to engage NIPF owners in carbon dioxide emission reduction are likely to have an influence on how forests are managed in the future (Berghäll and Roos 2019). As forest owners control the majority of the forested land in Finland, they will have a key role to play when decisions are made concerning future forest utilization as well as in efforts to reach emission reduction targets in the fight against climate change. Therefore, the perceptions of NIPF owners should be better acknowledged also in the bioeconomy discourse. According to Toppinen et al. (2019), the forest sector is currently undergoing a system change from a production orientation towards more diversified objectives and sustainability aspects. With increasing pressures for a multifunctional use of forests, NIPF owners' diverse objectives, heterogeneous backgrounds and general lifestyle changes should not be seen as a challenge to those trying to get NIPF owners to manage their forests and sell timber. On the contrary, these factors could be considered an opportunity to switch the current mindset and consequently to develop activities and create new services. Finally, following

the findings of this thesis it can be concluded that forest owner objectives indicate a gradual change towards diversifying the use of forests in the future.

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Appendix 1

1. Oletteko

( ) Mies
( ) Nainen

2. Mikä on syntymävuotenne?

3. Millainen koulutus teillä on? Rastittakaa sekä perus- että ammattikoulutus.

Peruskoulutus

( ) Kansa-/kansalaiskoulu
( ) Perus- tai keskikoulu
( ) Ylioppilas

Ammattikoulutus

( ) Ei tutkintoa
( ) Ammattikoulu
( ) Ammattikorkeakoulu/ Opisto
( ) Yliopisto

4. Mikä on pääasiallinen ammattiasemanne?

( ) Palkansaaja
( ) Maa- tai metsätalousyrittäjä
( ) Muu itsenäinen yrittäjä
( ) Eläkeläinen
( ) Muu

5. Missä asutte vakituisesti?

( ) Vakituisesti tilalla
( ) Muualla tilan sijaintikunnassa
( ) Metsätilan sijaintikunnan ulkopuolella

6. Millaisessa ympäristössä asutte?

( ) Maaseudulla
( ) Taajamassa tai pienehkössä kaupungissa
( ) 20 000-100 000 asukkaan kaupungissa
( ) Yli 100 000 as kaupungissa

7. Miten omistatte tilan?

( ) Yksin
( ) Yhdessä puolison ja/tai lasten kanssa
( ) Tila on perikunnan hallinnassa
( ) Tila on yhtymän hallinnassa
( ) Muu omistus, mikä?_____

8. Onko tilallanne metsäsuunnitelma?

( ) Kyllä on, tehty vuonna_____, jonka tekijä on _____
( ) Ei ole
( ) On tilattu
( ) En osaa sanoa

9. Mikä on omistamienne metsien kokonaispinta-ala?_____ha

10. Seuraavassa on erilaisia metsänomistuksen tavoitteisiin liittyviä väittämiä. Kuinka tärkeiksi arvioitte ne oman metsänne kohdalla? Ympyröikää kunkin väittämän kohdalta yksi numero.

Täysin merkityksetön 1, melko merkityksetön 2, en osaa sanoa 3, melko tärkeä 4, erittäin tärkeä 5

