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# COORDINATION IN THE FIELD OF STANDARDISATION AND REGULATION FOR THE DIGITAL PRODUCT PASSPORT

DPP/DIGITALISATION/DATA ROOMS/X-ACTIVITIES

STATUSREPORT AUGUST 2024

## 1 Initial Situation and Challenges

The advent of digitalisation in our everyday lives and thus also in our working world opens both new opportunities and challenges for business, science and politics. On the one hand, there is a great need to use the tools of digitalisation to make business-driven processes more efficient and cost-effective - while taking safety-critical requirements into account. On the other hand, digitalisation should also help to make processes more transparent, comprehensible and, above all, more sustainable to meet climate policy requirements, among other things.

Policymakers have set and continues to set the necessary framework, through the revised Battery Regulation, published in July 2023, the Ecodesign for Sustainable Products Regulation (ESPR) which is currently being revised, and the European Data Act. These are part of the EU's climate and security policy agenda. As a result, data economy also becomes a key element of regulation within the European Economic Area.

The Digital Product Passport (DPP) is a key tool in this process. It contains fundamental information on products and product groups and the associated value chain. The DPP must in turn be embedded in the overall context of digitisation efforts. For example, the design and utilisation of data rooms must also be considered in this context. They should enable non-discriminatory and secure access to the necessary data, taking into account functioning competition. A wide range of activities are already addressing this complex of issues: Projects such as GAIA-X, Catena-X, Manufacturing-X, the battery passport project funded by the BMWK, initiatives such as the Global Battery Alliance and platforms such as Industry 4.0. In this context, concepts for the administration shell and the digital twin also play a role. The stakeholders involved from business, science and politics are heterogenous. The range of topics is broad and must be addressed at national, European and international level.

Despite all the heterogeneity, it must be ensured that the various, sometimes domain-specific, requirements and developments, along with the systems built upon them, can operate interoperably. This is the only way to ensure the seamless and secure exchange of information and goods, while also achieving ecological and economic goals.

To ensure this, appropriate norms and standards are required, as addressed by the standardisation mandates of the European Commission regarding the aforementioned and upcoming regulations. The development and application of appropriate norms and standards necessitate the broad expertise and collaboration of the involved stakeholders. This requires cooperation among stakeholders, suitable structures, and activities. The "Ad-hoc Group on Standardisation" of the "Expert Group on the Transformation of the Automotive Industry" addresses this need. It proposes that standardisation should provide the necessary structures and activities.

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## **Simplified Distinction of Relevant Terminology and Their Relationships**

### **Digital Product Passport (DPP)**

The Digital Product Passport (DPP) is a political concept that makes certain mandatory information about a product digitally accessible and partially updatable in an interoperable manner. A distinction is made between the "DPP System," which refers to the technical and infrastructural implementation, and "DPP Data," which pertains to the information to be provided. For the DPP System, various technical implementations are permitted, provided they meet the EU's requirements, such as interoperability among different DPP implementations (a standardisation mandate is issued for this purpose). The DPP is addressed in various existing and upcoming EU regulations (e.g., ESPR, Battery Regulation, Toy Directive, etc.). Depending on the regulation, different requirements for the DPP Data have been announced. These include information about manufacturers and production (e.g., CO<sub>2</sub> footprint), materials and chemical substances, current condition (battery cells), information on update status, repairability, spare parts, or proper disposal, as well as the Declaration of Conformity (CE) for a product. Neither DPP Data nor DPP System are conclusively defined. Moreover, significant sectors of the economy are interested in utilising the developing DPP System for the provision of non-mandatory information or other applications. Examples include the data flow necessary for DPP Data in the supply chain or interaction opportunities with customers.

### **Digital Twin**

A digital twin is the virtual representation of an object or system. This representation covers its entire lifecycle, is updated using real-time data, and employs simulation, machine learning, and inference to support decision-making.

### **Asset Administration Shell**

The Asset Administration Shell is a systems-specific standard from the Industry 4.0 context for providing information and facilitating communication in a uniform language. Each "thing" in the Internet of Things (IoT) is assigned its own Asset Administration Shell. Every asset, such as a device or component, can be globally identified and addressed through its own Asset Administration Shell. It provides information about the object's properties and capabilities. Through its standardised interfaces and a common language, the "things" can communicate with one another, ensuring global interoperability. The Asset Administration Shell is proposed as an implementation variant of the DPP and can serve as a foundation for a digital twin.

