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Services and industrial development: analysis of industrial policy, trends and issues for the forest-based sector

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ABSTRACT

Increasing role of services in the economy has been recognized in the forest-based sector, yet the phenomenon and its possible impacts remain little studied. The forest-based sector companies operate in international markets and their products feed into a wide range of industrial activities. Increasing role of services as change in the operating environment of these companies can be expected to influence also on the upstream of the forest-based value chains, and better understanding of such developments is needed. This study analyses documents of the EU industrial policy and economic cooperation at international level from the year 2000 onwards, and asks: 1) how the increasing role of services is assessed as part of industrial development, 2) which trends and drivers are identified, and 3) whether and how the issues related to the natural resources base are addressed with regard to this phenomenon. The study concludes that instead of thinking of the increasing role of services as a trend in the external environment of the forest-based sector, it can also be assessed as a symptom of more profound changes underway in the industrial production. The recent industrial policy documents emphasize the new technology-enabled production modes that revolutionize how production, distribution and value capture can be organized. By assessing the developments only with accustomed metrics, such as number and volume of services, important opportunities and challenges may remain unrecognized for the forest-based sector. The paper concludes questions for future research to address this issue.

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Introduction

The services sector contributes 70–80% of national value added and employment in developed countries, and its share is increasing also in the developing countries (Wöfl, 2005; De Backer et al., 2015). The traditional division of economic sectors, especially the borderline between manufacturing and services has become blurred: business services contribute an important input to the manufacturing operations, while manufacturing companies themselves also produce services along their value chains and offer services to their customers. In 2014 services trade represented 21% of the world trade in goods and services (WTO, 2017). The General Agreement on Trade in Services (GATS) entered into force in 1995, and in Europe measures have been taken to improve functioning of the internal market for services (EC, 2002a). Attention is not solely on the services industries on their own, but increasingly with regard to the role that services play in internationally distributed production, so called global value chains (Low, 2013).

Services are a crucial part of the interactions in the primary and secondary production sectors, as well as on their own, contributing to the economic growth.

The increasing role of services has also been recognized in the forest-based sector. Services have been addressed from the perspective of new opportunities in services businesses, including activities related to non-wood goods and services, rural entrepreneurship and innovation in forestry (Niskanen et al., 2007; Weiss et al., 2011), changing modes in forest-owner services (Mattila and Roos, 2014); growing importance of business-to-business services in the forest industry (Toppinen et al., 2013; Viitamo, 2013); role of intangible aspects for the wood products industry (Toivonen et al., 2005, Wang et al., 2015; Rätty et al., 2016), and; future prospects in innovations of new products and services (Näyhä et al., 2014). The analyses tend to focus on services within the forest-based sector, its processes and direct customers, whereas the further downstream developments and possible changes in the customer industries' operations typically fall outside the study scope. At the same time the traditional borderlines of a forest-based sector are blurring and the industry operations increasingly connect with energy, chemicals, pharmaceuticals and textiles sectors

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(Hetemäki, 2014; Hansen 2016). Biorefineries call for new types of partnerships and interaction across several levels of production (Pätäri et al., 2011; Näyhä and Pesonen, 2014; Bauer et al., 2016), and for example the European bioeconomy strategy emphasizes the need to cross the sector borderlines and establish new kinds of industrial ecosystems (EC, 2012d). Renewal of forest industry is connected with other industries, either supplying to it or using its products in their own processes. From this perspective the trend of increasing role of services in the economy raises the question how the changing industrial processes affect the upstream of the existing product value chains and the emerging new bio-based value chains.

The very concept of 'services' remains challenging to grasp for its impacts in the economy. Services are distributed across all socio-economic sectors, but they have gained little interest until the past thirty years (Bryson and Daniels, 2007). Recent analyses show that the average service content is nearly 40% of the total value of final manufacturing goods produced in the EU, that is, the input that service sectors contributes to the realization of the manufacturing output (Stehrer et al., 2014; De Backer et al., 2015). The role of especially knowledge-intensive business services for the industry is recognized, but statistical metrics to analyze these interconnections are lagging behind, not least due to the technological development (Toivonen, 2004; Miles, 2005). Furthermore, the input-output analyses do not count in services produced by the manufacturing companies themselves. The labor force surveys indicate that app. 40–50% of persons working in manufacturing are in fact employed in service-type occupations, for example in R&D, management, accounting, legal services, marketing, distribution or after-sales services (Pilat et al., 2006; Manyika et al., 2012). On the other hand, analyses on international company financial data demonstrate that app. 30% of manufacturers with over 100 employees offer services for their customers (Neely et al., 2011). Servitization in manufacturing, i.e., manufacturing companies extending their tangible products with services and shifting their operations towards service, has gained an increasing attention in engineering and business research. Services, whether produced by the companies themselves or acquired from external service providers, are studied as sources of improved competitiveness and a means to gain higher and more stable revenue streams for the manufacturing companies (Vandermerwe and Rada, 1988; and summarily in Baines et al., 2009; Kowalkowski et al., 2017).

