



**Potential and approaches to stimulate, design and adopt new business models in the forestry service business in the NPA region**

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## Preface

This report is based on work conducted during 2017–2020 in the project Forest Business Innovation and Advancement in the Northern Periphery (FOBIA). The project was funded by the European Union through the Northern Periphery and Arctic Programme 2014-2020. The report synthesizes the main results produced in the work package (WP) “Business models” and outlines a framework for business model design and adoption in the prevailing business environment for forestry services. The specific studies conducted within the WP have earlier been reported in the following papers:

I: Benjaminsson F. 2018. Development of a tool to characterize business models for forestry services. Umeå: Swedish University of Agricultural Sciences.

II: Benjaminsson F., Kronholm T., Erlandsson E. 2019. A framework for characterizing business models applied by forestry service contractors. *Scandinavian Journal of Forest Research*, 34:779-788.

III: Larsson I. 2019. Survey and analysis of business models applied among forest contractor companies in northern Sweden and its impact on profitability. Umeå: Swedish University of Agricultural Sciences. (In press)

IV. Kronholm T., Sosa A., Bowditch E., Pohlschneider S., Hamunen K., Rikkinen P. 2019. State of the art and development needs of forestry service contractors in the Northern Periphery and Arctic region. Available at: <https://www.luke.fi/fobia/wp-content/uploads/sites/21/2019/11/State-of-the-art-and-development-needs-of-forestry-service-enterprises-in-the-NPA-region.pdf>

V: Jylhä P., Rikkinen P., Hamunen K. 2020. Size matters – an analysis of business models and the economic performance of Finnish wood harvesting enterprises. (Manuscript)

VI: Hollsten P. 2020. Business model innovation for Swedish logging contractors: a qualitative study. Umeå: Swedish University of Agricultural Sciences. (In press)

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# 1 Introduction

The FOBIA (Forest Business Innovation and Advancement) project was launched with the aim to “*enhance business competitiveness of forestry service enterprises in the northern and peripheral regions of Finland, Sweden, Scotland and Ireland*” ([www.luke.fi/fobia](http://www.luke.fi/fobia)). Within this project, research organizations and forestry schools in the participating countries have collaborated with various stakeholders from the forestry sector in order to develop new knowledge, tools and methods that can increase the forestry service contractors’ operational efficiency, enhance their business and management skills, and promote the development of new business models in the sector. Based on the work undertaken in the FOBIA project, the objective of this report is to outline the identified potentials and approaches to stimulate, design and adopt new business models in the forestry service sector.

In the northern and peripheral regions of Finland, Sweden, Scotland and Ireland (Figure 1), forestry is an economically important industry that provides the local population jobs, income and opportunities for social development. For example, in 2018 the total export value of Sweden’s and Finland’s forest products was approximately 27 billion euros (Suorsa, 2019; Skogsindustrierna, 2020). In comparison, Ireland and Scotland are considerably smaller forest markets with annual harvesting volumes that corresponds to approximately 5% and 10%, respectively, of the roundwood production in Finland each year (Scottish Government, 2017; Department of Agriculture, Food and the Marine, 2018; Natural Resource Institute Finland, 2019). However, forestry is a developing business area in both Scotland and Ireland. The annual harvesting volumes have increased during recent years, and the growth is expected to continue in the coming years (Phillips, 2016; Forestry Commission, 2018).

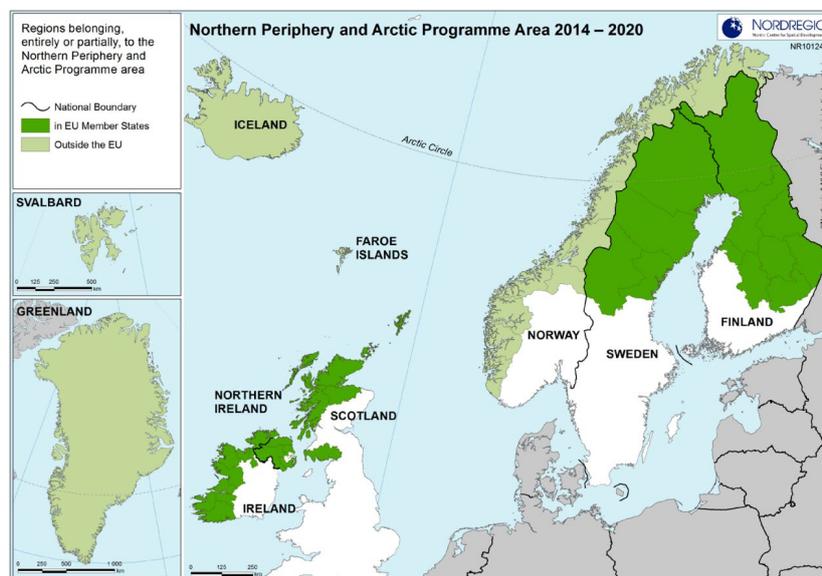


Figure 1. The FOBIA project focused on the northern and peripheral parts of Finland, Sweden, Scotland and Ireland. Map design: Julien Grunfelder (Nordregio, 2015).

In all four countries, harvesting operations and other types of forest management activities are often carried out by independent contractor firms (Slee, 2006; Pakkanen & Leikola, 2013; Ager, 2014). In Sweden there are about 3,700 contractors (of which two-thirds focus on

harvesting operations) (Häggström et al., 2013; Kronholm et al., 2019), while Finland has about 2,200 harvesting contractors and 650 silvicultural contractors (Suomen Metsäkeskus, 2014; Metsätöns, 2018). No official figures revealing the number of contractors in the other two counties have been found, but Kronholm et al. (2019) identified about 300 forestry service contractors in Scotland and more than 60 harvesting contractors in Ireland. Forestry service contractors are predominantly small firms, most often having only a handful of employees and one or two forest machines. In Finland and Sweden, harvesting contractors' median turnover was approximately 500,000 euros in the year of 2016 (Kronholm et al. 2019).

