



Global sustainability megaforges in shaping the future of the European pulp and paper industry towards a bioeconomy



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ABSTRACT

The European Union has set a milestone for cutting its carbon emissions by 2030 to levels 40% below the levels of 1990 through domestic reductions, improved energy efficiency and the greater use of renewable energy sources. In parallel, the key challenge of the pulp and paper industry (PPI) is how to achieve a transformation towards a bioeconomy, as well as to realize the necessary new green innovations. Climate change, material resource scarcity and ecosystem decline are among the ten major sustainability megaforges identified by KPMG (2012), globally influencing business environments. However, the relative importance of these megaforges in the context of pulp and paper sector transformation is yet unknown. We therefore investigate the significance of these megaforges and their relation to the drivers of sustainability-related investments in the European pulp and paper sector, and identify threats and opportunities that these business environmental changes may bring about. Our results are based upon a three-round dissensus-based Delphi approach carried out with a sample of 30 high-level European PPI experts collected in 2014. The panelists identified a greater demand for energy, volatility in the fossil fuel markets and increasing material resource scarcity as the most significant sustainability megaforges shaping European PPI over the next 15 years. However, all the megaforges – except for global ecosystem decline and water scarcity – were perceived more as opportunities rather than threats to European PPI business, indicating that designed energy and environmental policies have the potential to advance a paradigm change towards a bioeconomy rather than curbing the future of the European PPI.

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1. Introduction

A well-known study by Rockström et al. (2009) identified nine global-level dimensions within Planetary Boundaries of human activities, of which climate change, biodiversity loss and nitrogen input are close to or under severe threat. In a 2015 update of the work, also land-system change, including deforestation, was identified being as crossed by human activity (Steffen et al., 2015). Rockström et al. (2009) additionally emphasized that the Planetary Boundaries are strongly connected, and crossing one boundary may seriously threaten the ability to stay within safe operating levels of the others. As an example regional policy target, the European Union (European Commission, 2013a) has set a milestone for cutting its carbon emissions to 40% below 1990 levels by 2030 through domestic reductions, improved energy efficiency and the increased use of renewable energy sources. However, until now it has proven politically difficult to agree on which actions should be taken to alleviate or cope with the environmental and societal changes that are looming above the world due to e.g. a changing climate.

The pulp and paper industry (PPI) is characterized with high capital intensiveness, mature markets of several core products, low innovation intensity and increasingly international firms operating in global markets with high price volatility. The current major challenge of PPI in Europe is how to materialize a transformation towards a low-carbon bioeconomy, as well as how to realize the necessary new green innovations amidst a prolonged global recession (Hetemäki et al., 2014). Based on Toppinen et al. (2015b), PPI investments in sustainability have great potential for change as the expert panelists expect an industry turnover as high as 40% by 2030 from the new products. The role of sustainability hence becomes of major importance in reaching towards the future bioeconomy. Through increased market globalization, a growing awareness of sustainability and a shifting of production capacity to low-income countries in the Global South, the PPI in Europe has also become more exposed to growing vulnerability in competitiveness and company sustainability image (Mikkilä and Toppinen, 2008). From the perspective of combining both the sustainability and competitiveness of European forest-based business, Hetemäki et al. (2014) argue that the industry has to accept the need to pay for carbon emissions, even if many of the competing regions outside the EU are not going to be doing so in the foreseeable future. However, parallel industry federations have voiced concern over cost increases due to environmental

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regulation (e.g. CEPI, 2013). There thus appears an inherent tension between sustainability and (cost) competitiveness in the European pulp and paper sector, at least with a short time perspective.

Whiteman et al. (2013) suggested connecting studies of corporate sustainability better with the declining state of the Earth System and Planetary Boundaries as a rich foundation for management studies. As Kozak (2013, p. 432) says: “there is no force – be it climate change, pests, disease, fire, poverty, and so on – that has as big an impact on the current and future states of our forests as business has.” Therefore, as also pointed out by Winn and Pogutz (2013), the business research community should pay more attention towards ecosystems – and the services they provide – as this opens new research directions for analyzing impact-dependence linkages between organizations and the natural environment. A better understanding of emerging sustainability megaforces (or megatrends)¹ that drive the future development of European PPI is therefore called for.

KPMG (2012), one of the leading consulting companies, recently identified ten major sustainability megaforces, influencing business environments globally. Among the identified key global sustainability megaforces, climate change was perceived as the number one global driver directly impacting all others. Contributing to mitigation efforts is concurrently possible by material substitution with low carbon products, increasing energy and material efficiency and recycling. Inspired by the megaforces listed by KPMG (2012), our aim is to analyze how the experts and industry understand and foresee the expected influences arising from the sustainability megaforces. More specifically, we wish to investigate the following two research questions: First, what is the current role of sustainability and the embedded threats and opportunities shaping the future of European PPI in 2030? Second, what is the perceived relative importance of the ten KPMG-identified sustainability megaforces now and in 2030?

