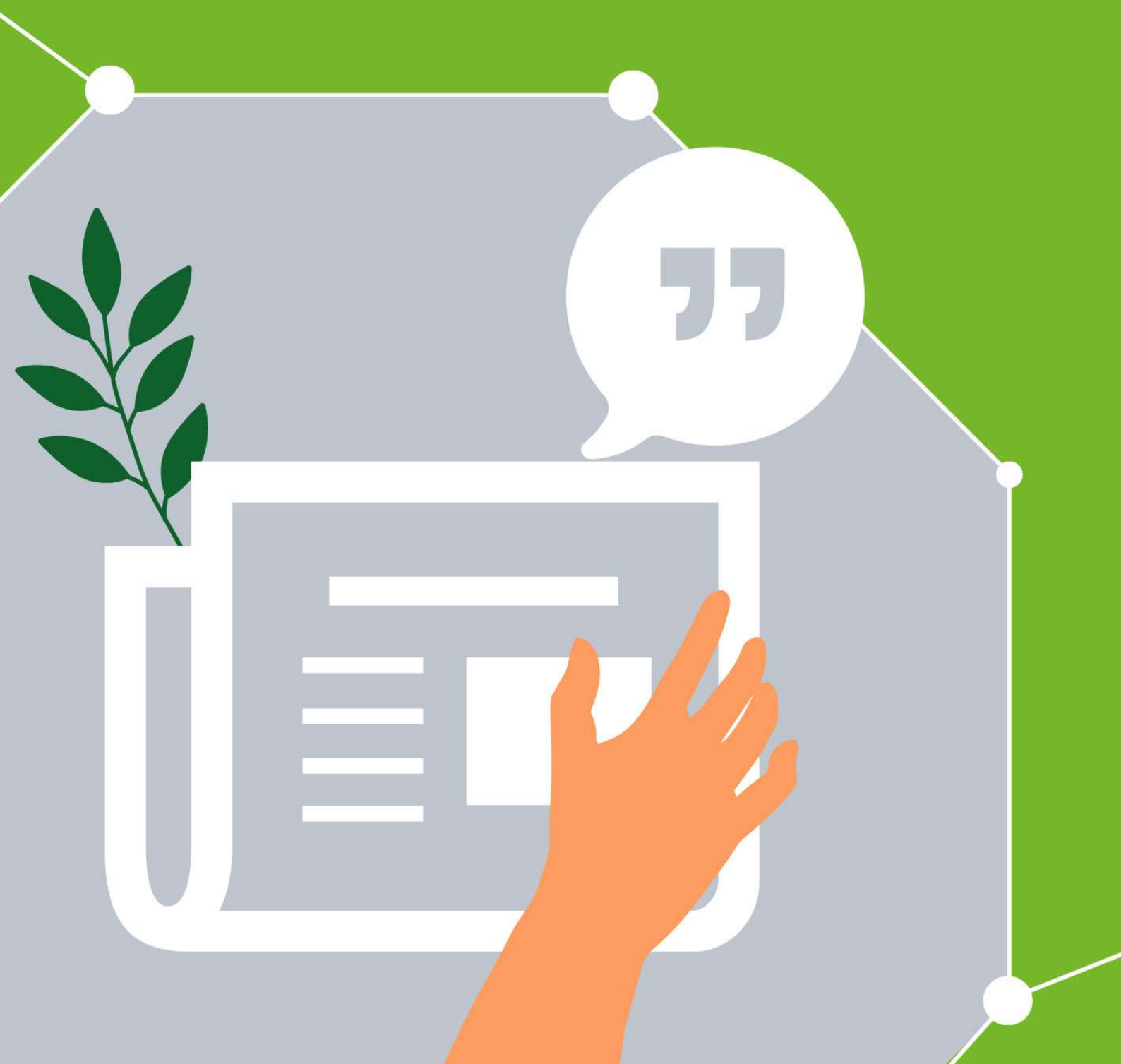
OPEN INDUSTRY 4.0 ALLIANCE

Article

Interview About the Digital Product Passport



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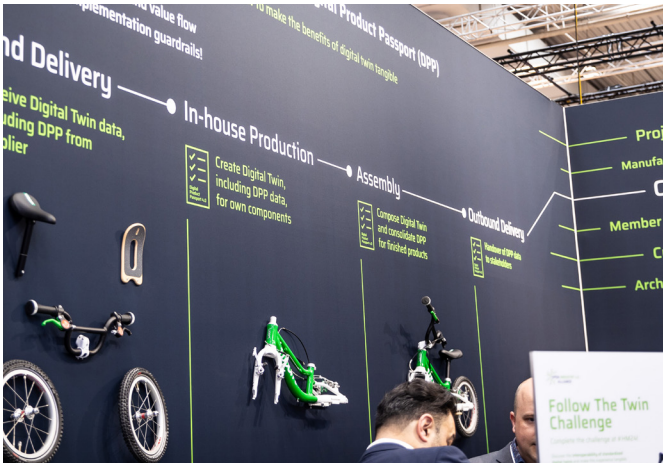
The Digital Product Passport (DPP): Capturing and Exchanging Product Data for More Sustainable Business Processes