## 1.1 The business environment

The forestry service sector has for a long time been described as a challenging business environment, characterized by low profitability, lack of competence, high investment costs, weak innovation capabilities and high barriers to business growth (cf. Lidén, 1995; Mäkinen, 1997; Hultåker & Bohlin, 2004; Rummukainen et al., 2006; Ollonqvist, 2006; Penttinen, 2011; Erlandsson, 2016; Eriksson, 2016). As recently shown by Kronholm et al. (2019), the current situation is still in many ways the same. In all countries studied within the FOBIA project, contractors expressed severe concerns about the lack of skilled operators with an interest to work in the sector and they considered this to be one of the highest barriers for business development. Many contractors also found their work situation to be problematic, both on a personal level (e.g. high workload and health problems) and on company level (e.g. low profitability and a fierce competition for harvesting contracts). It was also found that, in general, contractors' profitability was low. The average profitability of Scottish contractors' was described to be around 4%. In 2016, Swedish harvesting contractors' median net profit margin was only 2.1%, while the median return on investment (ROI) of Finnish contractors was about 6% (>10% is considered to be a good level). However, the variation between firms was large and as many as 25% of Swedish contractors had negative profit margins, which historically has also been the situation in Finland (Kärhä, 2004; Penttinen et al., 2011).

An important factor behind the weak profitability is that the main customers, i.e. large forest companies, are in a very strong position compared to the small contractor firms when negotiating contract terms and prices (Rummukainen et al., 2006). Customers' common use of tendering systems also put a high pressure on contractors to keep prices at a low level in order to secure contracts. Especially, since there are often only a few significant buyers of forestry service in the contractors' local area (Eriksson, 2016; Kronholm et al., 2019). Further, the customers' influence is not only restricted to the prices paid for services. The customer also tends to have a strong influence on the type of machine the contractor need to invest in, what type of services they need to have in their portfolio, and how the services are sold (Benjaminsson, 2018).

The low profitability has also been linked to the insufficient management skills held by many owners of forestry service enterprises (Ollonqvist, 2006). With increasing demands from customers, good business management skills have become even more important and being a good machine operator is not enough for running a profitable business. As expressed by a

senior official of a large service buyer in Finland (Luke, 2020), it is for an increasing share of contractors no longer possible to run a successful contracting business from the seat of their car or forest machine. However, many contractors experience that lack of time and money, as well as other practical circumstances, hinders them from participation in courses and training programs that could improve their skills in this area (Kronholm et al., 2019).

The mechanization of forest operations that took place during the second half of the 1900s increased productivity at an astonishing pace (Ager, 2014; Eriksson, 2016). However, during the last two decades the productivity increase in harvesting operations has slowed down, and during some years even been declining. According to Eriksson (2016), one reason is that the competitive forces in the present market are no longer contributing to innovation in the same way as before. In earlier days, there were many forest companies in need of services, many small service providers and many suppliers of tools and machines active in the market, and the competition between them stimulated innovation and development activities. Consolidation of the forest industry has led to a business environment with only a few manufacturers of forest machines, only a few large customers of forestry services in each region, and due to the more efficient harvesting machines the number of contractors needed has also decreased. Therefore, Eriksson (2016) argued that the current business environment contains a number of interacting oligopolies that hampers the competition in the market, which in turn slows down innovation.

The business environment that forestry service enterprise act in today can thus in many ways be described as demanding. Still, there are also things that suggest that forestry service contractors may have good opportunities to develop their businesses and that the demand for their services will remain high in the foreseeable future. For example, on a general level the forest industry may benefit from the growing public interest in boosting a bio-economy as this will ensure a high demand for renewable forest products (Ollikainen, 2014). In Ireland and Scotland the growing forest stock may also increase the demand for services and provide existing contractors with good job opportunities, and potentially create gaps that new entrants can fill. Also in Sweden and Finland contractors can expect that the future demand for forestry services will continue to be high, as the forest industry has made significant investments in their production facilities during recent years (Figure 2).

In a sector where many of the products and services are standardized and the possibilities for forestry service contractors to develop and implement own technological inventions are limited, contractors should instead focus their innovation activities on in their business models. Because as pointed out by Amit and Zott (2012), it is often more important how things are done than what is done. In other words, contractors who manage to set up their organization, their customer relationships and their financial structure in a better and more efficient way than their competitors will find a market advantage.

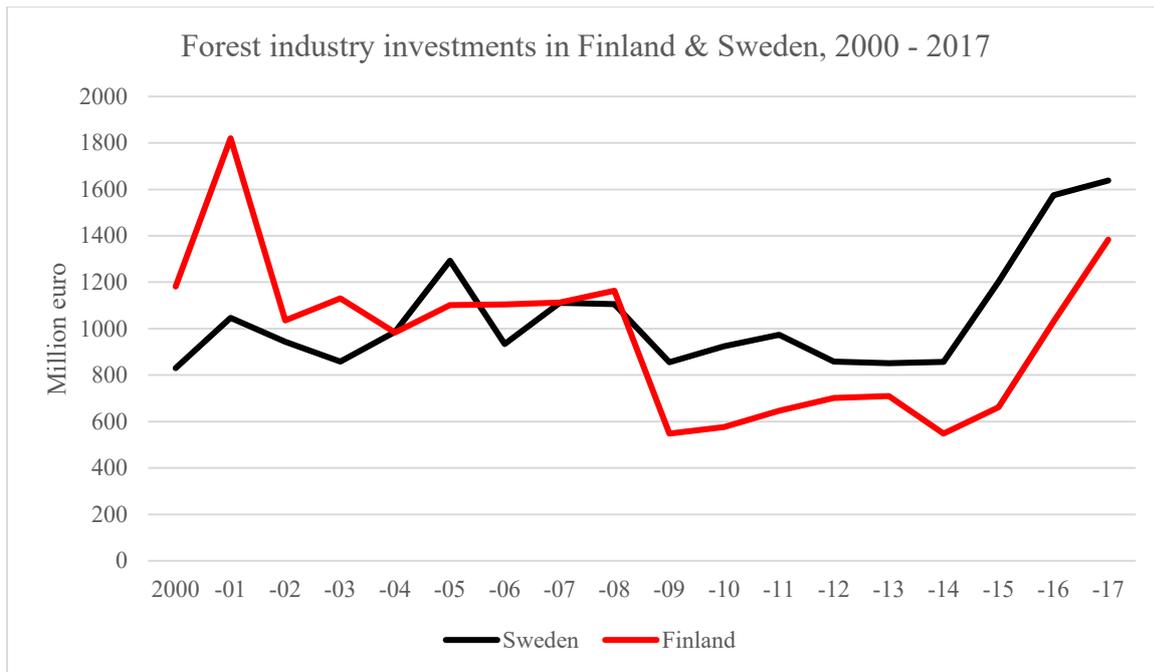


Figure 2. Investments in the Swedish forest industry, 2000-2017. (Statistics Sweden, 2018; Rautavirta, 2019)

## 2 The FOBIA studies

Several studies have been conducted within the FOBIA project in order to increase our knowledge about contractors' business models and business model innovation in the forestry service sector. This report is the result of the final phase of the project in which results and outcomes of the work pack package "Business models" have been synthesized, and its objective is to outline a framework for business model design and adoption in the prevailing business environment and describe identified approaches to stimulate innovation. This section provides a brief overview of the studies and the work process behind this report. Readers who are interested in more detailed results and information about the materials and methods used in the specific studies are advised to consult each respective report.