1 Metsäni on osa vapaa-ajanvietto- tai asuinpaikkani ympäristöä 1 2 3 4 5
2 Metsäni tarjoaa minulle marjastus- ja sienestysmahdollisuuksia 1 2 3 4 5
3 Metsänomistus tarjoaa minulle mahdollisuuden metsästykseen 1 2 3 4 5
4 Metsäni tarjoaa minulle ulkoilumahdollisuuksia (esim. kävely, lenkkeily, retkeily) 1 2 3 4 5
5 Metsäni tarjoaa minulle mahdollisuuden metsänhoitotöiden tekemiseen (saan samalla hyötyliikuntaa) 1 2 3 4 5
6 Metsäni tarjoaa minulle säännöllisiä tuloja kulutukseen 1 2 3 4 5
7 Metsäni on minulle suurten hankintojen rahoituslähde (asunto, auto, maatalousrakennukset ja -koneet) 1 2 3 4 5
8 Metsäni tarjoaa minulle työtuloja (hankintalisä lasketaan työtuloksi) 1 2 3 4 5
9 Metsästäni saan kotitarvepuut 1 2 3 4 5
10 Metsäni tarjoaa minulle mahdollisuuden hoitaa ja vaalia luonnon monimuotoisuutta (monipuolinen kasvi- ja eläinlajisto) 1 2 3 4 5
11 Metsäni tarjoaa minulle kauneuselämyksiä 1 2 3 4 5
12 Metsäni on minulle luonnonsuojelun kohde 1 2 3 4 5
13 Metsäomaisuuteni parantaa luotonsaantimahdollisuuksiani 1 2 3 4 5
14 Metsäni tarjoaa taloudellisen turvan vanhuuteni varalle 1 2 3 4 5
15 Metsäni tarjoaa turvan poikkeustilanteiden varalle 1 2 3 4 5
16 Metsäomaisuuteni on inflaatiolta suojattua omaisuutta 1 2 3 4 5
17 Metsäni muodostaa perinnön omaisilleni 1 2 3 4 5
18 Metsämaan omistamisella on minulle itseisarvoa (esim. sukutila) 1 2 3 4 5
19 Metsäni on minulle paikka, jossa voin hiljentyä ja mietiskellä 1 2 3 4 5
20 Metsäni kautta olen yhteydessä kotiseutuuni 1 2 3 4 5
21 Metsäni on minulle rahan sijoituskohde 1 2 3 4 5
22 Tonttien ja huvilapalstojen arvonnousu kohottaa metsäomaisuuteni arvoa 1 2 3 4 5

Appendix 2

0.1 Taustatiedot: nimi, puhelinnumero, osoite, asuinpaikka

Nimi:
Puhelinnumero:
Osoite:
Asuinpaikka:

TAUSTATIETOKYSYMYKSET

1. Ikänne?

2. Sukupuolenne?

1. q nainen 2. q mies

3. Ylin suorittamanne tutkinto / koulutus?

1. q Peruskoulu
2. q Keskiasteen koulutus (esim. ylioppilastutkinto tai ammatillinen perustutkinto)
3. q Alin korkea-aste (esim. teknikon, merkonomin ja sairaanhoitajan tutkinnot, jotka eivät ole ammattikorkeakoulututkintoja)
4. q Alempi korkeakoulututkinto (esim. ammattikorkeakoulututkinto)
5. q Ylempi korkeakoulututkinto (esim. maisteritutkinnot)
6. q Tutkijakoulutus
7. q Ei mikään edellisistä
8. q En osaa sanoa tai en halua kertoa

4. Toimialanne?
1. q rahoitus-, vakuutustoiminta
2. q markkinointi-, viestintäpalvelut
3. q terveydenhuolto- ja sosiaalipalvelut
4. q majoitus-, ravitsemustoiminta
5. q energia-, sähkö-, kaasu- ja vesihuolto
6. q teollisuus ja muotoilu
7. q rakentaminen
8. q tukku-/vähittäiskauppa
9. q maa- ja metsätalous
10. q ICT/teknologia
11. q olen opiskelija
12. q olen eläkkeellä
13. q olen työtön
14 q muu, mikä_____

5. Omistamanne metsähehtaarit?

Metsää_____ha

5b. Metsätulojen osuus taloutenne bruttotuloista (%):
Arviolta _____ prosenttia

6. Asuinpaikkanne tyyppi?

1. q kaupungin keskusta/keskustan välitön läheisyys
2. q esikaupunkialue/lähiö/kaupunginosa keskustan ulkopuolella
3. q kunnan taajama
4. q haja-asutusalue
5. q maaseutu
6. q joku muu, mikä_____

7. Arvioikaa seuraavia ympäristöön ja kulutustottumuksiin liittyviä väittämiä oman toimintanne kannalta asteikolla 1-5. (1= voimakkaasti eri mieltä, 5=voimakkaasti samaa mieltä)

