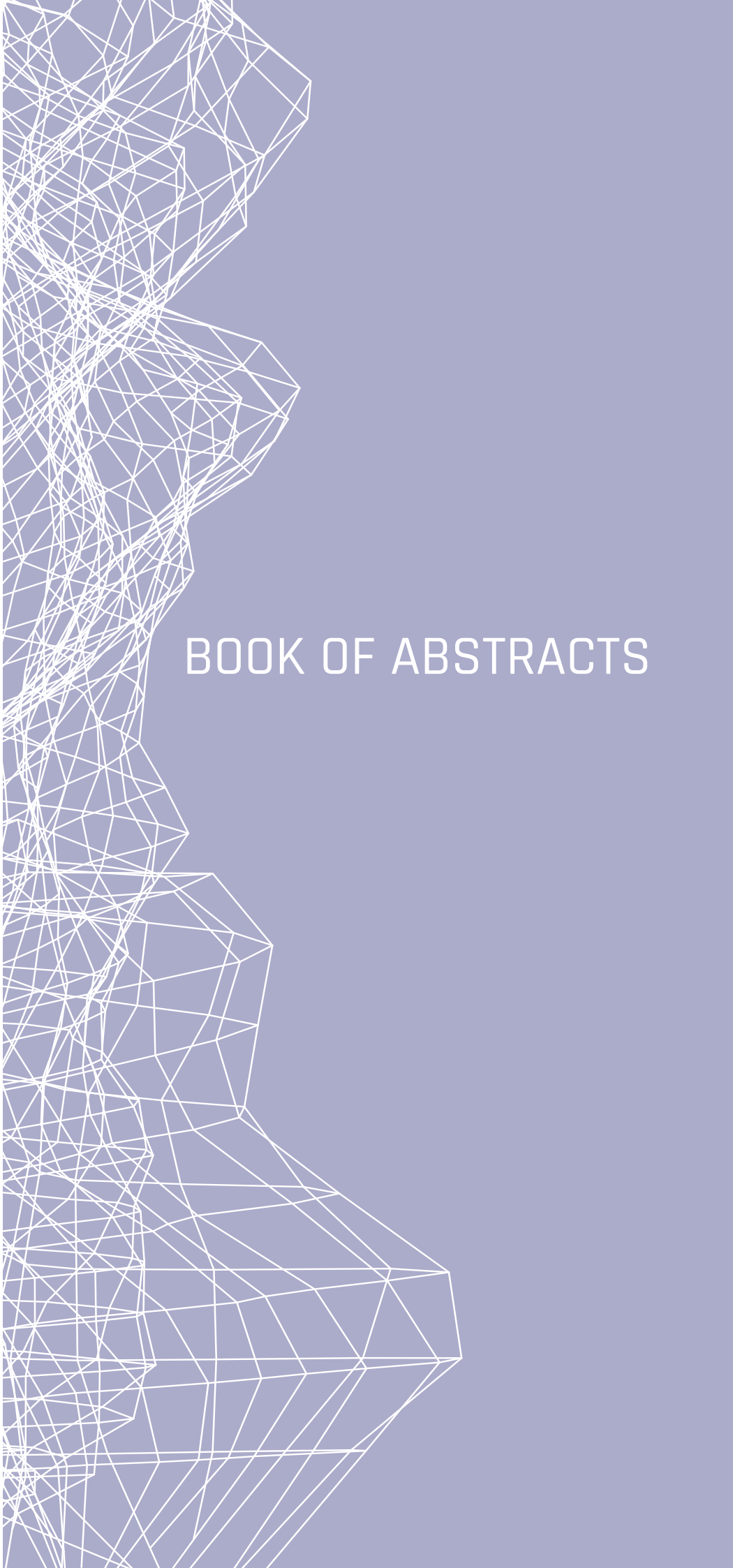
# RSD7 2018

## RELATING SYSTEMS THINKING AND DESIGN 7th SYMPOSIUM

CHALLENGING COMPLEXITY BY SYSTEMIC DESIGN TOWARDS SUSTAINABILITY

TURIN
23-28.10.2018



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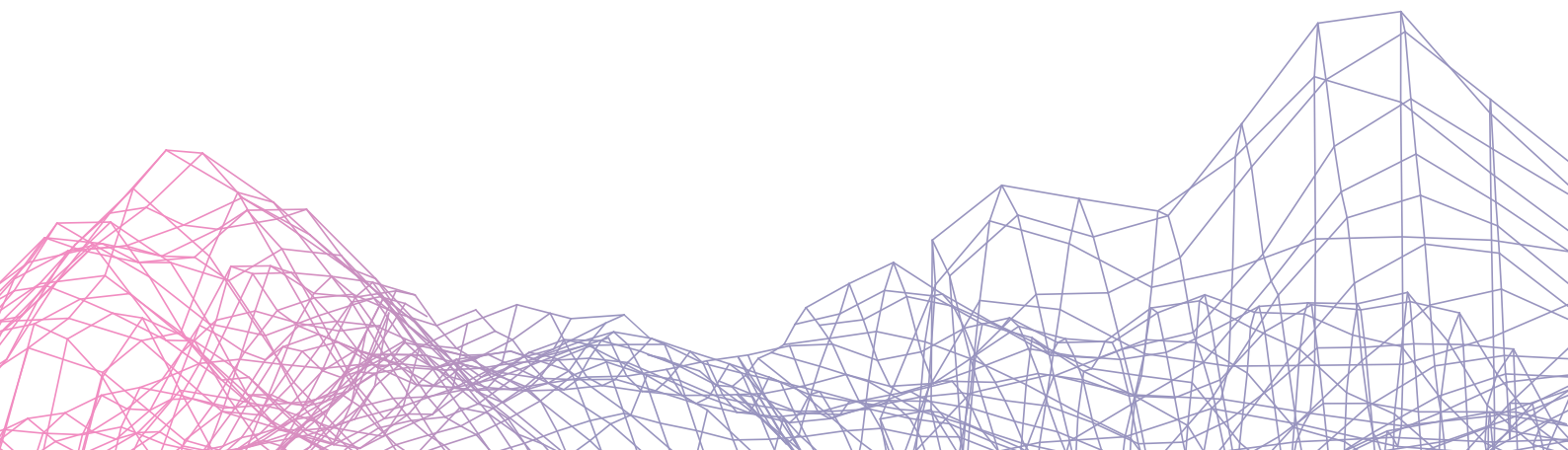
# 3 SOCIO-TECHNICAL SYSTEMS IN THE DIGITAL AGE