The Digital Product Passport (DPP), established by the European Commission in the proposal for the Regulation on Ecodesign Requirements for Sustainable Products (ESPR), is set to become a key instrument for ecological and digital transformation. By continuously providing relevant information in digital format throughout the entire lifecycle of products and their components, the aim is to significantly reduce resource consumption and disposal burdens, and instead promote the repair, reuse, repurposing, and recycling of discarded products in the context of a sustainable circular economy.The Open Industry 4.0 Alliance has launched the so-called DPP Project Initiative, which addresses industry-specific technical requirements and discusses the various challenges and opportunities the DPP presents for companies. For example, existing company processes need to be examined to provide EU-required information in granularity and quality. At the same time, firms also should be encouraged to turn adversity into opportunity, using the introduction of a DPP as a chance to improve processes or even embark on new, innovative business models facilitated by data-driven IT infrastructures. In other words, the goal is to optimize data processing and availability and identify new sustainable business processes. While implementing these processes is complex, with a clever approach, it also offers benefits.

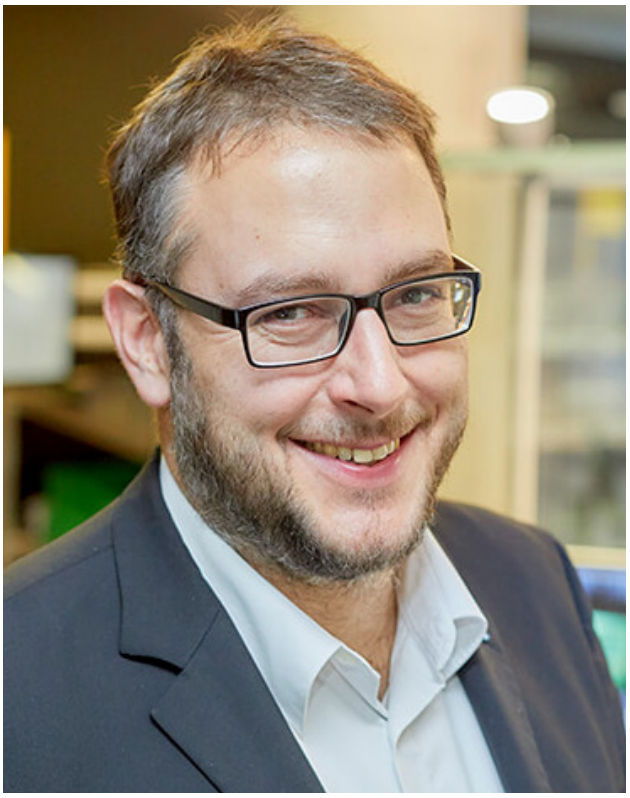
What Can the Digital Product Passport Do?



The DPP, along with the concept of the Digital Twin in conjunction with the Asset Administration Shell, aims to collect, organize, and manage information about a specific product. The Digital Twin is a holistic, virtual representation of a physical object or system. It can contain both static and dynamic information, enabling the simulation or monitoring of the behavior and performance of the real object, while also serving as the central entry point for accessing all relevant data pertaining to the object.

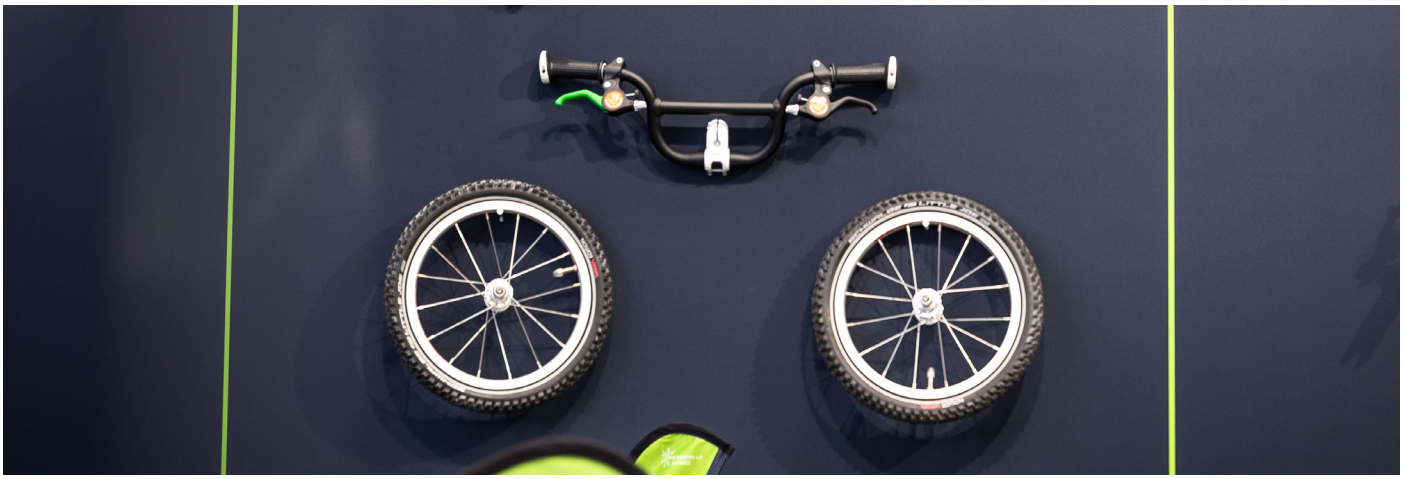
The Asset Administration Shell is a concept that enables the management and exchange of information about an object in a standardized manner. It provides a unified interface for accessing and managing information about an asset. In the case of a product, such as a bicycle, the digital twin could, for example, provide answers to questions such as who uses it, when and how it is used, when it was or should be serviced, who owns it, what spare parts are needed, and much more. The Digital Product Passport is to be considered in this context as a subset of all information available about the bicycle.