### 2.1 A framework for characterizing business models applied by forestry service contractors

The first step was to map the current situation and characteristics of forestry service contractors in the participating countries. For this purpose, a framework for characterizing business models applied by forestry service contractors was developed (Benjaminsson, 2018; Benjaminsson et al., 2019). The framework is based on the business model canvas (BMC) framework developed by Osterwalder and Pigneur (2010), which was adapted to the forestry context. It was tested and refined through interviews with researcher and forestry service market experts, and was concluded to be a useful and practical tool for to be used in later studies in the project. Furthermore, in section 4.2 it is described how this tool can be used for business model design and experimentation and thereby stimulate contractors' innovation processes.

## 2.2 Depicting the current status of forestry service contractors and their business models

In the second step of the project, the developed framework was utilized by project partners when investigating the current state of the forestry service contractors in their respective country. Due to country-specific circumstances different data collection methods were applied, but similar type of data was captured in all countries since everyone used the canvas framework as a basis for the studies. In Finland, Jylhä et al. (2020) analyzed contractors' business models, their performance, and the success factors of the business. This empirical data consisted of 19 semi-structured interviews and financial accounts data of 84 contractors. In Sweden, a survey was conducted and data from 189 respondents was analyzed in order to investigate what business models forestry service contractors currently apply, what kind of relationships there are between business model components and the firms' profitability, as well as contractors' driving forces as business owners and their current views on the development of their businesses and the sector in general (Larsson, 2019). Further, data from the member and certification registers (containing 1,603 cases) of the Swedish Association of Forestry Contractors were analyzed, as well as final accounts data of more than 900 contractors. In Scotland, a mix of semi-structured interviews (n = 13) and surveys (41 respondents) were performed and in Ireland analysis was based on interviews with 15 harvesting contractors. Results describing firm characteristics have been reported by Kronholm et al. (2019), and more in-depth analyses have also been presented by Jylhä et al. (2020) and Larsson (2019). In this report some additional analysis of the differences between contractor groups regarding their motivators are presented in section 4.4.

## 2.3 Illustrating how different strategy influences business model innovation

The third step was to describe harvesting contractors' processes for business model innovation and analyze if there are differences between firms depending on their current business strategies. Three groups with different strategic goals were studied by Hollsten (2020): 1) contractors primarily aiming for growth, 2) contractors primarily aiming for increased profitability, and 3) young businesses (start-ups) with less than six years in operation. Twelve semi-structured interviews, four per group, were conducted with contractors in Sweden to map their current business model and how they had developed it during the last six years. The contractors in group 1 and 2 were selected based on an analysis of their financial development for that period, where a significant increase in turnover or profitability was seen as an indicator of the applied strategy. Contractors whose increase had been stable from one year to another during the studied period were prioritized, since this could indicate that the increase was the result of deliberate strategies rather than extraordinary results for a single year. Contractors in the last group were selected based on their registration date. Also in this group firms with a stable growth in turnover and profitability were prioritized in order to find good examples of how contractors innovate their business models in order to enter and establish themselves in the market. The main findings of this study are presented and discussed in section 4.3.

### 3 Business model innovation

The concept of business models is not new, but as shown in Figure 3 its use among researchers and practitioners is predominantly a 21st century phenomenon (Wirtz et al., 2016).

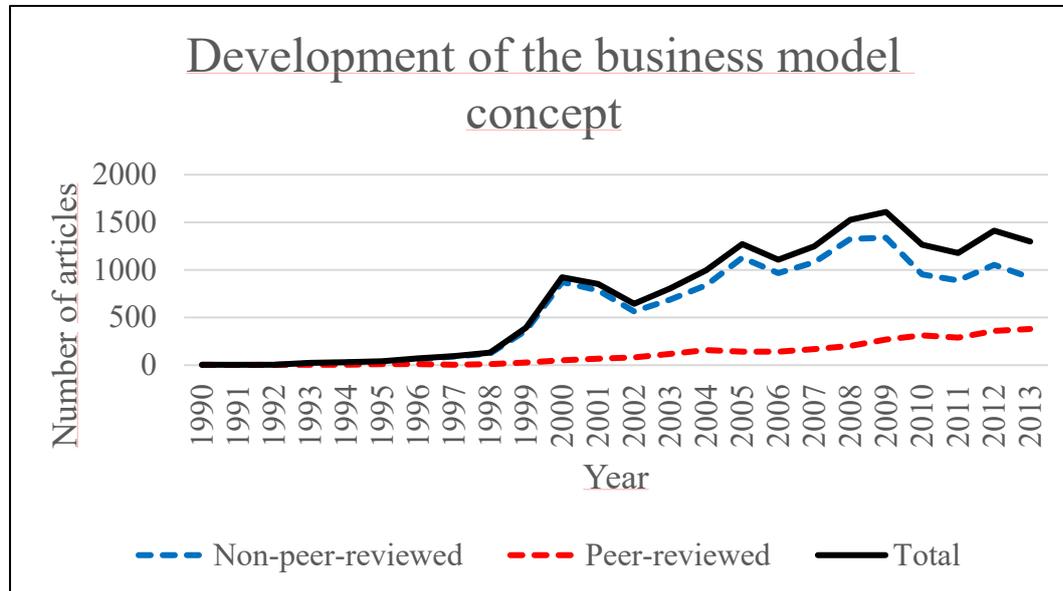


Figure 3. Published academic papers with the term "business model" in its title or abstract from 1990 to 2013 (Wirtz et al. 2016).

