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Practices and perceptions on ecolabels of Finnish companies with circular economy business models

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Abstract. There is a need to better understand the role of ecolabels in the scope of the Circular Economy transition. The aim of this research was to study the perspectives and practices of ecolabel use among Finnish companies with circular economy business models. The survey-based research targeting 214 companies (response rate 18% = n. 39) showed that ecolabels were not commonly used among the sample of companies. (Human) resource constraints were found in this research to partially explain the low uptake of ecolabels. Therefore, the research opens further questions as to alternative benchmarking and communication tools for the environmental performance of companies that see themselves as frontrunners in the application of circular economy business models.

1 Introduction

The widely accepted recognition that the Earth cannot sustainably support the current scale and patterns of consumption and production has led to a great interest in the concept of Circular Economy (CE) around the world as a way of making consumption and production more resource efficient [1]. CE is a paradigm that is believed to have the potential to replace the traditional linear economic model and contribute as part of the solution to solving the global concerns for environmental sustainability [2-6]. Fundamental changes in business and market logic are associated with a CE transition requiring efforts from companies upstream and downstream, governments, and consumers [3,6-7].

There are several ways of integrating the circularity principles into a company's operational business model. CE extends an end-of-life recycling focus to practices that are based on a holistic cradle-to-cradle life cycle approach [4]. Generally, CE business models are based on either longevity of products through activities such as remanufacturing and maintenance or on recycling of resources [8]. These can be further broken down to a typology of CE business models, that can be described as: business as a service, resource renewability and recovery, sharing platforms, product-life extension and resource efficiency [9]. Within these business models, singled out efforts include avoiding the use of toxic chemicals, using

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renewable energy, designing products to be easily recycled or recovered, efficient resource use, and innovative ways of extending a product's life time [10-14].

Ecolabels are often proposed as a possible support mechanism in the transition to CE [15]. Ecolabels are environmental information instruments that communicate information on a product's environmental impacts for public and private purchasers [16] thus closing the information gap between producers and consumers [17]. To obtain an ecolabel, the company must perform up to criteria [6,12, 16] making ecolabels a benchmarking mechanism against pre-set environmental requirements [18].

Various ecolabels and environmental declarations (multi-criteria, single-issue, self-declared, and quantified) are widely used around the world, with over 450 ecolabels existing globally [19]. In addition to multi-criteria ecolabels (Type I), companies make self-declared environmental claims (Type II) and quantified product environmental declarations (Type III) (ISO 14020). Following the multiplication of ecolabelling schemes, there are ecolabelling schemes which do not directly fit under the ISO categories and hence ecolabels that focus on a single environmental aspect or a product group are sometimes referred to as Type-1 like ecolabels [20]. In this study, respondents were asked about all types of ecolabels and declarations. Both Type I ecolabels (Blue Angel, Bra Miljöval, EU Ecolabel, TCO Certified, Nordic Swan Ecolabel) and Type 1 -like labels (BCI, B Corps, Biodegradable products institute label, Blue Sign, BREEAM, Carbon Neutral, Carbon Trust Footprint label, Cradle-to-Cradle, Energy Star, EKOenergy, EU Energy Label, FSC, GOTS, LEED, Organic labels, PEFC, Rainforest Alliance, Roundtable on Sustainable Biomaterials, SCS Recycled Content Certification, Öko-Tex labels) were included in this questionnaire. In addition, the questionnaire included "company own label" as well as Environmental Product Declarations (EPD); however, the focused scope of this paper is on ecolabels.

This paper presents the use of ecolabels by a sample of Finnish companies as well as their perceptions regarding the role of ecolabels in the circular economy. To date academic research addressing the relationship between CE and ecolabels is limited [5, 15], in addition to which a recent study pointed out very divided opinions regarding the matter among companies [21]. This paper, therefore, contributes to the emergent academic discussion. In section 2, we describe the survey and its target group. In section 3, the results are presented. Section 4 discusses how the results relate to previous research and identifies areas for further research.

2 Materials and Methods

This research was targeted at Finnish companies with CE business models. The sample was chosen from two publicly available, expert-compiled listings: The "Most interesting companies in Circular Economy in Finland" list by Finnish Innovation Fund (Sitra) and the FINIX project's "Sustainable textiles trailblazers in Finland". The listings had already passed expert-compiled criteria and therefore, the sample of companies served well the purposes of this exploratory study. The Sitra list included companies that had found circular solutions within their organization for environmental sustainability-related issues [9]. The FINIX project's list included companies that had passed criteria relevant for circularity, including use of recycling and excess materials, repair services, take back scheme and rental services, product longevity, and a transparent value chain [22].

A Webropol questionnaire was sent to both lists in February–March 2021. The questionnaire comprised 39 questions which were multiple choice, *likert* scales as well as open-ended questions covering sustainability and circularity in mission, vision and strategy;

environmental sustainability commitments and their content; importance of actions related to C.E and sustainability; future sustainability and circularity challenges and planned responses; use of ecolabels; life cycle assessment (LCA), Environmental Product Declarations (EPDs) Product Environmental Footprinting (PEF) and background information. SPSS 27.0 was used to conduct statistical analysis and responses to open-ended questions were analysed manually. Statistical testing was conducted to determine whether or not respondents with different backgrounds provided significantly different answers for having ecolabels in use. The Mann-Whitney U test was conducted between whether or not the company had an ecolabel in use and background variables (industry, employees, annual revenue and product type). The Kruskal-Wallis test was conducted between plans of obtaining an ecolabel and variables that included annual revenue, number of employees, industry sector or already having ecolabels.

