

Position

DPP – Digital Product Passport

Key Issues for the Implementation
of Digital Product Passports



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1 Introduction to the Digital Product Passport

The German automotive industry supports the establishment of Digital Product Passports (DPP) and promotes its advantages for the industry and other stakeholders. However, we see a number of key issues which may lead to risks for the implementation of Digital Product Passports. Especially, the implementation of a digital battery passport, as initially proposed by EU regulations to precede other DPPs, presents unique challenges from a technological and legal perspective.

The EU-DPP-system is dedicated to being a core element for supporting sustainability and circularity to implement the Clean Industrial Deal. The major principles of the EU-DPP-system, such as decentralized data management, separation of DPP-system from product group data specification, or the lightweight registry can make it a powerful tool for the European economy, but it is also a technological and legally difficult challenge.

In the following chapter we lay out the major complex technological and legal issues from the German Automotive industry's perspective. Chapter three aims at pointing at the underlying risks that we see might be associated with those technical and legal issues. Finally in the last chapter we present an outlook on what political actions need to be taken from our point of view in order for the digital batteries passport to become a successful example for further DPP to come in the future.

2 Major Issues from the German Automotive Industry's Perspective

The EU-DPP-System, consisting of several main components (decentralized data management at economic operators' side, centralized registry and third-party backup system) is quite new and has to manage millions of products, with sensitive data in parallel in a stable mode. This requires a certain level of robustness, cybersecurity, performance and operational excellence. Such a level should have been already achieved because industrial mass-application of EU-DPP is demanded by February 2027 for batteries. Other products will follow soon after. This means:

- Major technical components (Registry, Access rights management system, API) should be available on TRL 7 (Pilot under realistic operations conditions). The complexity of this activity requires detailed planning and performance. The requested deadline of February 2027 is critical to meet. Risk of failure is considered high.
- Data points specifications and the methodology behind should be drafted formally and provided publicly. This must include machine readability.
- Procedures of writing permissions into the DPP as well as conditions for stakeholders and the identification of stakeholders and all economic operators which are involved in the DPP operation should be defined formally, including exception cases.

- Legal responsibilities and procedures (writing and reading permissions) should be defined clearly and have to be validated, e.g. how a recycler or a repair workshop has to inform the economic operator in case of changing the status of a certain product. There is no legal basis so that an economic operator can get dynamic data. OEMs can only offer currently existing solutions and stakeholders cannot be legally enforced to provide dynamic data based on the current legal situation. The respective delegated act is planned by EU.
- The affected regulations (e.g. ESPR, Batteries Regulation, EU7 and its Environmental Vehicle Passport, End of Life Vehicle Regulation and its Circularity Vehicle Passport) and addressed delegated acts have to be aligned to each other. Also double regulations have to be avoided. Non-aligned digital passports will make the instrument as such useless for market participants as contents of the DPP will be unclear and not comparable.
- The framework for system-governance and its delegations to component-suppliers including shared responsibilities for creating, reading and deleting DPP's should be drafted.
- Current formulations in regulations such as providing the SoH in the EU-Batteries regulation or labelling requirements in the EU-Batteries regulation run against the core principles of data minimization and need-to-know. This makes it impossible for our organisations in the automotive industry and beyond to comply with GDPR which is mandatory for data exchange between organisations and between organisations and stakeholders/customers.

