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| For IEC use only | SMBNC/82/DV<br>2025-09-04 |

**INTERNATIONAL ELECTROTECHNICAL COMMISSION**

**STANDARDIZATION MANAGEMENT BOARD**

**SUBJECT**

Proposal for a new IEC/ISO JTC on *Digital Product Passport*

**BACKGROUND**

The attached proposal from the German NC for a new IEC/ISO Joint Technical Committee on *Digital Product Passport (DPP)* is submitted to all IEC National Committees in accordance with the process described in the ISO/IEC Directives, Part 1, clause 1.5 and with the IEC Rules of Procedure §15.2, for reply within 12 weeks.

Note: the proposal is circulated in parallel in ISO and must be approved by both IEC and ISO to establish the new JTC.

**ACTION**

IEC National Committees are invited to vote on the proposal for a new IEC/ISO JTC on *Digital Product Passport* using the IEC electronic voting system **by 2025-11-27**.

# SMBNC/82/DV

PROPOSAL FOR A NEW FIELD OF TECHNICAL ACTIVITY

| PROPOSER: | DATE OF CIRCULATION: |
|---|---|
| **DKE proposing to IEC**<br>**DIN proposing to ISO** | **2025-09-04** |

A proposal for a new field of technical activity shall be submitted to the IEC Secretariat, which will assign it a reference number and process the proposal in accordance with ISO/IEC Directives, Part 1, 1.5. Guidelines for proposing and justifying a new field of activity are given in the ISO/IEC Directives, Part 1, Annex C.

THE PROPOSAL (to be completed by the proposer):

TITLE (the title shall be described unambiguously and as concisely as possible)

IEC/ISO/JTC Digital Product Passport

SCOPE (the scope shall define precisely the limits of the proposed new field of activity and shall begin with "Standardization of ..." or "Standardization in the field of ...")

Standardization in the field of Digital Product Passport.

Development of deliverables for the deployment of Digital Product Passports (DPP) ensuring cross sectoral and cross system interoperability enabling the supply chain information flow. This includes the framework of the DPP System and the DPP Ecosystem as well as the basics for both.

The new JTC does not develop sector specific standards and standards to be used for DPP-system or DPP-data which are already covered by the scope of other ISO and IEC TCs.

PURPOSE AND JUSTIFICATION (the justification shall endeavour to assess the economic and social advantages which would result from the adoption of International Standards in the proposed new field)

This proposal responds to the ongoing broad technological evolution, which transforms the Digital Product Passport (DPP) topic to a global opportunity and challenge far beyond a political approach.

The DPP describes a concept for connecting a product or pre-product with its a digital set of information. The proposed JTC DPP aims at enabling DPPs as information and communication hubs, allowing the reliable and accepted information flow along the supply and value chain. The DPP

A) represents a fundamental shift towards digital, machine-readable product information - changing the interaction of B2B, B2C, B2Gov

B) is a catalyst for digitalisation and automation in the global interconnected economy, for new business models/services and a driver for green transformation and sustainability

C) will be the main pillar of a digital quality infrastructure and the automation of quality assurance/declaration and including the conformity assessment

To prevent having different, not interoperable national, regional and/or sector specific DPPs the objective of the proposed JTC is to develop standards/deliverables for worldwide interoperable DPP implementations (sectoral-, systemic-, regional- and/or use case-focused). This includes compatibility of data, processes and services. It will allow for data flow and enable market participants interaction via DPPs for products and pre-products, throughout the supply chain across the borders of companies, industries and countries. Various aspects need to be considered, e.g.

- various stakeholders along the value chain and product life cycle (cradle to cradle)
- various affected branches, sectors, product groups which are successively increasing
- expert groups of the several technical modules of a DPP system

- requirements of the business partners and the link between their DPP systems, e.g. regarding data flow (e.g. due to circularity issues) and the handling of data (e.g. via restricted areas) only foreseen for special target groups (e.g. authorities, certified recycler).

This, with the DPP comprising among others the

- DPP System: the technical setup and related processes used to create, store, update and access a DPP for a single product or pre-product

- DPP Ecosystem: the broader network of all actors and systems involved – from manufacturers and suppliers over certifiers and retailers to implementers, customers and recyclers – and how these systems interact

As the DPP System and DPP Ecosystem are closely interconnected and to enables seamless interoperability across sectors and borders at global level they both require a framework: a shared structure of rules, interfaces, data formats, and processes that. These frameworks will provide clear guidance on core principles (e.g. sustainability, data certification and conformity assessment), allowing diverse solutions while ensuring effective communication.

