prostep IVIP

White Paper



prostep ivip White Paper

Sustainability in PLM & Engineering

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Abstract

This white paper takes a close look at the growing importance of sustainability as a component of industrial value creation systems and analyzes its impact on engineering processes, product lifecycle management (PLM) and digital ecosystems. In light of increasing regulatory requirements, including, for example, the Corporate Sustainability Reporting Directive (CSRD) and the European Sustainability Reporting Standards (ESRS), it is clear that companies are faced with the task of systematically recording, evaluating and transparently communicating both the environmental and socio-economic impact of their products and processes. The analysis shows that methodological frameworks like the Greenhouse Gas Protocol or PACT-based data and modeling approaches play a key role when it comes to quantifying and comparing environmental impacts along global supply chains.

A survey conducted by prostep ivip's Standardization Strategy Board (SSB) makes it clear that sustainability is strategically embedded in almost all industries. At the same time, however, barriers to implementation exist. The biggest bottlenecks can be found in the limited data quality (this refers to a general assessment of data quality without specifying data types in greater detail) in the context of sustainability, restricted access to sustainability information and the lack of interoperability between heterogeneous IT systems. The evaluation also confirms the relevance of digital technologies as key enablers of sustainability management. Systems like PLM architectures, digital twins and data space infrastructures enable the integration of sustainability information across organizational and system boundaries. In conjunction with harmonized data models and interoperable standardization initiatives, these technologies have the potential to make circular value-added models technically feasible and scalable.

Taking a look back at the prostep ivip Sustainability Day 2025 shows that high-quality and interoperable data are a basic prerequisite for effective sustainability management. Many companies continue to work with fragmented data silos, incomplete document-based information and high procurement costs. Presentations from industry and the research community highlighted concrete solutions. On the whole, the event underscored the fact that sustainable transformation requires interplay between technical innovation, data quality, organizational collaboration and regulatory clarity. This means that sustainability can not only be seen as a regulatory obligation but also as a driver of innovation and means of creating added value.

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1 Introduction

In times of growing regulatory requirements and societal expectations, focus is being placed on sustainability as a key value driver for the industry. The aim of the prostep ivip Association is to promote communication and collaboration across corporate and disciplinary boundaries and optimize the value chain in product development. In this context, sustainability is viewed as a key driver of digital transformation. The association therefore supports the development of open, vendor-neutral engineering IT standards that improve interoperability and thus make it possible for companies to reduce carbon emissions and implement the circular economy across company boundaries. In addition to the various technical projects within prostep ivip, the strategic perspective provided by the Standardization Strategy Board (SSB) helps identify and align industry-relevant requirements. The SSB also identifies the need for action on the part of industry, trends among IT vendors, as well as ideas and impetus from the scientific community.

This white paper examines the concept of sustainability, relevant initiatives and standards, and summarizes the results of a survey on sustainability conducted within the prostep ivip Association.

2 Understanding sustainability

The concept of sustainability has been a key topic in scientific, political, social, and economic discussions for many years. The term has evolved over time and comprises a wide range of definitions and approaches. The World Commission on Environment and Development (1987) defines sustainable development as follows: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."[1] This definition focuses on achieving a balance between meeting the needs of present and future generations. John Elkington (1998)[2] expanded on this understanding and introduced the concept of the "Triple Bottom Line", which divides sustainability into three dimensions:

- **Financial dimension:** A sustainable approach must be economically viable in the long term.
- **Social dimension:** This dimension places emphasis on corporate social responsibility. This includes fair working conditions, due consideration of the needs of the community and the promotion of social justice.
- **Environmental dimension:** Companies are required to minimize environmental damage, use natural resources responsibly and minimize negative impact on the environment.

This means that companies assume responsibility for achieving a balance between environmental, economic and social impacts.

The United Nations has defined 17 Sustainable Development Goals (SDGs) within the framework of the 2030 Agenda for Sustainable Development[3] (2015). These goals address a wide range of topics, from eradicating poverty to climate action, and can also be divided into three dimensions.

Social SDGs: SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 3 (Good Health and Well-being), SDG 4 (Quality Education), SDG 5 (Gender Equality), SDG 10 (Reduced Inequality), SDG 16 (Peace, Justice and Strong Institutions).
Environmental SDGs: SDG 6 (Clean Water and Sanitation), SDG 7 (Affordable and Clean Energy), SDG 13 (Climate Action), SDG 14 (Life Below Water), SDG 15 (Life on Land).
Economic SDGs: SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation and Infrastructure), SDG 12 (Sustainable Consumption and Production), SDG 17 (Partnerships for the Goals).