All those major requirements are far from being fulfilled:

- **Technical:** First version of the Registry will be available mid-2026.
- **Data Points:** Formal (means machine readable) data point specification is open. Update cycle is not clarified legally, and confidentiality risks need to be addressed.
- **Static data:** Attributes are defined according to various national standards, each employing different and unsynchronized approaches, due to missing clarity in regulation.
- **Legal:** A delegated Act, specifying the people with legitimate interest, is open. There still exist discrepancies between affected regulations and important delegated Acts are far behind schedule.
- **Procedures and responsibilities:** Procedures to transfer responsibilities for all economic operators are open or not feasible (e.g. responsibility of economic operator placing products on the market for all data in the lifecycle of automotive products), exception-handling is open.
- **Information flow:** Essential information flows, mandatory for ensuring complete data management, are missing. E.g. It is not specified how an economic operator is informed when a recycler has performed the work, and the product no longer exists. The situation becomes even more challenging if the original label is removed due to third-party usage or remanufacturing.
- **Data security:** the system must ensure protection of commercially sensitive information (e.g. through encrypted submissions with owner-controlled access). It must be clarified who is owner of which part of the product passport.

3 Potential Risks

The German Automotive Industry is currently implementing processes and systems under high pressure to meet the tough timeline. Because of the immense number of uncertainties, stakeholders have to work under wide assumptions. This leads to **immense costs and risks already**. Further on, the implementation of DPP goes along with the revision of information flows and data management across entire companies from design and sourcing, through production, sales and after-sales processes. The risk of having not completed and not mature digitalization for value stream planning and control **will lead to high operations cost and decreased competitiveness of the Automotive Industry**.

This situation **makes planning and implementation nearly impossible, and the uncertainty is drawing a lot of unserious market players** (“our DPP system fulfils the EU requirements already”), which lead to the risk, that even the concept of sustainability and circularity of clean industrial deal will be questioned widely.

Additionally, we consider the disclosure of highly sensitive data problematic. We emphasize that disclosure requirements must carefully balance transparency with protection of intellectual property and core business know-how, particularly regarding highly sensitive technical data e.g. battery pack design specifications and cell-level recipes. While recognizing the value of information for recycling, repair, repurposing, remanufacturing and refurbishing purposes, any such disclosures must be absolute minimum necessary and include robust confidentiality provisions to prevent unintended transfer of confidential business information between competitors, in full compliance with the EU Trade Secrets Directive (2016/943).

4 Proposal for Political Actions to be Taken

It is important to avoid the current risks and at the same time to utilise to advantages of DPP for the European economy. Therefore, the following measures should be taken:

- **Legal:** Alignment of regulations in order to avoid complexity (e.g. Battery regulation and ESPR as well as type approval/market surveillance regulations, such as OBFCM), to have harmonized technical requirements for major DPP components (e.g. registry, backup).
- **Include Industry:** Industry representatives should be involved in regulation processes to ensure that such regulations are practicable.
- **Process and Responsibilities:** Close gaps of formal process specification and data flow (e.g. information duties of recycler repair workshops, remanufacturer, refurbisher and the procedures, where at the end the economic operator is informed when a product no longer exists, handling of dynamic data). Consider the same for manufacturer, distributor, importer, producer, supplier, recycler.

- **Roles and Responsibilities:** Define roles and responsibilities in clarity. Currently the parties involved are struggling with assigning roles and responsibilities, which brings additional tension to the market participants. Define and assign clear ownership for each role, including manufacturer, producer, importer, and others, to ensure accountability and facilitate effective and seamless collaboration.
- **Data Justification and Data Minimization:** In line with the GDPR we emphasize that principles of data justification and data minimization should be the common basis, strictly following the need-to-know principle.
- **Data:** Mandate data specification (formal machine readable, sequence of data provision) for prioritized product groups (e.g. Batteries) via an according European standard. Review the current data specifications regarding effectiveness for conformity, safety and circularity.
- **System:** Provision of required systems in charge of EC (e.g. registry), Timeline: Mid of 2026 is too late.
- **Foresee transition phase:** Here, there are several options: stepwise approach from component perspective (e.g. start without registry), from data provision perspective (e.g. demand a first initial data subset) and/or from system function perspective (e.g. at the beginning no dynamic data update).
- **Close gaps and frictions between Regulations:** ESPR, Battery, EU7Pass, Circularity Passport, clarify the access rights and responsibilities of other organizations (e.g. Customs, market surveillance).
- **Single Source of Truth:** Shut down already existing solutions with the introduction of the EU-DPP as soon as the existing solutions become obsolete and avoid setting up new solutions in parallel with the EU-DPP. Data should only need to be entered in one place.
- **DVP – Digital Vehicle Passport:** Establish a system of a digital vehicle passport with the long-term vision one passport for each vehicle. Under the DVP may be summarized the specific digital product passports of the respective vehicle.