1. Olen yleensä ensimmäisten joukossa ottamassa käyttöön ympäristöystävällisiä tuotteita
2. Olen jättänyt ostamatta tuotteen, jos olen epäillyt sen valmistuksen vastuullisuutta
3. Olen huolissani ilmastonmuutoksesta
4. Yksittäinen kuluttaja ei voi vaikuttaa suoraan globaaleihin ympäristöongelmiin (käänteinen)
5. Haluan vähentää omien päätösteni kautta kulutuksen ympäristövaikutuksia
6. Suosin mahdollisimman energiatehokkaita laitteita
7. Ostan vain sertifioidusta raaka-aineesta valmistettuja tuotteita
8. Samanhintaisista huonekaluista valitsen mieluummin käytetyn kuin uuden
9. Suosin lähellä tuotettuja tuotteita
10. Suosin luontaisista/orgaanisista aineista tehtyjä tuotteita

8. A. Haluatteko vastaanottaa yhteenvedon tutkimustuloksista? q kyllä q Ei
B. Suostutteko osallistumaan mahdollisiin tutkimuksen jatkohaastatteluihin? q kyllä q Ei

9. Mikä seuraavista kuvaa parhaiten tapaa, jolla olette saaneet metsänne (valitse yksi)

1. pääosa metsistäni on peräisin sukulaisiltani
2. pääosa metsistäni on hankittu vapailta markkinoilta
3. metsäni on hankittu sekä vapailta markkinoilta että sukulaisilta sekä vapailta

10. Mitkä seuraavista sisällöistä ovat Teille metsänomistamisessa merkittävimmät sisällöt? Esitetyt sisällöt saattavat olla osittain päällekkäisiä. Älkää välittäkö tästä, vaan vastatkaa ensin mieleenne tulevan mielleyhtymän mukaan 1-5 (1= ei juurikaan tärkeä, 5= erittäin tärkeä).

1. Puukauppatulot
2. Metsän hoitamisesta ja kasvun seuraamisesta saatava nautinto
3. Oma valta päättää siitä, mitä metsälle tehdään
4. Tulot/säästöt käyttämällä omien metsien polttopuuta, marjoja ja sieniä
5. Oman metsän luonnontuotteiden terveysvaikutukset
6. Tunne omavaraisuudesta esim. polttopuun, marjojen ja sienten osalta
7. Tulot metsästyksestä, matkailusta ja maisemasta
8. Omassa metsässä kulkemisen tervehdyttävät vaikutukset
9. Omasta metsästä nauttiminen yhdessä sukulaisten ja ystävien kanssa
10. Rahalliset korvaukset globaaleista hyödyistä kuten hiilensidonnasta ja ilmanpuhdistuksesta
11. Tunne globaalin vastuun kantamisesta omalta osalta säilyttämällä metsien kasvumahdollisuudet
12. Hiilensidonnan ja ilmanpuhdistuksen kaltaiset seikat maapallon hyvinvoinnin kannalta
13. Metsän jättäminen perinnöksi perillisten talouden turvaamiseksi
14. Muiston jättäminen itsestä jälkipolville
15. Suvun perinteiden jatkaminen metsän kautta
16 Mahdollisuus metsän rahallisen arvon nousulle uusien hyödyntämistapojen myötä
17. Luonnon vaalimisesta tuleva hyvänolontunne
18. Luonnon vaaliminen sen itsensä vuoksi

11. Kuvailkaa avoimesti mitä metsä ja luonto symboloi ja/tai merkitsee teille?

_____

Kysymme lopuksi mielikuvaanne metsänomistajana seuraavaan skenaarioon:

12. Skenaario: Olet vastuussa metsäteollisuuden uusien arvosisältöjen kehittämisestä. Sinua on ohjeistettu etsimään muilta yhteiskunnan osa-alueilta toimintamalleja ja ajattelutapoja, joilta soveltamalla metsästä saataisiin luotua uudenlaista arvoa ja hyödynnettävyyttä. Toimeksianto on annettu sinulle, koska osaat rohkeasti nähdä uudenlaisia yhteyksiä ja mahdollisuuksia siellä missä muut eivät niitä näe. Mistä yhteiskunnan osa-alueilta tai toimialoilta lähtisit etsimään metsäteollisuuteen tätä uutta oivaltavaa elinvoimaa, millaisella lähestymisellä ja miksi?