# Data, Fashion System and Systemic Design approach: an information flow strategy to enhance sustainability.

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**KEYWORDS**
Sustainable Fashion;
Big Data;
Systemic Innovation Design;
Information flow.

Nowadays, the role played by the fashion industry in contributing to the degradation of natural systems is increasingly acknowledged.
The impacts on the environment are mainly linked to the use of non-renewable raw materials, water pollution and waste generated. In addition to these socio- cultural implications deriving from the use of cheap labour and undignified working conditions resulted from 'fast' fashion business model, where economies of scale deliver standardized fashion at high volume and low price. Overlaps to all this a significant lack of information and communication between stakeholders make the interpolations of the system difficult to be clear.

In this context therefore characterized by complexity, intricate interdependencies and flux, and a wide span, geographically, epistemologically and in term of disciplines and discourses it draws together since was first introduced to the realm of fashion (Fletcher, 2008) system and design thinking, has provided a helpful viewpoint on the area.
The ambition of this paper is to offer a perspective that faces this complexity and align fashion with sustainability values through insights gained from data.
Specifically using systemic design as a catalyst of change, this research looks through data generated inside fashion system in a holistic way, defining all the process, service and actor as a dynamic whole and not as a fragmented sum of its part.

Contrary to what happens with the sustainability strategies currently in use, which are focused on symptoms, and endorse methods that try to solve single problems not caring about existing relationships, systemic design approach can be an effective tool to restore the lack of information that concern the whole process and all actor.
This approach, which looks at the larger picture, focuses on the transition from a linear vision, where individual environmental issues are addressed, to a systemic approach, where an improvement of the individual components, if put in relation, corresponds to improvements for the whole industry (Bistagnino, 2011, 2016).
To planning the process linked to the paradigm shift, we chose to undertake information flows strategy, allowing the whole system components to be aware of their role and to make the flow of information functional to the objectives of environmental sustainability.
A preliminary literature review reveals in fact that acting in terms of information flow from a systemic perspective does not represent a parametric adjustment, nor a reinforcement or a weakening of an existing cycle.
According to Meadows (2008), the structure of information flows can be an effective leverage point in the fashion system, if the information is delivered where it was not before, causing people to change behaviour. Adding or restoring information, in a fashion system where the information circulating is sometimes not linked to ethical and social value, can therefore, represent a powerful intervention, usually easier and cheaper than reconstructing physical infrastructures.

In the fashion industry, adding to or changing the flows of information between companies in a supply chain or between retailers, designers and consumers can create large changes for little effort (Fletcher, 2008).
However, to trigger action, it is necessary to couple new information with resources and incentives to support the behaviour change.
To fill the information gaps, this research starts from the selection, the organization and matching of a set of data that represent a quantitative input and reveals the importance of a qualitative output graphically and appro-

priately represented.

Data matched with a Systemic Innovation Design Methodology becomes a useful tool to analyze, organize and understand visually all the complexity of process, behaviour and pattern related to fashion system. Mapping the entire lifecycle (fig. 1) highlights that some data are not effectively harvested and appears the need of generating new asset of data collection able to bring the intangibility of shopping and consumption experience to the tangibility of dress and people, spreading the awareness of the entire process inside the system.

Taking advantage of new technologies able to harvest personal data in almost any context we chose to undertake the collection from mapping body shape and consumer habits until the potentialities of open data.
The Body shape set of data assisted with wearable technologies generates information not only useful for companies but able to increase consumer awareness about his purchasing and consuming habits .
In fact, a high empathic value is a key to clothing with a longer life cycle, according to Chapman (2005) work by cultivating an emotional and experiential connection between person and object, we can disrupt our dependency on consumption of new goods to construct meaning and our sense of self.
In this research this operation is supported by the collection of personal data through Near Frequency Communication and IoT devices, concerning wardrobe data, to create personal narratives through customization, personalization, mapping thus the real attachment with specific garments in a particular context and collecting sustainable practices in real time (fig.1).


**Figure 1:** Example of feasible visual tool starting from the gathering and relation of consumer's data

In conclusion including open data gathering with RFID technology allow to generate a global overview of warehouse movements and production system making the data collection even more transversal and inclusive.
While IOT, RFID, and Near Frequency Communication are powerful tools by themselves regarding data collection, when combined with distributed ledger systems such as blockchain, they enable an authentic traceability, increasing the potential to create a fashion system that is not only sustainable in terms of behavior and resources but also transparent in the processes and transactions.
The focus of the entire research is the use of a systemic design approach to navigating on a complex behavioural system and global supply chain networks. To underline the importance of collecting the interaction and the relationship in a significant dataset, highlighting how it is possible to generate a unitary and coherent understanding of the entire system capable of allowing and supporting sustainable development.
Since fashion is more than the materials that garments are made of, data give us the opportunities to go beyond discrepancies, help businesses make better-informed decisions about the production and distribution of goods

and make the customer aware of socio-environmental problems related with their choices.

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