3 Results

The key aim of the study was to gain knowledge on the ecolabels that were used in products of the companies or requested from suppliers by the sample of companies with CE business models. The response rate was 18% (39/214). The low number of responses poses a limitation for meaningful statistical inference. Companies were mainly (79%) small and medium sized enterprises (SMEs) with less than 250 employees and turnover of less than 50 million euros, or a balance sheet total less than 43 million euros [22]. Just over 50% of the respondents had less than 10 employees and 80% had an annual revenue of fewer than 10 million euros. The respondents belonged to the wholesale and retail trade (26%) and to “other industry” (26%) which comprised mainly textile industry. A fifth of the respondents reported manufacturing as their industry (21%). The companies offered mostly a physical product (67%), but some (28%) offered a service and product and a minority (5%) offered a service. Of the respondents 95% (n. 37) reported having a circular business model (product-life extension 39%, renewability 26%, resource efficiency and recycling 19%, product as a service 9%, sharing platform 7%).

Based on the survey results, only 23% (n=9) of the companies have products or services ecolabelled, while a somewhat larger number of companies (36%) requested ecolabels or other certifications or ISO14001 from their suppliers. The most commonly used ecolabels were the textile sector labels GOTS and Öko-tex (both n=4). The Nordic Swan was in use by two respondents. Other ecolabels had only one user. The results are presented in **Table 1**.

Key reasons for companies to use ecolabels were to improve competitiveness, to encourage consumers to purchase the ecolabelled products and to increase the value of the company. The most significant reasons for not using ecolabels were the high costs of acquiring ecolabels and the length of the ecolabelling process. Open responses indicate that the costs of acquiring an ecolabel are too high compared to the perceived environmental or market benefit. Lack of (human) resources, heavy certifying processes and lack of additional sustainability benefit from acquiring a label were described. Some companies would like to have suppliers with ecolabels, but they are hard to find. Others prefer having local SMEs as suppliers despite lack of ecolabel.

Table 1: Ecolabel use of respondents

Ecolabel	In use by company/product % of 21 selected answers (n=9)	Required from suppliers % of 24 selected answers (n=9)
Blue Angel Label	11,1% (1)	11,1% (1)
Blue Sign	0%	22,2% (2)
Carbon Trust Footprint labe	11,1% (1)	0%
EKOenergy	0%	11,1% (1)
EU Ecolabel	11,1% (1)	22,2% (2)
GOTS	44,4% (4)	55,6% (5)
Organic labels (The Finnish Organic Association – The ladybird label, Finnish Organic, EU Organic Products Label, other)	11,1% (1)	11,1% (1)
Programme for the Endorsement of Forest Certification (PEFC)	11,1% (1)	11,1% (1)
Roundtable on Sustainable Biomaterials	11,1% (1)	0%
Forest Stewardship Council (FSC)	11,1% (1)	11,1% (1)
Nordic Swan Ecolabel	11,1% (1)	0%
Öko-Tex labels	44,4% (4)	66,6% (6)
We have developed our own responsibility Label / Our suppliers have their own company-specific labels	11,1% (1)	11,1% (1)
Other sector specific labels, what?	22,2% (2)	11,1% (1)
Other labels, what?	22,2% (2)	22,2% (2)

Most of the survey respondent companies (77%) did not have any ecolabelled products or services. The statistical testing found no significant differences between the answers regarding ecolabels and the background variables. Ecolabel use did not correlate with industry type, number of employees, annual revenue or product type (Mann-Whitney U test). Also, 2 respondents aimed to get new ecolabels, 51% were not aiming at new ecolabels and 44% did not know whether the company aimed at obtaining a new ecolabel. No significant statistical correlation was found between future plans and annual revenue, number of employees, industry sector or already having ecolabels (Kruskall-Wallis test).

The opinions of the company representatives on the helpfulness of ecolabels towards reaching the CE were divided. However, 28% of respondents were using some kind of environmental assessment and improvement tools, including LCA (45%) and PEF (18%). The number of company representatives that perceived ecolabels to contribute to CE and that did not were equal. The qualitative analysis indicated that ecolabels or material certifications may have a role especially in secondary raw material use. When using secondary raw materials (recycled materials and components) a certification on the material or product was a way to express the trustworthiness of the product.

4 Discussion and Conclusion

The research revealed that while most of the respondents had CE integral to their vision, mission and strategy and described themselves as having CE business models, they were not typically ecolabelling their activity or product. Companies were more likely to require ecolabels and other environmental information instruments from their suppliers. The research concurs with previous research in the finding that companies lack resources for acquiring

ecolabels. The open-ended responses were in line with Iraldo and Barberio (2017) who discuss that especially SMEs can struggle to apply for ecolabels due to the extensive documentation requirements and need for resources [24]. Therefore, especially SMEs with only a few to no employees can find that it is not worth the effort to obtain ecolabels [25]. However, even though most of the respondents in this study were SMEs, the statistical testing did not find significant correlation between company size and ecolabels use.

The respondents' perceptions regarding the relationship between CE and ecolabelling were also divided, corresponding to previous research [21]. Many respondents weighed the costs and resource needs of ecolabels against the environmental or market benefit of acquisition of ecolabels. These findings indicate that environmental performance may be communicated by means other than ecolabels. The finding paves the way for further research to understand how companies with CE business models differentiate, benchmark and communicate their environmental performance.

Even though the survey provided an insightful overview of the current situation on ecolabel use among the sample of companies, the small number of responses (n=39) poses limitations to statistical inference. Therefore, the survey data can be taken as indicative of the general approach towards ecolabels among the sample of companies, but making generalisable conclusions is limited by the respondent size, geographical scope and industry bias. Open-ended responses can provide interesting data despite the limited number of respondents and will further be analysed. As a next step, interview data collected in semi-structured interviews will be analysed to gain a more in-depth understanding of the contribution of ecolabels to CE efforts.

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