The DPP Project Initiative of the OI4 Alliance



"We have just launched a DPP project that, alongside technical groundwork, consciously addresses how to turn adversity into opportunity. We want to focus on the positives as implementing regulatory requirements is a complex process that requires aggregating the right data, in the right format, from various systems in the right place. We asked ourselves how this complexity can best be addressed, and more importantly how companies can ensure benefits can be generated for their products, or underlying business processes in the course of implementation," explains **Rüdiger Fritz**, Director of Product Management at SAP and one of the many active contributors to the Open Industry 4.0 Alliance. The DPP Project Initiative aims to address a range of challenges related to the implementation of Digital Product Passports including supply chain management and transparency, data exchange, and change management. The focus is on practical approaches and new solution patterns for continuous improvement – something the committee likes to by applying the practical and simplified example of manufacturing a bicycle to scrutinize the DPP from various perspectives. The conceptual model is that certain components – front and rear wheels, saddle, and handlebars – are sourced from a supplier, who already provides the respective DPPs for the components. The company manufacturing the bicycle, in turn, has an internal production process for the bicycle frame and component assembly, with frame fabrication based on simple steel tubes sourced from two different suppliers. The main focus is on obtaining DPP data from suppliers, generating data for the internally produced bicycle frame, and finally creating the Digital Product Passport for the finished bicycle and for the consumer. Along this path, various questions need to be considered including where and how data required for the DPP, but not yet available in the Asset Administration Shell (AAS) + DPP format, are already generated and organized today. It must also be clarified how an enterprise-wide IT infrastructure should be designed to meet both the requirements for generating and providing the future DPP and the anticipated benefits and synergies of its implementation in a company. In addition to the general goals and questions that need to be clarified, the project initiative has further tasks ahead. For example, Asset Administration Shells for delivered components need to be incorporated and utilized in subsequent processes.

Creating administration shells for the internal production component “bicycle frame”, is a different challenge, as it requires consideration of both proprietary data sources and modeling of production machinery. Additionally, designing an AAS for the end product “bicycle” is necessary, with a focus on compiling bill of materials and considering variants. Material losses must be clarified and included in the CO2 balance as well as external processes and service providers, such as contract manufacturing, then incorporated into the passport. Ultimately, the project initiative aims to derive recommendations for action for manufacturing companies and service providers from these considerations, to facilitate the process of DPP creation, unearth improvement potentials within companies, and ultimately contribute to the sustainability goals pursued by the European Commission.



Implementing New and Sustainable Processes

Through the DPP, there is an additional benefit to consumers who gain comprehensive information about the brands and products they buy, including origin, materials used, and sustainability of products. Examples include direct interaction with customers including tailored maintenance offers, individual contract and warranty conditions, customer loyalty due to immediate responses to spare part requests and more. With this information available to buyers, it increases competitiveness through highlightable product features such as CO2 neutrality, or the multidimensional use of the Digital Twin throughout the entire lifecycle of a product. By taking a holistic view of product and usage data, companies will develop creative processes to improve items and offer sustainability options.

Conclusion

The future of the EU's Digital Product Passport will be a standardized solution for providing product information in line with sustainability, bringing benefits to both companies and consumers. The DPP Project Initiative aims to address all associated challenges and promote continuous improvements by focusing on the practical application of the DPP across various industries. It sees itself as an open and creative "think tank" and catalyst for members of the Open Industry 4.0 Alliance.

ARE YOU INTERESTED IN LEARNING MORE ABOUT THE TOPIC OR THE OI4 ALLIANCE ?

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Impressum

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