Today, core components, useful for the DPP, are being addressed in various TCs of ISO and IEC, with several related activities currently underway (see below 'Relevant ISO and IEC Committees', 'C) Standards for the framework of the DPP System with core components' and 'Relation of the proposal to existing international standards and on-going standardization work'). When aiming to create a comprehensive solution that supports inclusion across all sectors and systems, it is insufficient to ask individual ISO and IEC TC's to collaborate and develop a unified framework. The proposed JTC is intended to be horizontal, encompassing sectors, systems, and components. This requires a committee to draft and publish standards and to liaise with others to harmonize efforts across the organizations, while individual committees can continue to focus on their particular domains and aspects. A joint IEC/ISO JTC will provide the necessary alignment required to bring together these disparate efforts into a unified framework-providing approach.

Examples for DPP solutions are already available with different focuses, such as

- Product life cycle
- Declaration of conformance
- Environmental impact & sustainability
- Marketing & customer experience.

provided by several solution and technology providers.

Please select any UN Sustainable Development Goals (SDGs) that this committee will support. For more information about SDGs, please visit our website at https//www.iec.ch/SDG/

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| ☐ | **GOAL 1:** No Poverty | ☐ | **GOAL 10:** Reduced Inequality |
| ☐ | **GOAL 2:** Zero Hunger | ☒ | **GOAL 11:** Sustainable Cities and Communities |
| ☐ | **GOAL 3:** Good Health and Well-being | ☒ | **GOAL 12:** Responsible Consumption & Production |
| ☐ | **GOAL 4:** Quality Education | ☒ | **GOAL 13:** Climate Action |
| ☐ | **GOAL 5:** Gender Equality | ☐ | **GOAL 14:** Life Below Water |
| ☐ | **GOAL 6:** Clean Water and Sanitation | ☐ | **GOAL 15:** Life on Land |
| ☐ | **GOAL 7:** Affordable and Clean Energy | ☐ | **GOAL 16:** Peace, Justice Strong Institutions |
| ☒ | **GOAL 8:** Decent Work & Economic Growth | ☒ | **GOAL 17:** Partnerships to achieve the Goals |
| ☐ | **GOAL 9:** Industry, Innovation & Infrastructure | | |

PROGRAMME OF WORK (list of principal questions which the proposer wishes to be included within the limits given in the proposed scope, indicating what aspects of the subject should be dealt with, e.g. terminology, test methods, dimensions and tolerances, performance requirements, technical specifications, etc.)

PREFERRED TYPE OF DELIVERABLES

The deployment of global DPPs, using an interoperable DPP System framework and a DPP Ecosystem framework, will require a wide range of complementary, interconnecting and overarching standards/deliverables. Moreover, a strong collaboration network with other ISO/TCs and IEC/TCs and external organisations is needed, e.g. regarding DPP system building blocks, DPP content or specific DPP implementation solutions.

The work program of the JTC shall address the following workstreams:

**A) Information and collaboration with other TCs and external organisations**
**B) Standards for basics of the DPP System and the DPP Ecosystem**
**C) Standards for the framework of the DPP System with core components**
**D) Standards for the framework of the DPP Data and the DPP Ecosystem**

**A) Information and collaboration network with other TCs and external organisations**

The JTC shall serve as focal point and proponent for the DPP topic in ISO and IEC and beyond. Therefore, one of its main tasks will be to establish and maintain information exchange and cooperation with other TCs and external organizations. The JTC shall set up a Committee Advisory Group (CAG).

The Committee Advisory Group (CAG) will

- strengthen the collaboration between ISO/TCs and IEC/TCs working on specific DPP topics and align DPP-related activities,
- facilitate better communication between DPP-relevant activities in ISO, IEC and ISO/IEC committees, allowing to address common interests and objectives,
- propose liaisons to relevant TCs at ISO and IEC and take into consideration the work from these committees (see below '*Relevant ISO/IEC committees*'),
- coordinate the work within the JTC,
- advise on the interaction to technical bodies in ISO and IEC regarding
    - the development of horizontal standards for DPP System (e.g. data carrier, identifier, access right management, etc.),
    - the sectoral requirements and sectoral or systemic DPP implementation solutions,
    - use case specific topics (quality assurance, circularity, etc.),
- coordinate contact and liaisons to
    - external standardisation bodies (ITU, UNECE / UN/CEFACT, W3C, IEEE etc),
    - international organisations (UN, WTO, UNIDO etc),
- map existing standardisation activities, standards and upcoming developments (e.g. like standards mapping platform) to avoid overlapping work.