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Currently, a multitude of solutions is emerging from various consortium-based efforts, all of which need to be integrated into an overall system. Meaningful solutions must be established, while avoiding non-interoperable island solutions. Therefore, the ideas and, in some cases, already available results of these efforts, along with the stakeholders involved, must shape the established norms and standards. The outcomes of standardisation work must, in turn, be incorporated into future developments. Only in this way can a DPP landscape that operates across system and national boundaries, as demanded by the EU Commission, be created. This is also a prerequisite for addressing forthcoming legislative requirements through standardisation. It enables the interoperability of solutions developed with German funding and other solutions. In this regard, the consolidation of work in standardisation is important to represent German interests at European and international levels.

## 2 Objectives

To address the aforementioned challenges, such as comprehensive digitalisation of the value chain, the maintenance of safety and interoperability requirements, and the implementation of European directives, DIN and DKE are developing measures that provide stakeholders with optimal opportunities to engage efficiently at various levels—both in meta-discussions and in specialised discussions, nationally and at the European level.

The objectives are to:

- Ensure a cross-cutting derivation
- Consolidate potential standardisation activities from implementation projects related to digitalisation (such as Catena-X, Manufacturing-X, etc.)
- Support the various stakeholders in relation to standardisation and regulatory issues
- Connect projects to international standardisation as effectively as possible

The focus is on the upstream value chain and the accompanying ecosystem of the DPP.

However, due to the high heterogeneity, there will be no single solution for all use cases. The challenge lies in establishing a cohesive system that accommodates the various consortium implementations and specifications, open-source implementations, as well as fully consensus-based standards from ISO and IEC in the field of the data economy.

Overall, there is still considerable movement in the mentioned areas. Structures and formats are therefore developing organically, corresponding to the current needs of different stakeholder groups. This should be reflected in the involvement of stakeholders in relevant standardisation and regulatory matters. In this context, it is essential to consider how national opinion formation can be optimally transferred to the European and international levels.

## 3 Current Implementation and Outlook

DIN and DKE have already prepared and initiated the first steps towards implementation. They are following the recommendations of the "Ad-hoc Group on Standardisation" of the "Expert Group on the Transformation of the Automotive Industry," as well as the ongoing discussions regarding the Digital Product Passport.

The focus is on providing stakeholders with the opportunity to collect, consolidate, and discuss the numerous insights and developments relevant to standardisation and regulation.

In the first half of 2023, DIN and DKE prepared the establishment of a joint DIN/DKE committee for the Digital Product Passport. It was founded on 11 July with its inaugural meeting. The Federal Ministry for Economic Affairs and Climate Action (BMWK) accompanied the session. It became evident how important it is to organise discussions on the DPP in a structured manner: numerous expert contributions highlighted the complexity of the topic. The meeting itself garnered an exceptionally high turnout, with approximately 300 participants, reinforcing the interest and need for action.

The tasks of the DIN/DKE joint committee and the experts involved are to discuss standardisation-related topics, organise national opinion formation on specific issues, and ensure reflection of European and international efforts. These and other topics were discussed in the working sessions starting in November 2023.

Among the efforts to reflect European initiatives is the proposal by DIN and DKE to establish a CEN/CENELEC Joint Technical Committee for the Digital Product Passport (CEN/CLC JTC DPP). Germany put forward the proposal to set up the CEN/CLC JTC. In a survey among the CEN/CLC member countries, the proposal received the necessary approval in September 2023. Germany is taking a leading role, with DIN providing the secretariat for the CEN/CLC JTC. Furthermore, it has been possible to appoint Prof. Dr. Thomas Knothe from the Fraunhofer Institute for Production Systems and Design Technology (IPK) as chair from Germany. This has created optimal conditions for actively contributing to the European development of DPP-related norms and standards. The initial task of the CEN/CLC JTC will be to implement the relevant standardisation mandate from the EU Commission to CEN/CENELEC. This includes discussions on a cross-industry system architecture for the Digital Product Passport. The next steps at the European level were discussed on 18 December 2023 in Brussels during the inaugural meeting, as well as in subsequent sessions of the CEN/CLC JTC. Specifically, the JTC, organised into various working groups, will address topics such as "Unique Identifiers and Data Carriers," "Security," and "Interoperability Framework."