Methodologically we use a Delphi approach for data collection as an appropriate means of long-range (20–30 years) futures research, especially in situations where expert opinions and views are the only source of information (Blind et al., 2001). Also according to Hurmekoski and Hetemäki (2013, p. 17), “there are potential advantages in complementing the current modeling approach dominant in the forest sector with other methods from the field of foresight”, which also warrants utilization of the Delphi method. The results are used to map future business conditions and prerequisites towards sustainable value creation in the PPI, and to suggest areas for future research. The paper begins by shedding light on sustainability as a megatrend within the PPI context. State of the art literature on PPI foresight is also reviewed. Section 3 gives an overview of the research design, and Section 4 presents and discusses the results. Section 5 concludes the paper.

2. Sustainability as a megatrend with inference to the future of the European pulp and paper sector

The question of how the business sector can be mobilized to contribute to sustainable development at a national or global level has received increasing research attention (e.g. Moon, 2007; KPMG, 2012). Voluntary sector-wide responses and initiatives under corporate responsibility (CR)² are becoming increasingly important according to Draper (2006), and represent the next generation of business sector activity concerning sustainable development. In the case of PPI, environmental regulation has played a large role in determining the terms and conditions of current practices and future opportunities, but Li and Toppinen (2011) suggested that firms in general might also have an

economic incentive to invest in corporate responsibility. At a rhetorical level, we can already recognize a strong commitment on behalf of European PPI contributing on the frontline to solving the grand challenges of our times and helping with the transition towards sustainable societies and green growth (see e.g. Forest Sector Technology Platform, 2015). Controversially, an introduction of more stringent and costly environmental regulation can concurrently be lobbied against among the PPI (e.g. Korhonen et al., 2015).

On the one hand, a transition to bioeconomy increases business uncertainty in the future, and on the other hand it hampers the formation and creation of incentives for adopting more sustainable business practices. According to the well-known “Porter hypothesis”, environmental regulation can improve competitiveness and offset compliance costs by driving resource efficiency and new innovations (Porter and van der Linde, 1995), and that incorporating sustainability aspects in the core business strategy is a way forward not only for promoting innovations and productivity growth, but also for creating shared value in society (Porter and Kramer, 2011, on testing the hypothesis in the Finnish pulp industry see also Hetemäki, 1997). Following the work of Hart (1995) and several others, concerning the natural resource-based theory of the firm (for a review, see Hart and Dowell, 2011), the emergence of new, environmentally sounder technologies can be promoted via the natural environment.³ Based on the perspectives of so-called institutional CR, Lyon and Maxwell (2008) suggest that a higher level of environmentally responsible performance may help industries shape their regulations that are ultimately implemented. CR investments can also constrain regulator options or send a signal concerning the costs of meeting new regulations, and CR can thus play an important informational role.

According to Mittelstaedt et al. (2014, p. 254) “megatrends are complex combinations of economic, political, cultural, philosophical, and technological factors, in their origin” and they tend to shape all aspects of society. They are additionally extensive in their impact and reflective of their historic context. Megatrends are, according to von Groddeck and Schwarz (2013), a metaphor for societal changes that are more elementary, and the function of addressing certain changes as megatrends is to give meaning to very complex transformation processes. Deep interlinkages between the trends are also characteristic to megatrends, so that a change in one area is reflected – positively or negatively – in another. As trends have a past, present and future, the use of the foresight approach is feasible in their analysis. Focusing on future trends is thus essential to understanding the shift to a new contextual phenomenon, such as a European bioeconomy in our case. Mittelstaedt et al. (2014) further point out that sustainability meets the required elements of being a megatrend.

The document by KPMG (2012) identifies ten dimensions under sustainability megaforces that will impact each and every business, as pictured in Fig. 1 below. We will next discuss the nature and impacts of these drivers in more detail in the context of the forest sector.

The ten megaforces in Fig. 1 collectively indicate not only rising costs, but also additional constraints, increased complexity and growing risks for businesses. For example, according to the United Nations (United Nations, 2012), reducing deforestation by 50% by 2030 could avoid an estimated cost of 3.7 trillion USD in climate change damages through greenhouse gas emissions. Furthermore, deforestation is closely linked with the other megatrends such as biodiversity loss and food security. Under Millennium Development Goals (MDGs), forests were considered merely as one of the indicators for reversing environmental resource loss, and the MDGs did not recognize the capability of forests in contributing towards economic, ecological and social

¹ We use the two terms interchangeably.

² The European Commission (2011) has defined corporate responsibility (CR) in terms of the “responsibility of enterprises for their impacts on society”, which calls for the establishment of processes to integrate social, environmental, ethical, human rights and consumer concerns into business operations and core strategies in close cooperation with stakeholders. In this paper our focus is predominantly on the environmental domain of sustainability.

³ Improving material and resource efficiency, finding eco-innovations in product design and development, habitat preservation, responsible resource management, and improvements in waste reduction and energy conservation towards a green/bio-based/circular economy are practical examples of sustainability-related issues that have also appeared high on Western corporate strategic agendas during the 21st century.

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