5 Digital Battery Passport

The automotive industry's understanding of the DPP as a product's birth certificate, limited to static data that is associated with the functionality of DPP

The Digital Product Passport should be understood as a birth certificate of a product. It is designed to capture and document static, manufacturing-related data at the point of production and possible changes of status during remanufacturing, repair and refurbishing. This includes information such as manufacturing information, production date, and compliance declarations as well as information on who has done what and when with which components during remanufacturing, repair or refurbishing. These data points are essential for transparency, conformity, and sustainability assessments. The information flows as well as the responsibilities along the value chain in case of remanufacturing must be clearly and unambiguously identified among all stakeholders.

Introducing dynamic data—such as usage history, ownership changes, or recycling status—into the DPP would significantly increase complexity and operational burden. It would also create challenges in the transfer of DPP responsibility between economic operators (e.g., from OEM1 to OEM2, or to repair workshops or recyclers and e.g. from TIER to OEM1), especially when the original manufacturer is no longer involved or informed about the product's lifecycle. Any dynamic information should be handled outside the DPP framework, using separate systems or interfaces, where needed.

In contrast to other ESPR product groups (e.g., textiles, electronics, aluminum), where only static data are required, batteries should not be treated as an exception. The inclusion of dynamic data in the DPP is not only unnecessary for most stakeholders but also risks undermining the DPP's core purpose and usability.

Therefore, we strongly recommend that the DPP birth certificate remains limited to static data that is associated with the functionality of DPP. Only static data generated during production, such as production date, production number, and a limited set of other attributes, shall be included. Attributes related to Article 10 of the EU-Batteries regulation are to be excluded. E.g. Dynamic data of vehicles (and vehicle batteries for that matter) are already demanded and regulated by other means - OBFCM regulation ((EU) 2018/1832) shows that other methods of control are possible and much clearer. Information can be gathered over the air and via scan tools. Battery passport necessities for vehicle batteries could be technically included in these methods. It has to be defined who has rights to write in these systems and how the operator identifies himself.

Practical implications and examples

The challenges of including dynamic data become evident in real-world scenarios:

Scenario 1 – Change of ownership between OEMs

A battery is produced by a supplier and integrated into a vehicle by OEM1, who is officially the manufacturer of both the battery and the vehicle. As such, OEM1 registers it at EU registry and creates the Digital Product Passport (DPP) and remains listed as the official producer throughout the product's lifecycle.

However, the vehicle is not sold directly to the end customer by OEM1. Instead, it is transferred to OEM2, who markets and sells the vehicle under their own brand. From the customer's perspective, OEM2 is the primary point of contact and the perceived manufacturer of the product. This creates a conflict in the DPP-system:

The DPP is still technically owned and hosted by OEM1.

OEM2 does not want its customers to be redirected to OEM1's website or systems to access the DPP, as this undermines OEM2's brand identity and customer relationship.

OEM2 may also wish to add limited contextual information (e.g., delivery date, warranty terms, waste management) but is not the original issuer of the DPP and may lack the necessary access rights.

This example highlights a fundamental issue: the DPP is not designed to reflect complex product ownership or branding transitions. If dynamic data or continuous updates are required, the DPP becomes a living document – a family tree. This significantly increases complexity, especially when multiple economic operators are involved.

To ensure clarity, usability, and legal certainty, the DPP should remain a static document that captures the product's state at the point of manufacturing. Any additional information or updates should be handled outside the DPP framework, using separate systems or interfaces controlled by the respective economic operators.