In addition to the work initiated in national and European standardisation, the internationally attended QI Digital Forum took place at DIN on 10 and 11 October 2023. This hybrid event focused on the quality infrastructure of digitalisation. Topics included the Digital Product Passport and data spaces. The demonstrator for the BMWK-funded "Battery Pass Project – From the Mine to the Recycler" was showcased for the first time, illustrating the practical application of the DPP. An audience of over 500 professionals expressed interest in this topic, highlighting the need for networking and collaboration.

With regard to the Data Act, it is expected that corresponding standardisation structures will also be established at European level to address the topic of "data spaces" and the conditions applicable to them from a standardisation perspective. Additionally, a relevant standardisation mandate is currently being prepared. These efforts must also be reflected nationally, and Germany's position needs to be organised. The utilisation and/or establishment of suitable structures is the focus of current considerations by DIN and DKE.

A wide range of professionals are integrated into the already established, as well as future committees. However, the heterogeneity of the stakeholder landscape poses a challenge when it comes to providing stakeholders with a platform for exchanging potentially relevant standardisation and regulatory approaches. Often, the standardisation relevance of a topic cannot be determined ad hoc. Therefore, further discussions are needed before these topics can be fed into the standardisation dialogue through the relevant committees, such as the DIN/DKE joint committee.

Additional and early coordination is necessary to ensure that no conflicting duplication of effort occurs around data spaces concerning existing provisions in international standards. Conversely, early agreement can be reached on how provisions for data spaces should be published and made available to users—in line with the interplay between consortium specifications, open-source implementations, and fully consensus-based standards as outlined above.

For this reason, DIN and DKE are designing suitable formats, in addition to the measures already taken, to engage stakeholders as inclusively as possible. Based on these formats, a needs-based development and establishment of a regular stakeholder dialogue is planned, thereby addressing the perceived need for coordination in this area.

## 4 Core Messages

The initial situation presents a high level of complexity and a variety of topics, sectors, and stakeholders involved. This gives rise to central premises and core messages to ensure the successful implementation of measures:

- The topic of the **DPP has strategic relevance** and currently offers the opportunity to actively shape international standardisation. The **management level** of the involved companies and organisations must **provide the necessary resources**.
- It is essential to consolidate the knowledge generated, as well as existing solutions and present them to the appropriate committees. Qualified professionals must actively **support the work of the relevant standardisation committees. Agreed positions should be brought into the standardisation and regulatory committees at CEN and CENELEC**, as well as ISO and IEC, and actively represented there.
- To achieve this, all stakeholders are encouraged to **strategically utilise and further develop structures such as the DIN/DKE joint committee**. They should also take into account activities related to consortium specifications and open-source implementations.
- Ongoing and future **activities and research efforts must strategically and comprehensively consider standardisation from the outset**. This will ensure the compatibility of the developed solutions.

The implementation of these premises and core messages must be a collaborative effort. A consistent translation into practice offers the opportunity to contribute to securing Germany's position in the international context. In this regard, committees such as the Strategy Forum for Standardisation led by the BMWK can provide recommendations and measures to support this effort. This ensures optimal conditions for the interplay between the DPP, data spaces, and various X-activities.

## About the Expert Group

*The Expert Group Transformation of the Automotive Industry (ETA) is an independent advisory body of the Federal Ministry of Economic Affairs and Climate Action (BMWK). The Expert Group develops target and recipient-based recommendations for action for politicians, business and society in general, which can be used to successfully shape long-term structural change in the industry. The overarching goal is to achieve climate neutrality, in addition to securing value creation, jobs and apprenticeships in Germany as an automotive location.*

*The ETA consists of 13 people from the scientific community, business and society who were appointed by Federal Minister Dr. Robert Habeck for the 20th legislative period. Other experts, in addition to relevant institutions and stakeholders, are involved in the work of the ETA via flexible and agile work formats. The members receive no remuneration or expense allowance for their involvement in the ETA. The group of experts is supported by a process and scientific monitoring team commissioned by the BMWK. The ETA has a sister body, the Expert Advisory Council on Climate Action in Mobility (EKM) at the Federal Ministry for Digital and Transport (BMDV). Both bodies are integrated into the Federal Government's Transformation of the Automotive and Mobility Industry Strategy Platform (STAM).*

*The ETA is responsible for the content. It develops statements, position papers and reports partly in its working groups, then deliberates and decides on them in plenary session, and subsequently publishes them under its own responsibility.*

### PUBLISHING DATA

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