Business models illustrates on an aggregate level the relevant activities of a company (Osterwalder et al., 2005; Wirtz et al., 2016). In other words, it explains how a company works (Magretta, 2002). Researchers have used various definitions and models to describe business models - some more complex and detailed than other - but many of them includes similar elements and component. Some of the key constituents of a business model is that it (cf. Bocken et al. 2014; Chesbrough, 2010; Osterwalder and Pigneur 2010; Wirtz et al. 2016; Zott et al. 2011):

- Defines the firm's value proposition (i.e. the value customers will receive through the use of its product or service)
- Depicts the market segments that the value proposition is targeted to (i.e. the customers that are served)
- Describes how the firm produces, markets and distributes its products or services (i.e. the key resources and how structure of the value chain)
- Shows the firm's revenue streams and cost structures (i.e. how it will be profitable)

A popular tool for depicting business models is the BMC framework, originally developed by Osterwalder and Pigneur (2010), which includes nine components: value proposition, customers, distribution channels, customer relationships, partners, activities, resources, cost structures and revenue streams. One of its strengths is that it provides a holistic visualization of the firm's business model and thus helps the user to identify the connections and

interdependencies between elements and components. Thereby, the BMC can also act as a useful aid in discussions about strengths and weaknesses in the current business model, and for explorations of its future development (Joyce and Paquin, 2016). This is also discussed in section 4.2.

There are many definitions of innovation and, for example, in the software industry alone Edison et al. (2013) have identified more than 40 definitions. However, according to Mac Donagh et al. (2019), in the forestry context innovation is often defined as “*the realization, combination, or the synthesis of knowledge in new, relevant, valuable products, processes or services*”. Important to note is also that innovation can be both a process and/or the outcome of that process.

Edison et al. (2013) identified four types of innovations: product innovation, process innovation, market innovation and organization innovation. Further, they argued that innovations can be differentiated by their degree of novelty. On the lowest level, the innovation is only new to the firm. In other words, the firm adopts a ready-made solution (be it a product, process or administrative practice) that is already existing somewhere else. At higher levels the innovation can be new to the market or industry in which the firm operates, or even new to the world.

Similarly, innovations can also be categorized by their level of impact (Edison et al. 2013). At the lowest level, there are incremental innovations which only contribute with minor additional benefits to the customer and/or organization. In the other end of the scale we find radical innovations, which introduce completely new features and technologies that disrupts existing markets or creates new ones. Market breakthroughs and technological breakthrough are medium impact innovations that provides customers a better value than existing products in the market, or use novel technologies (but not necessarily create more value for the customer).

Business model innovation has many similarities with product innovation, but business model innovation tend to have a broader impact on the organization’s structure (Bucherer, 2012). For example, Bocken et al. (2014) have argued that business model innovation goes beyond the questions of what products or services the firm offers and is more focused on how business is done. Thus, it also involves relationships to external stakeholders and their role in the value creation process. Still, both types of innovation are multi-step processes initiated by an internal or external trigger (Bucherer, 2012). Once a threat or opportunity is identified, this is typically followed by the formation of ideas of how to solve the problem and develop new and better solutions. Thereafter, experimentation is done in order to test the different ideas and solutions before the best one(s) are finally fully implemented in the organization (Heikkilä et al., 2018; McGrath, 2010; Chesbrough, 2010). Like for products, the degree of novelty and impact of new business models can vary from incremental improvements that are only novel to the firm, to radical innovations that change the practices of an entire industry. (Bucherer, 2012).

A difference between product innovation and business model innovation processes is that the latter is more often dependent on involvement from the CEO and the firm's top management (Bucherer, 2012). Product innovation can more easily be delegated to specialized units within the company, but business model innovation needs a holistic perspective and a responsible person with the authority to make necessary decisions. In forestry service enterprises, which most often are micro firms with owners/managers that also do operative work on a daily basis, the CEO/owner may thus be very well suited for the task. However, this does not mean that other employees do not have to be involved in the process. It will be important to involve all levels of the company in order to develop an acceptance for the potential changes that the process will lead to, since some employees will probably find them threatening to their work situation or position in the company (Chesbrough, 2010). For example, a higher degree of mechanization and automation in forest operations could decrease the need of machine operator and motor-manual labor.

Organizational resistance is only one barrier that need to be overcome when implementing new business models. In the forestry context, Rummukainen et al. (2006) have pointed out three types of barriers that contractors may have to deal with. First, there may be structural barriers in the market the firm operates in. For example, in industries with low profitability it may be difficult to raise enough capital for the necessary investments. Second, the contractors' own skills and knowledge may be insufficient and therefore become a barrier for innovation. Finally, forestry contractors need to deal with formal barriers that are formed by laws, industry regulations, certification schemes, and so on. All three types of barriers could also be identified in the NPA region (Kronholm et al., 2019).

Business model innovation can be done in several ways but three design elements that the firm can focus on are content, structure and governance (Amit & Zott, 2012; Zott & Amit, 2010). Content refers to the activities performed by the firm and innovation can thus occur through the addition of novel activities, e.g. a new service or product (which can be new to the firm, the market or the world). If a new product or service is added to the firm's portfolio this may also require changes in other business model components (e.g. new machines, distribution channels and personnel). Structure refers to how activities are connected to each other, and in what order they are performed. Finally, governance refers to the question of who is performing the activities and thus innovation can be achieved by changing moving the actors in the business model.

When re-designing the above elements, Zott and Amit (2010) and Amit and Zott (2001; 2012) have pointed out four different design themes that can be applied: novelty, lock-in, complementarities and efficiency (Table 1). These are also referred to as value creators.

Table 1. Design themes for business model innovation (Amit & Zott 2001, 2012; Zott & Amit, 2010).

<b>Design theme</b>	<b>Description</b>
Novelty	Novelty refers to the adoption of new activities in the form of services or processes, reorganization of the connections between the performed activities, and/or introduction of new governance systems.
Lock-In	Lock-in effects refers to partners/customers willingness to continue the relationship and are often expressed in terms of switching costs. Lock-in effects can be achieved through provision of dominant technical solutions, a high brand attractiveness, loyalty programs, the firm's size and influence in the market, access to large networks of customers/suppliers, etc.
Complementarities	Complementarities are products and services that will provide the consumer a higher value when delivered together in one place or package, than if they are consumed separately. These can be found both horizontally and vertically in the value chain.
Efficiency	Efficiency is measured by the output produced in relation to the resources used for the production. Efficiency can be improved by, for example, reducing search costs, benefiting from scale economies, developing better information systems, streamlining of operations and improving the organization's administrative routines.

Important to note is that innovation seldom is isolated to one specific element and theme. Most often there are strong interdependencies between them (Amit & Zott, 2001). For example, by introducing new governance systems the firm may increase its efficiency. Further, to combine different products and services into ready-made packages may in itself be a novelty in the market. Another example may be that strong lock-in effects decreases the firm's need to recruit new customers, and also increases its knowledge of customers' needs and preferences, and the firm can thereby increase its efficiency. This again stresses that it is important to take a holistic perspective when dealing with business model innovation.

