Developing a Data Model for a Digital Product Passport to Enhance Circularity in Fashion.

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The Textile and Clothing Industry is transforming to regain consumer trust with more transparency (Jestratijevic et al., 2021). In order to make informed purchases consumers need to have information about the sustainability conditions of the product they wish to purchase (Granskog et al., 2020). As a result of a research about 54 fashion brands, most transparency information available is at a corporate level and limited information is available related to a particular product (Ospital et al., 2021). A Digital Product Passport (DPP) could be an answer to this problem, expanding the amount of information on the label and referring to a specific item or batch of items. The aims of the papers are as follows:

-to build knowledge about the use of DPP in the scientific literature
-to analyse the current use of DPP in the fashion industry in France before new regulation
-to develop a data model of a DPP that could enhance circularity

DPP technology is very emerging in the textile and clothing industry, we propose a literature review, that could highlight the history and the use of this technology in several industrial fields for different purposes and users. We realised a field study in 2022 to evaluate its current use and the state of the industry before new regulations. We compared the data of 13 DPP available in the textile and clothing industry and classified the data to analyse the topics covered. The use of DPP is limited to a few luxury products which can thus guarantee their authenticity or committed brands that wish to promote their responsible efforts or limited sustainable ranges of international fashion brands. The generalisation of consumer information will depend on regulations.

In France, the AGEC law (anti-waste for a circular economy) requires brands to disclose information such as the country of manufacture of the product and its fabric on a standardised format: product information sheet on environmental qualities and characteristics. The application of this regulation will be effective in January 2023 will lead to changes in consumer information.

At a European level, the European Commission is demanding more transparency from fashion companies with more information disclosure (European Commission, 2022). DPP as explained in The European Green Deal (European Commission, 2019) electronic product passport could provide information on a product's origin, composition, repair and dismantling possibilities, and end of life handling. The set-up of a DPP for textile products is an opportunity to inform consumers but also to improve communication between all actors along with the value chains including after purchase, to support more circularity (Adisorn et al., 2021).

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In the context of a transition to sustainable fashion, we are building a DPP data model that could enhance circularity. We are researching which information could be useful to inform the consumer, as well as to make the product last longer, to maintain, repair, resale, and finally recycle it. We identified key users for this type of DPP and categorised the relevant areas of information through interviews with stakeholders working in different states of supply chains and product life cycles. For the final stage of our research we will confront this DPP model and validate it through an experiment with a brand.