[1] https://www.bundesumweltministerium.de/themen/nachhaltigkeit/strategie-und-umsetzung/nachhaltigkeit-als-handlungsauftrag
[2] Elkington, J. (1998). Cannibals with forks: The triple bottom line of 21st century business. New Society Publishers
[3] https://sdgs.un.org/2030agenda



Figure 1: Sustainable Development Goals[4,5]

The diverse nature of the SDGs illustrates the need for a holistic approach to promoting sustainable development. In the context of activities carried out by the prostep ivip Association, the following SDGs – with focus placed on environmental and economic topics – are particularly relevant, as they are directly related to industrial processes, innovation and resource efficiency:

SDG 7 Affordable and Clean Energy – Ensuring access to sustainable energy is crucial when it comes to industrial development and the adoption of energy-efficient technologies.

SDG 8 Decent Work and Economic Growth – Promoting sustainable economic growth and full, productive employment is essential for industrialization.

SDG 9 Industry, Innovation, and Infrastructure – Sustainable industrialization and resilient infrastructure are crucial for technological progress and innovation.

SDG 12 Responsible Consumption and Production – Efficient use of resources and sustainable production patterns help reduce environmental pollution.

SDG 13 Climate Action – Companies must play their part in reducing greenhouse gas emissions in order to counter the impact of climate change.

At the same time, social aspects such as education (SDG 4) and gender equality (SDG 5) should not be neglected as they are crucial to long-term stability and progress.

Consumer awareness with regard to sustainability is also growing. According to a survey conducted by Bain & Company (2024[6]), approximately 60% of those questioned stated that their concerns about the impact of climate change have increased over the past two years. Many consumers want to live in a more sustainable manner but find themselves facing a number of different challenges such as, for example, higher prices, availability and inconsistent labeling of sustainable products (Bain & Company, 2024). A study from McKinsey (2023) reveals that sustainable products are enjoying faster growth than conventional products in a number of sectors, with products bearing ESG (environmental, social and governance) related labels recording a growth rate of 28 percent. Despite this growth, price remains a major hurdle and consumers need greater clarity regarding the sustainability of products (McKinsey 2023[7]). This underscores the fact that, most importantly, access to and transparency regarding sustainable products must be improved.

[4] The content of this publication has not been approved by the United Nations and does not reflect the views of the United Nations or its officials or Member States.
[5] https://www.un.org/sustainabledevelopment
[6] https://www.bain.com/insights/what-do-consumers-really-want-ceo-sustainability-guide-2024/
[7] https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/consumers-care-about-sustainability-and-back-it-up-with-their-wallets

In addition to changes in consumer behavior, the broader framework is also shifting in the direction of sustainability. Companies are required to integrate sustainable practices into their business strategies in order to comply with new laws and regulations. An example of this is the EU's Green Deal[8]. Country-specific requirements such as Germany's Supply Chain Due Diligence Act, for example, also have to be taken into account[9].

Lower costs brought about by energy efficiency offer a significant economic incentive. Investments in energy-efficient technologies reduce operating costs while at the same time enhancing competitiveness. Complying with sustainable practices also reduces the risk of negative impacts resulting from changes to regulations. Early intervention offers protection against regulatory uncertainties and makes it possible for companies to make long-term plans and possibly also benefit from subsidies and government funding.

Another advantage is access to new markets and investors. Sustainability is to an increasing extent becoming a criterion for investment decisions. Companies with clearly defined sustainability strategies are in a better position when it comes to securing capital for investments. In addition, investments in the research and development of environmentally friendly technologies not only help reduce carbon emissions but also enhance companies' innovative capacity and competitiveness. Another way to increase efficiency is optimizing the supply chain using circular economy approaches. Integrating reuse, repair and recycling into value chains allows resource efficiency to be improved while at the same time reducing costs.

The digitalization of a company provides support for the implementation of such measures. The implementation of holistic, data-driven product lifecycle management (PLM) makes it possible for companies to analyze their environmental impact and optimize processes. Increased transparency is a prerequisite for measuring the carbon footprint of products and implementing strategies to reduce this footprint, for example. Digitalization thus provides vital support for successful transformation to sustainable business models. (Neligan, Schleicher, Engels, & Kroke, 2023[10])

The growing importance of sustainability in industry and product development also entails a complex web of legal requirements, international standards and methodological frameworks. These requirements not only provide companies with an orientation framework but also with a fundamental building block for creating transparency regarding environmental impact, minimizing regulatory risks and making robust sustainability data available throughout global value chains. EU regulations, in particular, play a key role in this context. The Corporate Sustainability Reporting Directive[11] (CSRD) will in the future require companies to disclose their sustainability performance in a comprehensive, standardized, and verifiable manner. It is supplemented by the European Sustainability Reporting Standards[12] (ESRS), which outline what information regarding ESG impacts, risks and opportunities must be reported and how this data collection is to be implemented consistently. Both sets of requirements are legally binding and lay the groundwork for sustainability reporting in the EU.