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Appendix 3

Fokusryhmien haastattelurunko

Avaus (arvio 5min)

Kerro omasta taustastasi metsänomistajana
Toivon teidän käyttävän myös metsäalan ulkopuolista osaamistanne ideoimisessa, joten kerro omasta koulutuksesta/ammatista/kiinnostuksen kohteista

Teemakeskustelua (arvio 40-70min)
Metsänomistajuuden merkitys
- Metsän ja metsänomistajuuden merkityksestä (Arvot ja asenteet)
    - o Mikä metsänomistajuudessa kiinnostaa?
    - o Mitä oma metsäsi merkitsee sinulle?
    - o Miten suhtaudut metsien eri käyttömuotoihin?
    - o Mitkä ovat aikomuksesi ja tavoitteesi metsänomistajana?

- Miten kuvailisit metsäalan tilaa Suomessa tällä hetkellä? Mikä on teidän arvionne asiasta?
    - o Mitkä tekijät ovat vaikuttaneet nykytilanteeseen teidän arvionne mukaan?

Katsaus tulevaan
- Millainen on mielestänne metsäalan tulevaisuus Suomessa?
- Mitä potentiaalia metsällä on Suomelle?
    - o Mitä uusia hyödyntämismahdollisuuksia metsällä mielestäsi on? Mitkä ovat potentiaalisimpia uusia hyödyntämismahdollisuuksia? (Esimerkit: älypaperi, älypakkaukset, puukomposiitti, nanosellu, biodiesel, puurakentaminen, tuoksujen käyttö, viherkatot ja seinät, älypuhelinsovellukset (metsän aarrekartta ym.)…?) Mitä ovat näistä mieltä? (Ei kuitenkaan tarvitse olla tuote, voi olla mitä tahansa)
    - o Missä tuotteissa tai hyödykkeissä olisi mahdollisuuksia hyödyntää puuta korvaavana materiaalina?
    - o Mitä uusia puupohjaisia tuotteita voisi tulla seuraavan 20 vuoden aikana? Mitä niistä itse kuluttajina olisitte valmis kokeilemaan? (Mediassa esiintyneet biopolttoaineet, puukerrostalot ym..)
    - o Minkälaisia riskejä/mahdollisuuksia uusiin kuluttajamarkkinoiden puupohjaisin tuotteisiin voisi liittyä?

o Mitkä ovat omat tulevaisuudensuunnitelmanne metsänomistajana? Onko tulossa muutoksia? Jos on niin miksi ja minkälaisia?
o Aiotteko pysyä metsänomistajan? Mitä aiotte tehdä metsille jos luovutte omistajuudesta?

Haasteiden ja ongelmien pohdintaa
- Mihin olet metsänomistajuudessa tyytymätön tänä päivänä ja mitä haluaisit muuttaa?
o Minkälaisia omakohtaisia ongelmia ja niihin liittyviä parannusehdotuksia metsien hyödyntämiseen liittyen teillä nousee esiin?
o Koetteko metsänomistuksen mahdollisuutena vai rasitteena, miksi?
o Mikä on haastavinta metsänomistajuudessa? Mikä on henkilökohtaisesti palkitsevinta?

Verkostoituminen
- Kenen kanssa voit keskustella metsänomistajuudesta / metsäasioista yleisemmin? *(Ideaa metsänomistajien foorumille? Esimerkkinä metsäkeskuksen metsään.fi - foorumi)*
o Minkälaisia palvelutarpeita sinulla on metsänomistajana, jos verrataan aikaisempiin kokemuksiinne metsäpalveluista?
o Kehen tahoihin olet yhteyksissä metsäasioiden kanssa (myös epäviralliset kanavat)?
o Mistä etsit tietoa? Mitkä ovat merkittävimmät tietokanavat?

Loppuyhteenveto (arvio 5-10min)
o Tuleeko vielä mieleen jotain mitä haluaisitte sanoa aiheen tiimoilta?
o Kokoa yhteen keskustelu muutamalla keskeiseksi nousseella teemalla.
o Anna keskustelijoille mahdollisuus palautteeseen.
o Kerro mahdollisuudesta jälkihaastatteluun / jälkipalautteen antamiseen puhelimitse tai sähköpostin välityksellä.