

Introduction

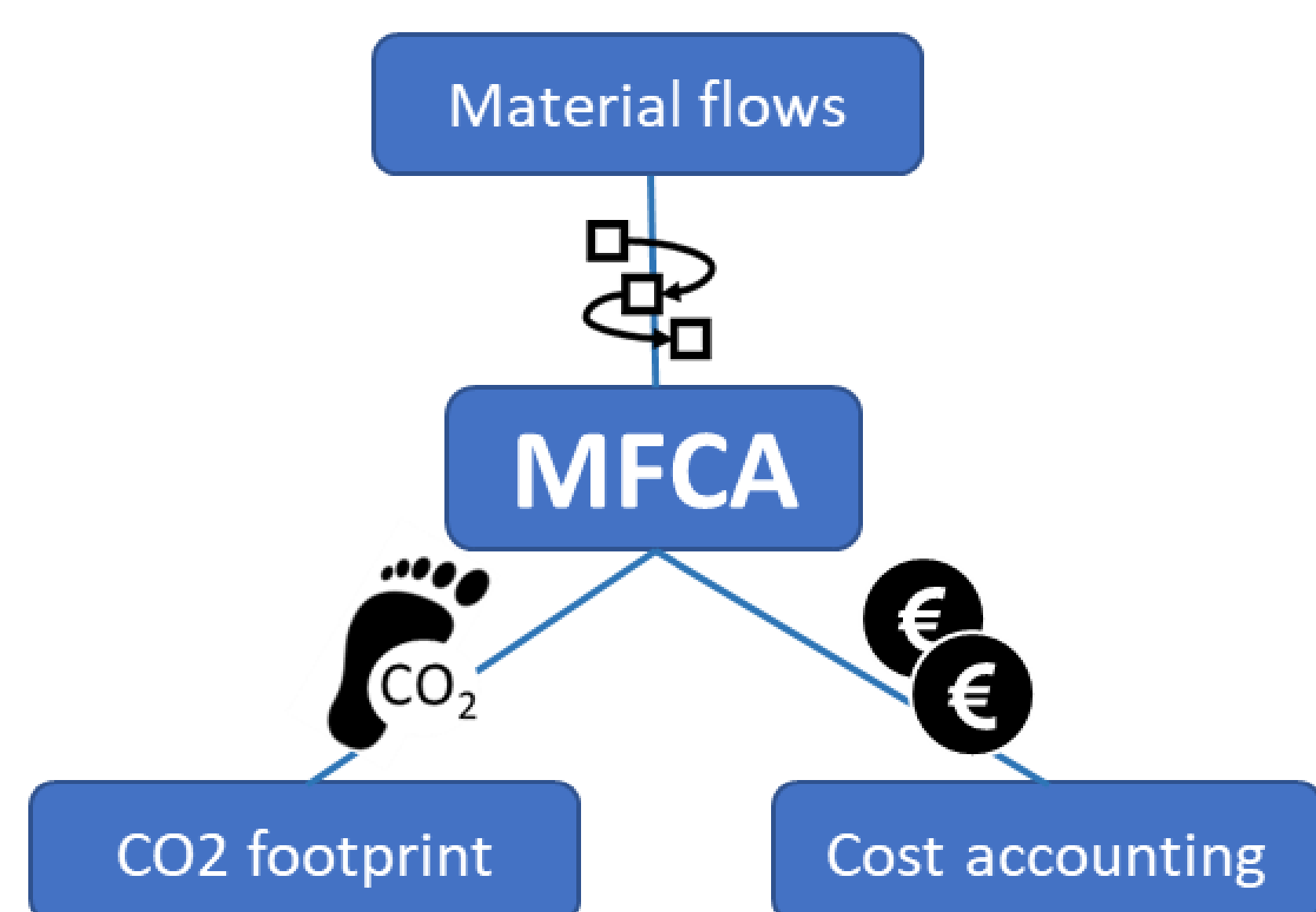
- Sustainability is a key objective for European policy: Green Deal
- Many legal and customer requirements¹ make the provision and communication of sustainability information necessary
- Type of information provided: mainly CO₂, Water and Chemicals but with different GHG Protocol scopes, allocation rules and collection methods
- Means of communication: currently focused on individual customer request but expectations for future requirements from Digital Product Passport legislation range from part of delivery notes up to a European platform, where all information is stored centrally
- Provision and communication of sustainability information is not integrated in the organizational processes of many SME