In addition to these mandatory frameworks, voluntary internationally established reporting standards also exist and serve as a supplement for companies, especially in global markets or complex supply chains. These include not only the GRI Standards, which are frequently used worldwide as a reference framework for transparent ESG reporting, but also the Voluntary Sustainability Reporting Standard for SMEs[13], which is recommended by the EU and provides small and medium-sized companies with a framework for providing sustainability information in a consistent manner. Even though these standards are not legally binding, they contribute to the standardization of international reporting practices.

[7] https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/consumers-care-about-sustainability-and-back-it-up-with-their-wallets
[8] https://ec.europa.eu/commission/presscorner/detail/en/ip_19_6691
[9] https://www.bmas.de/DE/Service/Gesetze/lieferkettengesetz.html
[10] Neligan, Adriana / Schleicher, Carmen / Engels, Barbara / Kroke, Thorsten, 2023, Digitaler Produktpass – Enabler der Circular Economy. Relevanz und Umsetzbarkeit durch Unternehmen, IW-Report, Nr. 47, Berlin / Köln
[11] https://eur-lex.europa.eu/eli/dir/2022/2464/oj/eng
[12] https://eur-lex.europa.eu/eli/reg_del/2023/2772/oj/eng
[13] https://eur-lex.europa.eu/eli/reco/2025/1710/oj/eng

Methodological standards that define how environmental metrics are to be quantified are also crucial for the implementation of sustainability requirements in practice. Global frameworks such as the Partnership for Carbon Transparency[14] (PACT), the Greenhouse Gas Protocol[15], ISO 14067 and the EU's Product Environmental Footprint methodology[16] define how product carbon footprints (PCF) are calculated, which data needs to be collected and how this data is exchanged along the value chain. These standards describe both the technical calculation methodology and structural requirements, such as data schemas, quality criteria and exchange mechanisms. PACT, for example, provides supplementary resources like technical specifications, checklists and data models, which make it possible to exchange consistent and comparable carbon emissions data across company and industry boundaries.

Additional ecosystem standards, which define the previously mentioned global methods in more concrete terms, are being created in specific industries in order to meet industry-specific needs. One high-profile example is the Catena-X PCF Rulebook[17], which defines binding guidelines for calculating and exchanging product carbon footprint data along the automotive supply chain. The rulebook is explicitly based on higher-level initiatives like PACT in order to ensure inter-operability and defines how PCF data can be exchanged in tier-to-tier relationships in a structured, verifiable and comparable manner. This means that an operational framework that improves the consistency of environmental data and lays the groundwork for future digital sustainability applications is created for companies that are part of such data ecosystems.

When viewed as a whole, this framework of mandatory requirements, voluntary standards and technical methodologies shows that sustainability-related transparency can only be achieved by interaction between different levels. This means that companies have to align internal processes, IT architectures and data models in such a way that regulatory requirements are met, while at the same time ensuring that interoperable sustainability data can be created and exchanged. This not only ensures legal compliance but also lays the foundation for innovation-oriented sustainability strategies and the active shaping of a circular, climate-friendly industry of the future.

[14] https://www.carbon-transparency.org/
[15] https://ghgprotocol.org/
[16] https://green-forum.ec.europa.eu/green-business/environmental-footprint-methods/pef-method_en
[17] https://catenax-ev.github.io/assets/files/CX-NFR-PCF-Rulebook_v.3.0-04874a80a6d27511df06e07ae3049278.pdf

3 Activities within prostep ivip

3.1 Sustainability survey

This section provides a summary of the results of a survey conducted in 2025 by prostep ivip and the SSB on the relevance of sustainability, regulations, methods/tools used, and the biggest challenges that companies face. The survey covers a variety of different industries (with focus placed on the automotive industry), roles (product development, development and IT in particular) and global companies. The survey was conducted within the prostep ivip Association. This means that the responses have been provided by people with extensive industry experience and place strong focus on digital product development, interoperability and PLM. A total of 23 people participated in the survey.

