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C-INDICATORS: A WEB-BASED PLATFORM TO MONITOR AND IMPROVE THE CIRCULARITY POTENTIAL OF PRODUCTS

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SYNOPSIS FOR THE DESIGN TOOL SHOWCASE

Keywords: Design for circular economy, circularity indicators, product performance, assessment, web-based tools.

In response to the growing development of a wide variety of circularity indicators (c-indicators), a taxonomy has been developed to gain clarity about their focuses, purposes and possible usages (e.g., benchmarking several circular economy business models, comparing two product designs on their potential circularity performance). During the 2018 Design Tool Showcase, a web-based version of the C-Indicators Advisor, linked to a database including over 50 sets of indicators to monitor the circular economy (CE), has been presented and experienced [1]. Two key challenges have been noticed to take the tool to the next level, namely: ensuring maintenance and facilitating dissemination [2]. To keep the selection tool up-to-date, the latest circularity indicators, developed in 2018 and 2019, has been appended to the database. It comprises now more than 60 sets of circularity indicators, including more than 20 sets at a micro and operational level of circular economy implementation i.e., at the level of industrial companies, products and materials.

To support the diffusion and usage of this selection tool, it is now accessible through a web-based platform (https://c-indicators.000webhostapp.com/index.php). As illustrated in Figure 1, the advisor works like an expert system in which eight queries are asked to direct users towards the most appropriate set(s) of circularity indicators. In this line, it is particularly intended to industrial practitioners such as designers, engineers, managers, as well as decision-makers or policy-makers, who want to learn how they could identify and implement suitable circularity indicators (i.e. well-aligned with their needs) in practice in their CE projects. Interestingly, two tutorial videos (one explaining how to use the advisor, and one experiencing it through an industrial case) are also embodied in the web platform (http://www.circulareconomyindicators.com/advisor.php).

In addition, this website contains an online version of the Circularity Potential Indicator (CPI) tool [3], as shown in Figure 2 (www.circulareconomyindicators.com/cpitool.php). The CPI aims at evaluating the circularity potential of industrial products during (re-)design, development or benchmarking stages. It provides as such guidelines for improving and monitoring the circularity performance of products and associated business practices. The CPI is computed through a guided questionnaire of twenty attributes (ATT#) impacting the circularity performance of a product. These twenty attributes are based on a literature review and grouped into the four building blocks (BB#) of a circular economy defined by the Ellen MacArthur Foundation.

During the Design Tool Showcase, a demonstration of both tools could be performed, using the data of a real-world industrial case study: a catalytic converter [4, 5]. Also, participants will be able to test the C-Indicators Advisor, as well as the CPI tool, on their own projects.

RESOURCES FOR THE DEMONSTRATION

Here is the short list of what would be needed for the display: a wireless Internet access so that participants could experience the web-based tools on their own computers, if needed; a poster board display to explain visually the content, purpose, and use of this web-based platform and associated tools; sufficient space for one table, several chairs, with accessible power outlets, if possible.

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ILLUSTRATIONS OF THE TOOL

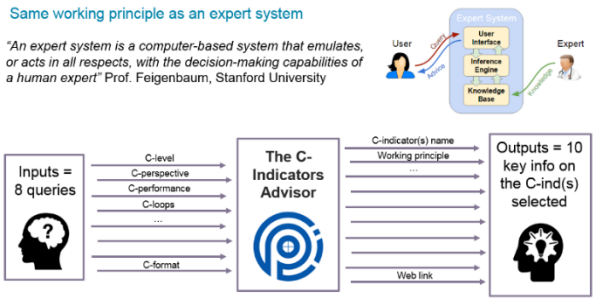

FIGURE 1: THE C-INDICATORS ADVISOR TOOL

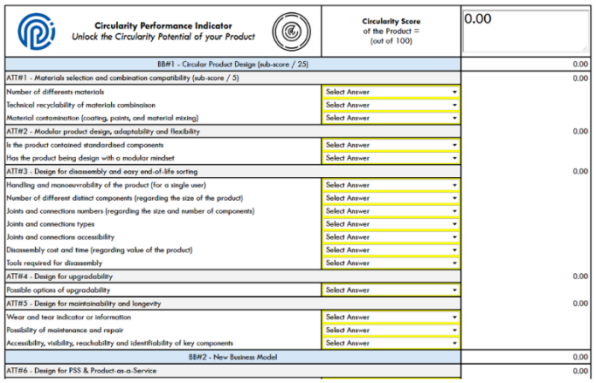

FIGURE 2: THE CPI ONLINE TOOL

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