## 4 Business model innovation in the forestry service sector

### 4.1 Roles and responsibilities of market actors

During the mechanization period, from the 1950's and onwards, the development and rationalization of forest harvesting operations was driven in collaboration between the forest industry, machine manufacturers and researchers (Ager, 2014). However, when the large forest companies outsourced their forestry services to independent contractors in the early 1990's they gradually also lost their in-house competence in this area and became less involved in the development work. Instead, they relied on the contractors to take a more prominent role in development processes. However, since most harvesting contractors are small enterprises with limited resources (both human and financial) and competencies they were not fully able to take on this role, which lead to a weaker productivity curve some years later (Ager, 2014; Eriksson 2016).

Today, the responses in the contractor surveys performed in the FOBIA studies indicate that contractors consider that responsibility for the development of the sector is shared between the forest companies (i.e. their customers) and themselves, with a small overbalance towards the customer side. Table 2 shows that there was no significant differences between harvesting-, silvicultural- and other types of contractors on this matter.

*Table 2. Contractors' view on who has the main responsibility for the sector's development issues. A scale 1 to 5 was used, where 1 equals the sole responsibility of contractors and 5 the sole responsibility of customers.*

	Mean	Std. Deviation
Harvesting contractors (n = 104)	3.09	.826
Silvicultural contractors (n = 38)	3.24	.786
Other (n = 47)	3.11	.938
<b>Total ( n = 189)</b>	<b>3.12</b>	<b>.845</b>

Even though the contractors' perception is that responsibility is shared, the interviews conducted within the project have shown that the customers of forestry services have an influential role in the development of contractors' business models (Benjaminsson et al., 2019). In many cases it is the customers' service requirements that determine what type of machines and services the contractor need to possess in order to be eligible for a contract. Further, customers have preferred ways of paying for the services which contractors often need to comply with. Also the contract duration period may be dependent on customer and service type (Larsson, 2019).

### 4.2 How to stimulate business model design?

The business model canvas framework (Figure 4) that was developed in the FOBIA project (Benjaminsson et al. 2019), and later implemented in several of the project studies, has been

found to be a useful and practical tool for characterizing forestry contractors' business models. However, although this forestry specific framework has mainly been tested in scientific studies, there are several reasons to believe that it may also be a useful tool for contractors in their innovation processes.

First, a mapping and visualization of the firm's current business model may help contractors to understand the linkages between components, which are often tacitly understood by managers and employees but seldom expressed in a concrete ways (Teece, 2010; Joyce & Paquin, 2016). Second, it may help contractors to apply a holistic perspective on their own business and thereby improve their chances to identify weaknesses and opportunities for change. Furthermore, when the business model components and linkages have been visualized in the form of a canvas, it will provide owners and employees a common baseline perception of the current situation and thereby facilitate discussions about potential changes in the model (Joyce & Paquin, 2016).

Furthermore, the canvas framework can also be used for experimentation with alternative business models on a theoretical (but still concrete) level before testing and evaluating the most promising solutions in a real market environment (Chesbrough, 2010). However, as concluded by Chesbrough (2010), the use of a canvas framework is not enough for a successful innovation process. The company must also have the courage to test different solutions in reality and have processes that enables it to learn from its failures. What works, and what does not? In the forestry sector where many firms have limited resources it will be crucial to plan carefully before testing new business models so that the potential failures will be affordable to the firm but still provide a high amount of new knowledge that can be used for modifications in the business model design.

<p><b>Use of subcontractors or other cooperation</b></p> <ul style="list-style-type: none"> <li>• Do you use subcontractors or cooperate with other contractors?</li> <li>• If so: is it long- or short-term arrangements?</li> <li>• How do you buy/ negotiate the terms for those services?</li> </ul>	<p><b>Machinery</b></p> <ul style="list-style-type: none"> <li>• Do you need machinery?</li> <li>• How many machines do you have?</li> <li>• How specialized are the machines for a certain type of service?</li> <li>• What affect your choice of machinery: your preference, the market demand, customer requirements, your company's economy, or other factors?</li> </ul>	<p><b>Services performed</b></p> <ul style="list-style-type: none"> <li>• What services do you offer?</li> <li>• To what degree are you engaged in forestry services?</li> <li>• Do you perform non-forestry services?</li> <li>• What affected your choice of design: your preference, the demand, customer requirements, the company's economy, or other factors?</li> </ul>	<p><b>How services are sold</b></p> <ul style="list-style-type: none"> <li>• How do you sell your services to customers, regarding purchase method?</li> <li>• How long contracts do you have?</li> <li>• Why do you sell the services this way: because of your own preference or the market conditions?</li> </ul>	<p><b>Customers</b></p> <ul style="list-style-type: none"> <li>• Who are your <u>main</u> customer/s?</li> <li>• How many customers do you have?</li> <li>• What affects the number of customers: your preference or the market conditions?</li> </ul>
<p><b>How services are priced</b></p> <ul style="list-style-type: none"> <li>• How is pricing done?</li> <li>• Why are services paid this way: because of your own preference or the market conditions?</li> <li>• What can you do to get extra paid/get a higher price?</li> </ul>				

Figure 4. The forestry business model canvas with key questions included for each component (Benjaminsson et al. 2019).

### 4.3 Forestry service contractors' adoption of new business models

When developing new business models forestry contractors may either choose to specialize their business on a limited number of services, or to diversify and provide services in many different areas (sometimes even outside the forestry sector). In the Swedish NPA region Larsson (2019) identified four types of forestry service contractors (based on their service focus and degree of specialization). The largest group (50% of the contractors) was those who had specialized their business on harvesting services, i.e. cutting and forwarding of roundwood. Two other specialized groups were also identified. These were the contractors who mainly focused on silvicultural services such as pre-commercial thinning and other types of motor-manual work (17%), and a minor group (8%) of contractors who primarily offered other types of forestry related services (e.g. planning, chipping, machine transportation, etc.). The remaining group (25%) were found to have a diverse businesses with no particular focus, with revenue streams coming from several of the previously mentioned areas.