Concerning the currently ongoing work on DPP, e. g. the European CEN/CLC JTC24 or the Chinese MA-DPP Universal Framework 1.0, the JTC will determine how to harmonise the different approaches. The JTC will engage experts from diverse sectors, fostering open dialogue and collaboration with stakeholders from all over the world. Furthermore, the JTC will establish transparent procedures for evaluating existing work.

Relevant ISO/IEC committees are (non-exhaustive list):
- IEC/CAB - Conformity Assessment Board
- IECQ - IEC Quality Assessment System
- IEC/SC 3D Classes, Properties and Identification of products - Common Data Dictionary (CDD)
- IEC/TC 3 Documentation, graphical symbols and representations of technical information
- IEC/SC 65E Devices and integration in enterprise systems
- IEC/TC 111 Environmental standardization for electrical and electronic products and systems
- IEC/TC 21 Secondary cells and batteries
- IEC/TC 65 Industrial-process measurement control and automation
- ISO/CASCO - Committee on conformity assessment
- ISO/IEC/JTC 1 Information Technology (selected subcommittees)
- ISO/IEC/JTC 1 SC17 Cards and security devices for personal identification
- ISO/IEC JTC 1/SC 27 - Cybersecurity
- ISO/IEC/JTC 1 SC31 Automatic identification and data capture techniques
- ISO/TC 154/JWG 9 ISO/UNECE joint working group for information exchange of supply chain aligned to UN/CEFACT semantics
- ISO/TC 184/SC 4 Industrial data
- ISO/TC 292/WG 4 Authenticity, Integrity and Trust for products and documents
- ISO/TC 292/WG 8 Supply chain security
- ISO/TC 307 Blockchain and distributed ledger technologies
- ISO/TC 323 Circular Economy
- ISO/TC 59/SC 13 Organisation and digitalisation of information about buildings and civil engineering works, including building information modelling (BIM)
- ISO/TC 59/SC 19 - Prefabricated building

**B) Standards for basics of the DPP System and the DPP Ecosystem**

The JTC will lay down required interface specifications between the DPP Ecosystem and the DPP System. The JTC will not define specific components of the Ecosystem, as long as they are under the responsibilities of existing ISO and IEC committees.

Workstream B) includes to:

- draft, publish and maintain terminology standards,
- draft, publish, maintain or contribute to content for semantic dictionaries,
- define the main principles for the comprehensive framework,
- draft, publish and maintain series of standards creating the DPP System Framework and DPP Ecosystem Framework,
- draft a framework for the definition and interoperability between the core DPP System components,
- draft a framework for the Ecosystem to gather requirements for the DPP System components to enable interoperability of DPPs for comprehensive set of applications,
- elaborate and describe fundamental governance principles and roles regarding the framework and DPP solutions (to provide a worldwide accepted framework which avoids sectoral-, system provider- or use case-specific framing following the principles e.g. technology neutral, no lock in effect, no membership required, lean access e.g. stimulating the ecosystem by enabling SMEs).

The parts and type of deliverables necessary for the frameworks are to be worked on by the committee; they cannot yet be specified in detail.

**C) Standards for the framework of the DPP System with core components**

Workstream C) aims to establish interoperability criteria for each core component, which will be part of the framework that defines and ensures interoperability among the core components. Existing efforts cover a broader range of diverse applications whereas the proposed JTC focusses on DPP-specific core components (see below *''Relation of the proposal to existing international standards and on-going standardization work').* All related technologies must be properly integrated into the framework.

Core components for DPP systems are, e. g.:

- Unique identifiers
- Data carriers and links between physical product and digital representation, look-up mechanism
- Access rights management
- Data processing, data exchange protocols and data formats
- Data storage and data persistence
- API for DPP System

Workstream C) includes to:

- draft, publish and maintain standards for defining specific DPP related requirements for the diverse technologies as described in existing standards. This includes interoperability criteria for each core component.

