

A MODEL-BASED SYSTEMS APPROACH TO CLARIFY THE INTERACTION BETWEEN WEARER AND SUSTAINABLE FASHION SYSTEM

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ABSTRACT

The emergence of fast fashion, a business model that takes advantage of up-to-date fashion trends and mass-produces them at a low cost, provokes consumers to seek rapid and easy-to-get products and effortlessly fuels consumers' materialistic desires. Consumers' attitudes have become oriented toward readily purchasing and discarding products. In order to reduce the expected environmental damage caused by such an attitude, brands are proactively pursuing sustainable strategies, namely sustainable fashion, like closed-loop systems and eco-materials as countermeasures. However, recent studies and reports (Remy et al. 2016; Niinimäki et al. 2020) indicated that over 75% of purchased garments and donated or recycled clothing ultimately find their way to landfills, while the clothing supply is significantly increasing.

Most recent measures seem to be biased towards external environmental considerations rather than the wearer, who is the user of clothing and part of the environment. In order to resolve such biases, a model-based systems approach would be a potential methodology for achieving 'true' sustainability in the fashion industry from a comprehensive perspective. By applying that approach, this paper can provide the complete requirements of the wearer and integrate new systems from multiple perspectives after analyzing the fashion system's context diagram, use case diagram, and sequence diagram. During those analyses, conventional viewpoints would be complemented by using multiple points of view to guarantee to transcend the conventional definition of sustainable fashion in a new light.

This research clarifies the requirements of a 'true' sustainable fashion system, aiming to improve the understanding of sustainability in the fashion industry and, ultimately, to design and implement a new sustainable fashion system in society. This paper addresses two research questions within this scope: (i) What complex interactions between fashion and the wearer could be clarified from distinct viewpoints? and (ii) How can a new fashion system be defined to satisfy the requirement clarified by (i) to achieve more holistic sustainability? The two forms of long-term satisfaction were identified by constructing models: sense-based satisfaction and conceptual-based satisfaction.

The result of this paper would deepen our understanding of comprehensive requirements and interactions between fashion and the wearer that underlie the sustainable fashion system. Moreover, this paper would provide sustainable strategy suggestions from the perspective of holistic sustainable fashion system discussed in this paper to

improve the deficiency of existing sustainable strategies.

This paper would have huge potential to contribute not only to the fashion industry but also to many other social sectors, including policy-making authority, to create a more responsible future for the fashion industry by providing a way to validate conventional systems and design a new system to conceptualize the intricate interaction of sustainable fashion systems.