Heikkilä et al. (2018) have argued that there are three typical strategic goals that guide the development of small- and medium-sized enterprises: 1) start a new business, 2) expand the business (i.e. a growth strategy), and 3) increase profitability. The strategies are closely related to the life cycle of the companies, as the entrepreneur initially will build up the business and gradually expand it. However, initially growth may lower profitability due to the costs for up-scaling the machine resources and/or recruiting new customers. But once the company has stabilized at a sustainable level, it may put larger focus on profitability. Thus, although these strategies can be regarded as separate they will also interact and to some extent overlap each other over time.

Growth is important for firms that operate in a competitive market environment. In the early stages of the business model innovation process, Heikkilä et al. (2018) argued that growth seekers will often focus on the customer and customer relationship components. For example, they can try to expand their number of clients or increase the sales to existing customer by learning more about their needs and preferences. For this reason, development of new products and services that fit the needs of the targeted customer segments may also be needed. In later stages, new partners and channels may also be considered. The FOBIA studies indicate that a growth strategy may be beneficial for the contractors' who in the long-run wants to improve their profitability. Both the analyses made in Finland (Jylhä et al. 2020) and Sweden (Kronholm et al. 2019) showed that there is a relationship between company size and the contractors' profitability, were especially the smallest firms (in terms of turnover) are in a difficult financial situation with low profit margins and high debt ratios.

In Sweden, Hollsten (2020) found that contractors with a growth-seeking strategy primarily focused their business model innovation on two areas. One was that they more often than other groups tried to change their customer base. This could either mean that they expanded their customer base by adding another service buyer to their clientele, or by replacing one of their main buyer of services for another one that could offer larger and better contracts.

Another common way to expand the business was to add new services offers to their portfolio. In addition, when the new customer base or service offer had been implemented, the contractors also made efforts to implement better pricing methods. However, in parallel to the above changes also machines and staff resources were frequently adapted in order to meet the new requirements for service delivery.

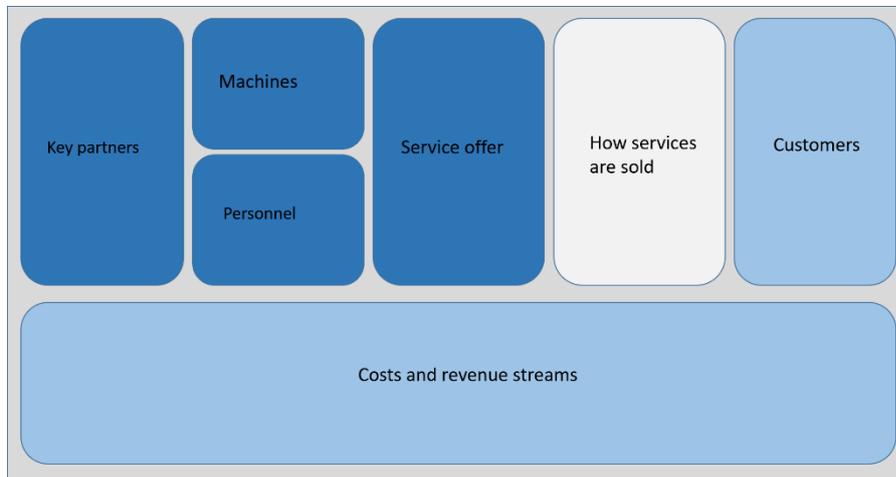


Figure 5. Business model components altered by the studied contractors in the growth strategy group. A darker color indicates that a higher share of the contractors had innovated the specific component (Hollsten, 2020).

While growth seekers often focus on customers, Heikkilä et al. (2018) have argued that profitability seekers are more inclined to focus on increasing the efficiency of internal processes and raise the productivity of machines and other key resources used in its operations. In other words, they focus on the components to the left in the BMC. Thereby, contractors can lower their costs and increase their profits. However, improving efficiency in internal processes will soon become harder and harder and then focus needs to be shifted other components. For example, better alignment between the firm's service offer and the customers' preferences may increase their willingness to pay a higher price.

Indeed, Hollsten (2020) found that the Swedish contractors whose main strategy was to increase the profitability focused their innovation efforts on other components than growth-seekers. In this group, contractors took actions to improve the operational efficiency by investing in new machines that would increase productivity. The contractors also implemented new systems for monitoring of operational costs (for both machines and staff) and they had also become stricter in their follow-up of how contractual agreements with the customer had been fulfilled. In other words, they made sure that they charged the customer for all expenses that were covered by the agreed contract terms. Another important issue for these contractors was to improve the working conditions for their staff and to improve the relationships between the employer and the employee. Among the studied contractors in this group, limited efforts had been put on the innovation of new service offers.

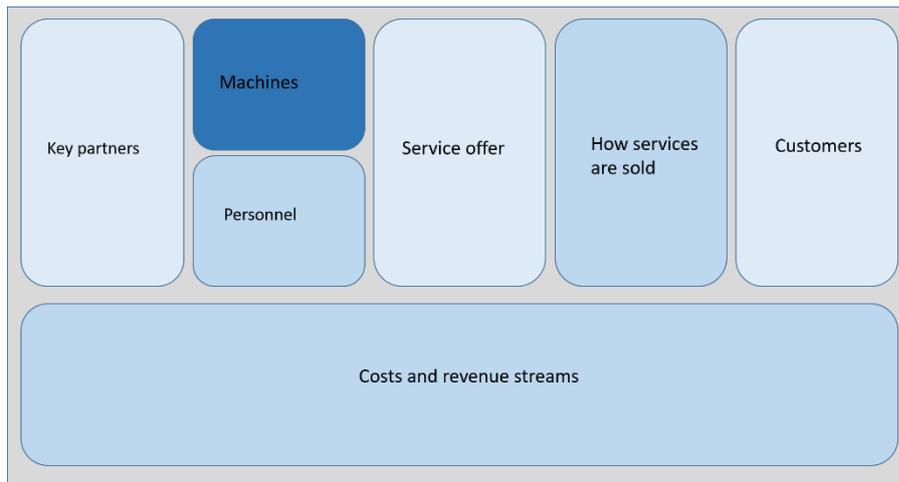


Figure 6. Business model components altered by contractors with a strategy aiming for increased profitability. A darker color indicates that a higher share of the contractors had innovated the specific component (Hollsten, 2020).

Start-up firms will often start their business model innovation with an empty table and thus needs to develop the content of all business model components, i.e. develop their service offer, set up sales channels, recruit customers, organize production, and so on (Heikkilä et al. 2018). This can be an iterative process, where different solutions are tested and refined over time. Compared to the mature companies this group is less restricted by existing company structures and resources. For example, mature companies may find it hard to rapidly exchange machines and staff resources due to high investment costs and labor laws that protect the employees' position in the company. This also means that there is a strong path dependency when implementing new business models, meaning that the early decisions will often guide and restrict future decisions about the business model (Chesbrough, 2010).