**D) Standards for the framework of the DPP Data and the DPP Ecosystem**

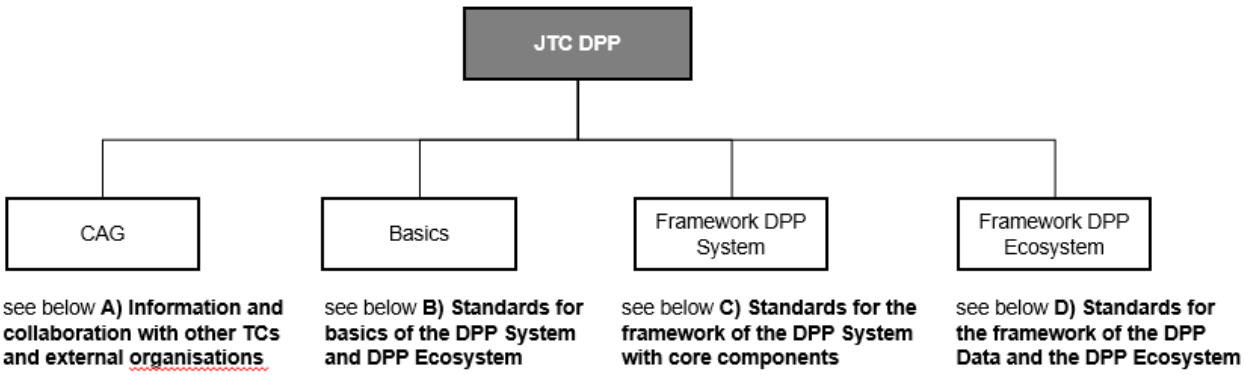
The objective of workstream D) is to support the cross sectoral and cross regional interoperability and compatibility of DPPs for the use across the entire DPP Ecosystem. This includes to

- consider the major DPP Ecosystem aspects which influences the DPP System,
- identify interoperability requirements arising from applications and technological constraints,
- provide recommendations to relevant stakeholders regarding possible standardisation needs outside the scope of JTC DPP e.g. for conformity assessment.

Workstream D) includes to

- draft, publish and maintain standards for the overall architecture/framework for the entire DPP Ecosystem,
- draft, publish and maintain standards for the necessary infrastructure for business, technical and data interoperability required for the implementation and operation of the core DPP components, including
    - Business interoperability: e.g. value streams, business models and networks
    - Technical interoperability: e.g. trust, security and data processing infrastructure
    - Data interoperability: e.g. product and service data; reliability, quality, verification and certification of data and data value chains,
- develop DPP use cases, e.g. circular business models, by utilizing the interoperability infrastructure and core DPP components,
- map DPP use cases against the overall architecture and determine requirements for core components together with other TCs,
- define metrics to support evaluation of the DPP Ecosystem.

**Proposed JTC Structure**




Alternative structural models may be put forward. This structure has been submitted in response to previous questions and discussion on the proposal.

RELEVANT EXISTING DOCUMENTS AT THE INTERNATIONAL, REGIONAL AND NATIONAL LEVELS (relevant documents to be considered: national standards or other normative documents)

Additional information:

Due to the interdisciplinary nature of the DPP topic and its connection to a wide range of areas within the ISO and IEC context, a tailored and structured horizontal approach is required. Regarding the standardization work concerning other TCs (see above '*Relevant ISO/IEC committees*'), the JTC addresses an explicit exchange process with the relevant TCs. JTC DPP ensures that ongoing efforts are viewed as complementary, serving as valuable building blocks rather than competing agendas. The proposed JTC will be committed to collaborating closely with existing TCs by referencing their work and/or reusing their work in the DPP Framework.

The ISO/PWI 25534 originating from ISO TC 154 JWG 9 is considered relevant and aligns with the scope of the proposed JTC. Its development has to be further discussed between the JTC and ISO/TC 154.

IEEE SA P3828 Standard for Digital Product Passport - Reference Architecture and Technical Requirements

ITU-T L.1070 (11/2023) Global digital sustainable product passport opportunities to achieve a circular economy

ITU-T L. 1071 (11/2024) A model for digital product passport information on sustainability and circularity

There is a vast landscape of existing initiatives and activities. One of the first tasks will be to identify, collect, and summarize the relevant work. A number of efforts are already underway in this field e. g. STAND.ICT Research "Landscape of Digital Product Passport Standards".

RELATION TO AND IMPACT ON EXISTING WORK

See section "programme of work" and "Purpose and Justification"

RELEVANT COUNTRY PARTICIPATION

It can be assumed that the topic DPP is important to all member countries.