Aim

- To develop a framework enabling companies of the textile industry, in particular SMEs, to create an infrastructure for flexible and efficient calculation and communication of sustainability information of textile materials and products on batch level along the value chain.
- Provision of process-specific models for determining environmental indicators and costs for products, product groups and companies using the MFCA method.

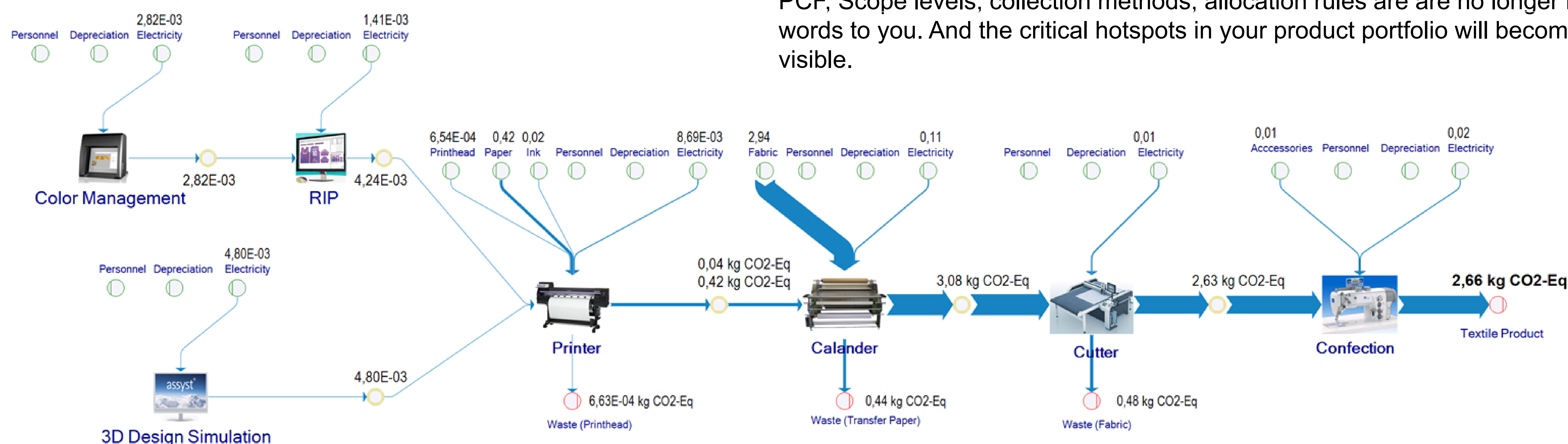
Approach

- Basic approach is to develop within the IGF project “NaTex”² a framework, consisting of three layers, that is able to process batch-related data corresponding to requested sustainability information as well as storing and providing the results in cloud structures.
- Basic models for textile processes and products with MFCA methodology (Tool: Umberto LCA+) integrating material flows, economic data and environmental burden with focus on global warming potential, measured in CO₂-equivalents (CO₂-eq).