Among the start-up firms studied by Hollsten (2020) it was common to put much focus on developing the customer relationships, i.e. how the services are sold. Further, it was noticed that the small start-up firms had made efforts to develop almost every single component in their business models. Thus, they acted differently than the more established firms which often focused on specific components. These findings are thus similar to those in previous studies by Heikkilä et al. (2018), who also concluded that new firms cover most components in their early development stages and that innovation is an iterative process in which different solutions are tested and modified. However, in Hollsten's (2020) study a difference was identified between the smaller and larger start-ups. The latter firms had more often started their business by taking over existing harvesting teams (including both the machines and their operators) from other harvesting enterprises. Thereby, to some extent, they also adopted a way of doing business and the start-up process may have been shorter compared to those who built a new business from scratch.

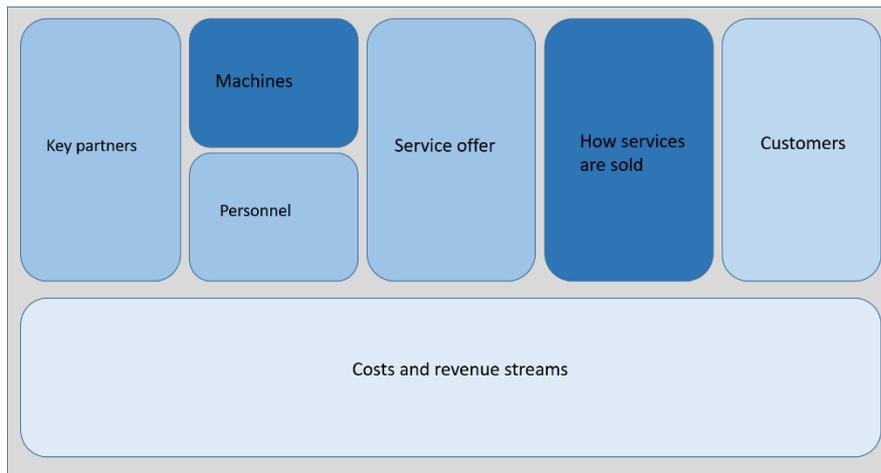


Figure 7. Business model components altered by the studied contractors in the start-up group. A darker color indicates that a higher share of the contractors had innovated the specific component (Hollsten, 2020).

When comparing these findings to the business model design elements and themes (Amit & Zott, 2001, 2012; Zott & Amit, 2010), it was found that the start-ups and the profitability seekers more often developed the business model structure than the growth seekers did. The latter put equal focus on the content and governance of their business model. Although the data was too limited to make any general conclusion regarding business model design strategies, this could still indicate that the choice of strategy will have some effect on the innovation process. Further, it was rare that the contractors purposefully tried to add products or services that could act as complementarities. It also seemed to be difficult for the contractors to create lock-in effects. In fact, several contractor considered the relationships with customers to be poor due to their unwillingness to pay a (from the contractor’s perspective) fair price for services. Still, in general the innovation process in the studied firms was closely connected to the customer’s needs and preferences and when these changed contractors tried to adapt to these in the best possible way (Hollsten, 2020). That the customer has an influential role in contractors’ business models was also pointed out by Benjaminsson (2018).

A challenge when leaving the responsibility for business development to contractors is that their actions and strategies are often characterized by opportunism and planning horizons seldom extend longer than one or two years ahead (Drolet & LeBel, 2010). This could be identified in interviews with Swedish contractors who had strived for business growth during the last few years as many of those contractors had often acted rapidly on emerging opportunities (Hollsten, 2020). For example, they had often decided to increase the number of machines and personnel when competitors had a suitable machine for sale. In some of these cases the operators of the machines also moved and continued to operate the machines as an employee of the firm that purchased the machine. Another common way to create growth was to offer new services when a demand was spotted in the market.

#### 4.4 What stimulates contractors to run and develop their business?

Hollsten (2020) identified that a strong motivator for the contractors who aimed for growth and increased profitability was to enable the operative business owners to focus more of their working hours on administration and management activities. There are good reasons to encourage such ambitions. For example, Jylhä et al. (2020) found that many contractors today have very long work days. Especially the active owners of small harvesting enterprises whose average annual working time was 3,040 hours, and some extreme cases even worked close to 4,000 hours per year. Thus, it was not surprising that Kronholm et al. (2019) found that lack of time and the contractors' personal situation were among the most frequently mentioned obstacles for business development. Further, small businesses have been found to struggle with profitability and growth can thus be one way to overcome this particular problem (Kronholm et al., 2019; Jylhä et al., 2020).

Another strong motivator for the growth seekers was, according to Hollsten (2020), to increase their independence by having a stronger bargaining power towards customers. They also wanted to spread the risk by increasing the business. Start-up contractors were found to have strong internal motivators, such as the feeling of being one's own boss, while profitability seekers often were motivated to increase the quality of their work, improve the internal working environment and staff relationships, and increase the productivity. These findings are to large extent in line with the results from the survey performed in the Swedish NPA region (Larsson, 2019). The survey results showed that different types of contractors put different value on several of the listed motivators (Table 3). It also showed that some motivators seem to be more important than other (no matter the type of contractor).

To be able to work in the forest was the motivational factor that was given the highest score in all contractor groups, and no significant difference was found between the group's mean scores (4.1 – 4.5). This may seem logic, but the strong affection to forest work may also have a cost since Larsson (2019) found a negative relationship between this factor and their company's profitability. A possible explanation could be that those contractors who prioritize to work in the forest have less interest and time for management activities and paper work, which could negatively affect their monitoring of the firm's economic performance.

For harvesting and silvicultural contractors, the second most important factor was to be one's own boss, and in third place was the feeling of overcoming challenges and hinders. The group of "other" contractors had a slightly different top-three-ranking, and for them the feeling of solving the customer's problem was ranked just a little higher than being one's own boss (which was ranked third in this group). The feeling of solving the customer's problem was almost equally important for the harvesting contractors, but the silvicultural contractor gave a significantly lower value to this motivator. Notably, this also puts this motivational factor on the lower half of the silvicultural contractors' ranking. Instead, this group ranked "managing an own business" in third place.