LIAISON ORGANIZATIONS (list of organizations or external or internal bodies with which co-operation and liaison should be established)

- IEC/CAB - Conformity Assessment Board
- IECQ - IEC Quality Assessment System
- IEC/TC 3 Documentation, graphical symbols and representations of technical information
  IEC/SC 3D Classes, Properties and Identification of products - Common Data Dictionary (CDD)
- IEC/SC 65E Devices and integration in enterprise systems
- IEC/TC 111 Environmental standardization for electrical and electronic products and systems
- IEC/TC 21 Secondary cells and batteries
- IEC/TC 65 Industrial-process measurement control and automation
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- ISO/IEC/JTC 1 SC17 Cards and security devices for personal identification

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- ISO/TC 292/WG 8 Supply chain security
- ISO/TC 307 Blockchain and distributed ledger technologies
- ISO/TC 323 Circular Economy
- ISO/TC 59/SC 13 Organisation and digitalisation of information about buildings and civil engineering works, including building information modelling (BIM)
- External standardisation bodies (ITU, UN ECE, W3C, IEEE among others)
- National or / supranational organisations (UN, WTO, UNIDO, among others)

STAKEHOLDERS

Industry and commerce – large industry
- Seamless dataflow between the market participants and supply chain and its efficiency
- Worldwide interoperable solution which transforms how product information is shared
- Delivering mandatory and voluntary information (e.g. instruction manual) digital and replace paper documentation
- Using one system to deliver information worldwide in different languages location dependent, regional compliance ensured
- Enables new business models (via digital information and interaction possibilities with market participants)
- Strengthening customer relationships, loyalty, trust and brand reputation, through enhanced user experience, certificated data (e.g. sustainability)
- Simplified traceability of materials and components achieved
- Risk management, such as recall processes, simplified

Industry and commerce – SMEs
In addition to the benefits for large industry:
- Improved collaboration with larger and/or global business partners
- Easier global procurement
- Enables easier global market entry
- Reduces the risk of regulatory penalties

Government
- Improved efficiency in customs and trade procedures,
- Easier market surveillance
- Informed policymaking
- Better tracking of environmental impacts
- Possible promotion of sustainable practices and circular economy models

Consumers
- Easy access to product information, including origin and sustainability data, along with simplified access to product usage, repair, disposal and operating instructions,
- More informed purchasing decisions, such as safety and eco-friendliness
- Possible new product features via new business models, e.g. customer loyalty programs and services
- Better access to updates and security maintaining

Labour
- Standardized health and safety information on products improve workplace conditions
- Possible impact on improvement of labour protection, increased accountability in labour relations

Academic and research bodies
Streamlined access to comprehensive product and supply chain data
- supports academic work with relevant, updated real-world data,
- increases interdisciplinary studies through standardized data, and
- facilitates innovation by enabling the testing and validation of new models and theories with real data.

Standards application businesses
- DPP is a core element in a digital quality infrastructure and will simplify and boost the efficiency of the quality assurance processes
- It allows direct reference of standards and link to possible access

Non-governmental organizations
Increased transparency in reporting
- enhances the promotion of health, safety, and environmental initiatives and
- improves the ability to hold industries accountable for sustainable and ethical practices.

Other (please specify)
The DPP might serve as a worldwide accepted single entry point to the digital world “around” the product. This fosters the development and adoption of advanced technologies and innovative solutions. DPPs are seen as central tool of a future Digital Quality Infrastructure. Regarding this the UNIDO addresses from 11 up to 15 positively influenced SDGs (see among others the publication “Smart Quality Infrastructure”, “Rebooting QI fur Sustainable Future”; “Quality Infrastructure for Sustainable Development Index”).

LEADERSHIP COMMITMENT

DE commits to provide the secretariat for the new JTC if approved.

OTHER COMMENTS (if any)

DIN submitted a similar proposal to ISO

COMMENTS OF THE SECRETARY-GENERAL (to be completed by the IEC Secretariat):

The IEC Secretariat thanks the German NC for submitting this proposal and recalls SMB Decision 183/11 as follows: "Should the new JTC be established, SMB reiterated the importance of ensuring a balanced approach to the administrative oversight of all JTCs between IEC and ISO and asked the IEC Secretariat to take the administrative lead of the IEC/ISO JTC on DPP."