Although very few studies have been made on the forest industry specifically, its service-content or servitization, the developments are not unfamiliar in the forest-based sector. Servitization has been typical in machinery and engineering industry where, for example, companies have provided mill service and maintenance for the pulp and paper industry. But also paper and paperboard companies offer integrated solutions to their customers, for example packing materials and solutions that are developed together with the food and pharmaceuticals industries (Kuusisto, 2006; Viitamo, 2013). There are also examples of fairly simple products that are attached with a service component: For example, a producer of wooden electricity poles adds the product delivery with a GPS-tool that allows communication with the customer's assembly teams and improves their efficiency; a company producing wooden frames for construction offers assembly services; a sawmill company offers pre-painted construction materials, thus, removing one step of the customer processes either at the construction site or in the pre-fabrication of wooden elements. The same pattern can be found in wood procurement: large forest companies in Finland provide the private forest owners with different types of service packages not only for harvesting and after-harvest forestry work, but also financial and legal services for managing the forest property.

In sum, services and services business are already within the forest-based sector, and they support the production processes in several ways. Yet, the potential of services for creating business or supporting innovations gains little attention in the forest-based sector programmes (Näyhä et al., 2015; Pelli et al., 2017). The programmes, such as the EU Forest Strategy (EC, 2013), the forest product market reviews and forest sector outlooks (UNECE/FAO, 2011) and the green economy action plans (FOREST EUROPE, 2011; UNECE/FAO, 2014) focus on the part of the value chains which concerns the supply and demand of raw materials and forest products—including sustainable forest management, multiple use of forests, ecosystem services and contribution to rural livelihoods. Services related to trade, certification, labelling, sustainability and transparency are embedded in the processes, but how they contribute to the customer industries' production processes is not further elaborated. From the point of view of the internationally distributed production, global value chains, and the increasing services trade, also these activities are a crucial part of the industrial processes. The forest products feed into several manufacturing processes both in the domestic European and global markets, and the developments related to the services affect also the forest-based sector: what are the changes ongoing and what kind of opportunities and challenges arise for the forest sector processes?

To gain an overview on this issue, this study analyses the EU industrial policy and economic cooperation at an international level, and asks:

(Q1) How the increasing role of services is described as part of industrial development, and which methods are used to assess the developments?

(Q2) Which trends and drivers are identified for the increasing role of services?

(Q3) Whether and how the issues related to the upstream, i.e. the natural resources base, are addressed with regard to the increasing role of services in industrial activities?

Contribution of this paper is to improve understanding on the increasing role of services from the perspective of industrial policy processes. The paper discusses means to research the role of services in the existing product value chains as well as for the emerging, new bio-based products value chains in the forest-based sector. Such work could contribute to the bioeconomy development and respond to the concerns raised about renewal of the forest-based sector (Hetemäki, 2014; Kleinschmit et al., 2014; Hansen, 2016).

Methods

This study addresses a change recognized in the operation environment of the forest-based sector: the increasing role of services in industrial activities and the role of services for the economic growth in general. As described in the introduction, the phenomenon is multifaceted and can be assessed in the forest-based sector, for example, from the perspective of services functions or occupations that are embedded in the forest-based sector processes, the contribution of external services companies to the operation of the forest-based sector, and the services outputs that forest industries offer to their suppliers and customers. Statistics to analyze these aspects are lacking. This study takes a qualitative approach and analyses documents of industrial development and economic cooperation at international level to gain better understanding of the macro level developments which have led services to become increasingly intermingled with industrial activities. It also collects information about the methods and approaches how the challenges about data on services have been addressed.

The scope of the study is the forest-based sector in Europe, and it focuses on the EU. In other words national or sub-national

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