Table 3. Factors that motivate forestry service contractors to operate in the business. Significant differences ( $p < 0.05$ ) between groups indicated by letters a, b and c for respective group.

Motivator	Harvesting contractor (a)		Silvicultural contractor (b)		Other (c)	
	Mean	Rank	Mean	Rank	Mean	Rank
The feeling of solving the customer's problem	3.9 <sup>b</sup>	4	3.3 <sup>a,c</sup>	6	4.0 <sup>b</sup>	2
To be my own boss	4.1	2	4.0	2	3.9	3
To achieve a high profit/salary	3.5 <sup>b</sup>	7	3.0 <sup>a</sup>	8	3.1	6
Lack of alternative employment in the residential area	2.0	10	2.4 <sup>c</sup>	9	1.7 <sup>b</sup>	10
The status and respect one gets from being an entrepreneur	2.1	9	1.8	10	1.8	9
Feeling of responsibility for my employees	3.6 <sup>c</sup>	6	3.5 <sup>c</sup>	5	2.5 <sup>a,b</sup>	8
Being able to contribute to society	3.1	8	3.1	7	2.8	7
The feeling of overcoming challenges/hinders	4.0	3	3.8	3	3.5	4
Managing an own business	3.9 <sup>c</sup>	5	3.8	3	3.4 <sup>a</sup>	5
The work in the forest	4.4	1	4.5	1	4.1	1

None of the contractor groups seemed to be in the business due to lack of other work opportunities in their local area as all groups gave it low scores (1.7 – 2.4). Still, there was a statistically significant difference between silvicultural contractors and “other” on this factor. The contractors were neither strongly motivated by the pursuit for status and respect that may come from being a successful entrepreneur in this business. However, the question does not reveal whether this is only due to their own modesty or if there are other reasons behind the low scores, for example that forest contracting in general would be considered to be a low status profession among their peers and society in general.

Finally, two more differences between groups are worth pointing out. The first one is that harvesting contractors ranked the pursuit for high salary/profit significantly higher than silvicultural contractors. This could, for example, be related to the fact that they have invested more money in machinery and thus have a higher economic risk in their business. Second, the group of “other” contractors were significantly less motivated by the feeling of responsibility for employees compared to both harvesting and silvicultural contractors which might be related to that they have less employees to care for than other groups do.

The above findings are in line with results of earlier studies, which also have showed that financial motives are less important motivators compared to personal feelings of independence, the freedom and flexibility offered by the life as a contractor, and the love of the job (Drolet & LeBel, 2010). In interviews with Swedish contractors who recently had started their harvesting companies, these driving forces were also identified as strong factors behind their decision to start their own company (Hollsten, 2020).

Knowing the contractors' motivators for running and developing their forestry service business may be vital information for researchers and educators who aim to provide advice and training to this group. It could also act as guidance for the industry on areas that needs to be improved, for example when considering how to solve the recruitment problems that were reported in all of the FOBIA countries. Thus, it may be beneficial to find measures that could increase the status of this type of work and thereby to higher extent motivate future contractors and their employees.

#### 4.5 Lowering the barriers to innovation

To lower the barriers to innovation, collaboration between various stakeholders is needed in order to improve the business environment and increase the innovation capabilities in the forestry service sector. Based on the project results, three areas may be of special interest: networking, education and promotion of the profession (in order to increase availability of skilled contractors and employees).

*Networking:* According to Hollsten (2020), contractors find networking with both colleagues and competitors as very beneficial for their business development and innovation processes. Especially those contractors who were new in the business saw this as an opportunity for learning. Meeting other more experienced contractors gave them, for example, awareness of the current price levels in the market and also ideas about how to set up their business. The exchange of business information between contractors could be problematic if the competition between them is tough, but since most contractors mainly operate in a relatively small geographical area (Kronholm et al., 2019) there are many contractors who are not competing directly against each other. However, this requires the presence of arenas where the contractors can meet and also that the contractors realize the value of spending some time and money on these meetings. For this The Swedish Association of Forestry Contractors should have an important role in facilitating meetings and knowledge exchange between contractors.

*Education:* Kronholm et al. (2019) have shown that contractors often experience a lack of skills in areas like grant writing, tendering bids, business and accounting, but also technology. The major barriers to learning were identified to be contractors' lack of time and money to participate. Not only due to course fees, but mainly due to the decreased production and loss of income that this would cause in the meantime. In addition, since most contractors work in remote areas they often have a long distance between the work site and the course location. To lower these barriers and increase the contractors' possibilities to develop new skills and knowledge, providers of education and training should make their courses more

accessible. One way to do this is, for example, to provide courses that are independent of time and place. Within the FOBIA project an online learning environment has been constructed for this purpose based on the materials developed throughout the project ([www.boostsite.org](http://www.boostsite.org)). However, whether this will be a successful measure in the long-term for increasing contractors' business knowledge is too early to evaluate. A barrier for the participation in these courses might be that contractors are not very active in the online environment (Kettunen & Hurttala, 2019).

*Promotion of the profession:* The lack of skilled personnel was seen as a major barrier to innovation in several countries (Kronholm et al., 2019). Increasing the sectors attractiveness will thus be key in order improve innovation capabilities and secure the future of the business. This will not be an easy task and it will require input from many stakeholder. Especially, since the younger generations have high demands on their work environment and want to be able to combine work with a good family life and other leisure activities. According to Hollsten (2020), a good a working environment can thus offer the contractor a significant advantage for recruiting and retaining skilled and motivated operators.

## 5 Concluding remarks

This report has summarized and synthesized some of the main results of surveys and interviews conducted in the FOBIA partner countries Sweden, Finland, Ireland and Scotland. Thereby, it provides an up-to-date insight into how business model innovation can be understood in the forestry service business in the NPA region today, and describes how contractors may approach this issue differently depending on their own strategic goals. It also outlines how business model innovation can be stimulated, for example through the use of the BMC tool and the provision of an infrastructure that may enhance contractors' business skills. However, a large share of the project work that was directly focusing on business model innovation has been conducted in the Swedish forestry context and some of the analyses are based on a small number of cases. Therefore, more investigations will be needed in order to get a deeper understanding of contractors' innovation processes. Future studies could also clarify how contractors in other countries perceive the roles of the market actors, whether contractors in all countries have the same type of motivators to be in the business and how they in practice implement new business models. By increasing our knowledge in this field, stakeholders from both industry and society will be in a better position to stimulate and aid innovation in a sector that for a long time has been characterized by low profitability and poor conditions for business development.

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