Scenario 2 – Partly completed batteries

The EU Battery Regulation creates a significant challenge for supply chains where a TIER 1 supplier provides a "partly completed battery" that requires final integration by an OEM to become fully functional (e.g., software activation or connection to a vehicle's wiring harness). Because the term "partly completed battery" is undefined, there is critical uncertainty as to when the product is legally "placed on the market." This ambiguity affects who is responsible for the CE marking, the Digital Battery Passport, and other compliance duties. This is not a new problem within the EU's regulatory framework. The EU Machinery Regulation (2023/1230) effectively addresses the equivalent issue of "partly completed machinery" by establishing a clear and logical division of responsibilities:

The Supplier of the incomplete product provides a "Declaration of Incorporation," which includes all necessary safety information, manuals, and instructions for its integration. The Final Manufacturer (OEM), who assembles the final product, is solely responsible for issuing the "Declaration of Conformity" for the complete machine. In doing so, they must integrate and reflect all information from their suppliers' declarations.

6 Digital Battery Passport – Proposal for Political Actions to be Taken

- The automotive industry supports the entry into force of the European battery passport in February 2027. However, we emphasize that it is necessary to postpone those requirements in the battery passport that will not be precisely described by the date of entry into force. All attributes that are precisely described until February 2026 shall be part of the digital battery passport.
- Examples for data attributes that are not yet precisely defined in our understanding:
 - Carbon footprint calculation as a key parameter has not yet been clearly defined. An announced delegated act is still pending. Without this clarity, it is not possible to create a comparable and interoperable battery passport. Introducing the battery passport only makes sense once such key parameters have been clearly defined and the industry has had sufficient time to implement them.
 - Due diligence report regarding material supply chains is also delayed.
 - Battery passport requirements should be postponed after implementation of general DPP. Regulatory approach from generic to specialized and not the other way round (i.e. starting with a general and highly generic set-up for digital product passports and specializing later for particular products).

- In accordance with the New Legislative Framework (NLF) data attributes for the digital battery passport shall be defined by a harmonized European standard (hEN) mandated to CEN based on the recently started project CEN TS "Road vehicles – Rechargeable batteries with internal energy storage – Guidance on Data explanation required in EU battery passport".
- Sensitive data requires strict rules for access rights management. If this prerequisite cannot be fulfilled, this sensitive data shall be postponed (e.g. electrolyte composition).
- Remanufacturing/Repair/Refurbishing: Address specifically spare parts and take the rising market for Remanufacturing/Repair/Refurbishing parts into consideration.
- The battery passport should follow the general DPP implementation to allow market experience to be integrated.¹
- We need high levels of automatization and interoperability for automated registration and feedback-handling.
- From the end customer's perspective, there is no comparability if the parameters are not standardized and calculated on a different basis. This jeopardizes the actual goal of the DPP to enable a circular economy or to create transparent comparability for end customers.

¹ Consider the following example: Partly completed batteries (e.g. a battery pack including sensors and BMS which is only functional after integration into a vehicle) are provided to the economic operator by a supplier. Here a definition is needed which parts of the DPP shall be handled or provided by which stakeholder. From a legal perspective the economic operator responsible for certain data should be kept as the responsible stakeholder for the respective data in the battery passport. Responsibility should not be put on the shoulders of the economic operator in charge for the registration of the battery alone.

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The German Association of the Automotive Industry (VDA) consolidates around 620 manufacturers and suppliers under one roof. The members develop and produce cars and trucks, software, trailers, superstructures, buses, parts and accessories as well as new mobility offers.

We represent the interests of the automotive industry and stand for modern, future-oriented multimodal mobility on the way to climate neutrality. The VDA represents the interests of its members in politics, the media, and social groups.

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The VDA is the organizer of the largest international mobility platform IAA MOBILITY and of IAA TRANSPORTATION, the world's most important platform for the future of the commercial vehicle industry.

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