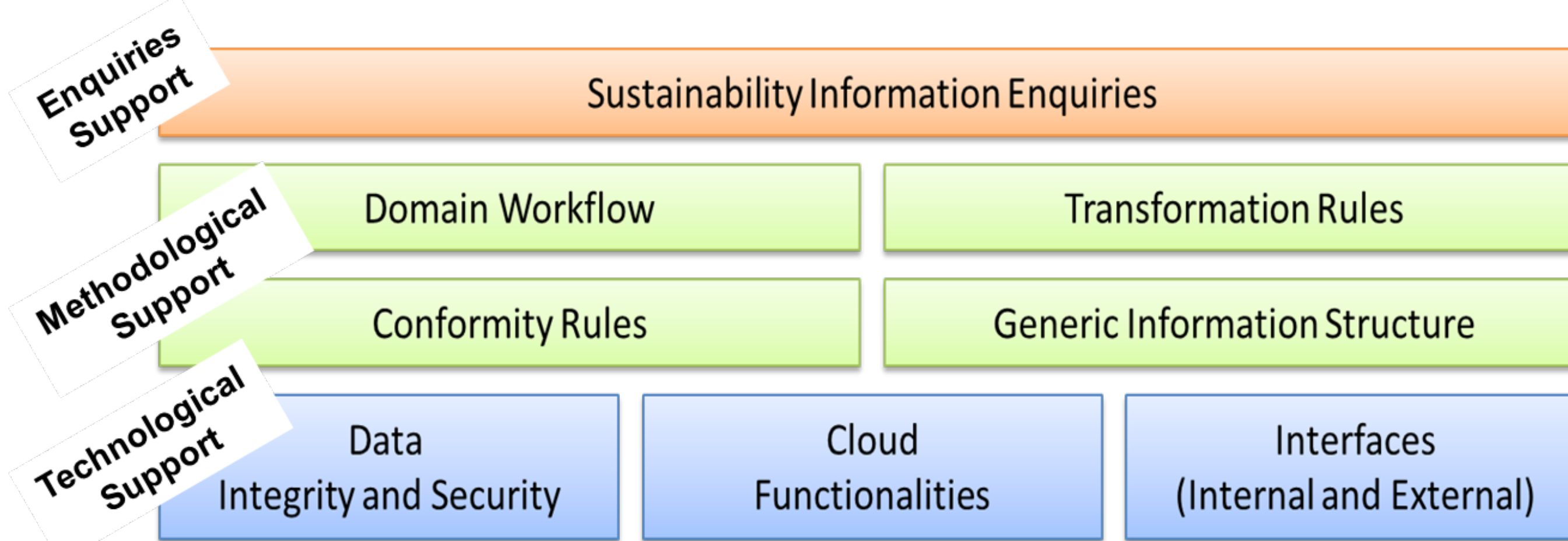
MFCA Methodology

- DITF developed a number of detailed models for the most common textile processes. These models consider every single machine including set-up processes, production processes and cleaning processes incorporating process parameters for material and energy flows. They are parametrized and interconnected.



- The model above shows the carbon footprint calculation for a T-Shirt in a digital textile microfactory. The considered processes include color management, 3D-design, printing, calandring, cutting and confection.

NaTex Communication Framework



Enquiries Support

- Basic enquiry types to support a wide range of sustainability information
- Classification system to support the matching of requests to basic types
- Matching methodological support for basic types

Methodological Support

- Textile domain-specific workflows for each basic type supporting the collection and processing of sustainability information
- Transformation rules providing common processing activities
- Conformity rules handle requirements
- Generic information structure to store collected and processed sustainability information

Technological Support

- Support for data integrity and security for reliable communication of sustainability information
- Cloud functionalities to provide support for distributed textile value chains
- Interfaces for connecting internal systems and other value chains to the framework

Services and Offers

DITF offers a complete range of services on communication and calculation of sustainability information.

In workshops we develop with you the framework for determining the Product Carbon Footprint (PCF) of your company's products. Afterwards, terms such as PCF, Scope levels, collection methods, allocation rules are no longer foreign words to you. And the critical hotspots in your product portfolio will become visible.

Acknowledgement

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¹ Digital Product Passport, CO₂ Taxation, Corporate Sustainability Reporting, Corporate Due Diligence Obligations in Supply Chains, Sustainability Indicators in Public Tenders

² Stellmach, D.; Weiß, M.; Seibold, J.; Tilebein, M.(2022):"Towards a Digital Workflow Solution for Cradle-To-Gate Sustainability Information in Textile Value Chains". In: Proceedings CPSP 2022, Vancouver, p. 723-732