3.1.1 Overview of respondents

The participants represent a broad range of industries, roles, company sizes and regions. The largest group comes from the automotive industry, followed by the IT industry and the aerospace industry (Figure 2: Industry). Companies and institutions that are involved in technology research, provide consulting services or work in the chemical and pharmaceutical industries also participated.

In terms of organizational classification, the group comprises a balanced mix of consulting companies (34.8%), OEMs (21.7%), suppliers (8.7%), software vendors (13.0%) and research institutions (21.7%) (Figure 2: Industry). This ensures that perspectives along the entire value chain – from research and industrial product development through to implementation and consulting services – are covered.

The distribution is also heterogeneous in terms of company size. While large corporations with over 20,000 employees make up the largest group (39.1%), small (fewer than 1,000 employees: 30.4%) and medium-sized companies (5,000 – 20,000 employees: 17.4%; 1,000 – 5,000 employees: 13.0%) are also well represented. This ensures a differentiated view of both global and mid-market requirements.

The role profiles of the respondents illustrate their high level of technical expertise. The largest group comes from the product and engineering sectors, followed by participants from IT, consulting and positions in research, processes, tools and sustainability (Figure 3: Role). This structure shows that both operational engineering expertise and strategic/methodological perspectives are represented.

The respondents' companies operate in almost all economic regions worldwide. Focus is placed on the EU and EFTA, followed by China, East Asia, North America and the United Kingdom. The regions Southeast Asia, Latin America, the Middle East, Oceania, and sub-Saharan Africa were mentioned less frequently.

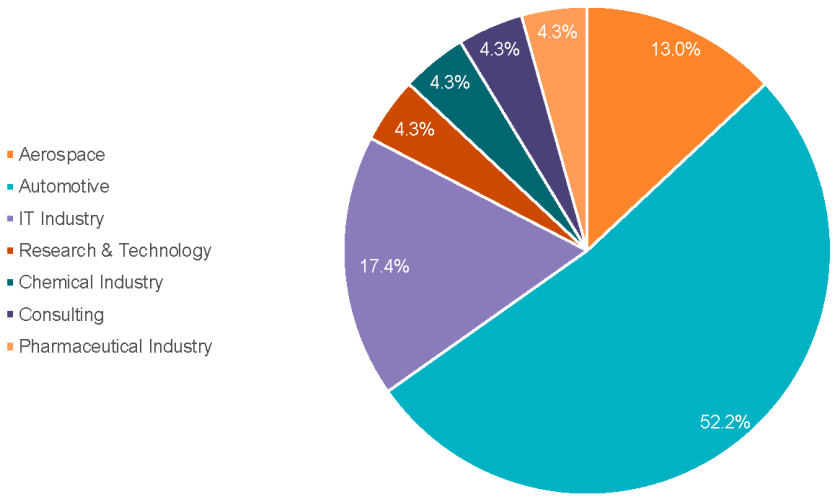

Figure 2: Industry

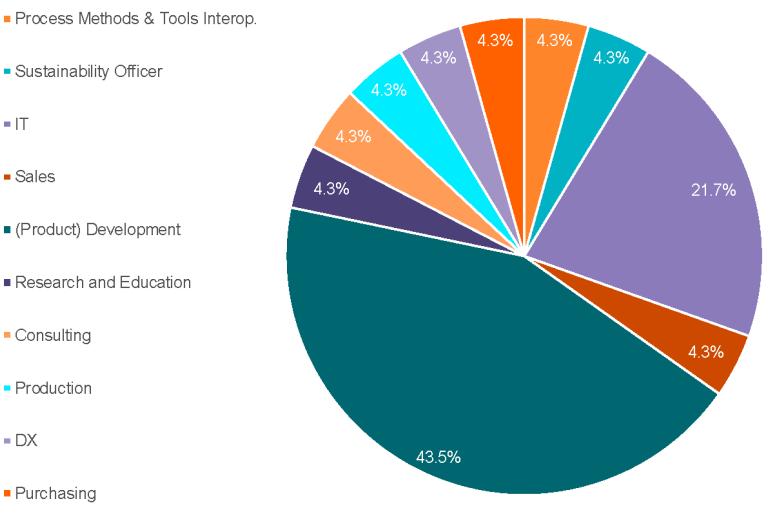

Figure 3: Role

3.1.2 Relevance and knowledge about sustainability

The survey also looked at the level of knowledge and the perceived relevance of sustainability-related topics. The responses illustrate the great strategic importance of sustainability within companies.

All the respondents indicated that sustainability is at least important to some degree today: 65% consider the topic "very relevant" and 35% "relevant." This underscores the fact that sustainability is currently an integral part of decision-making processes. (Figure 4: Relevance of sustainability today)

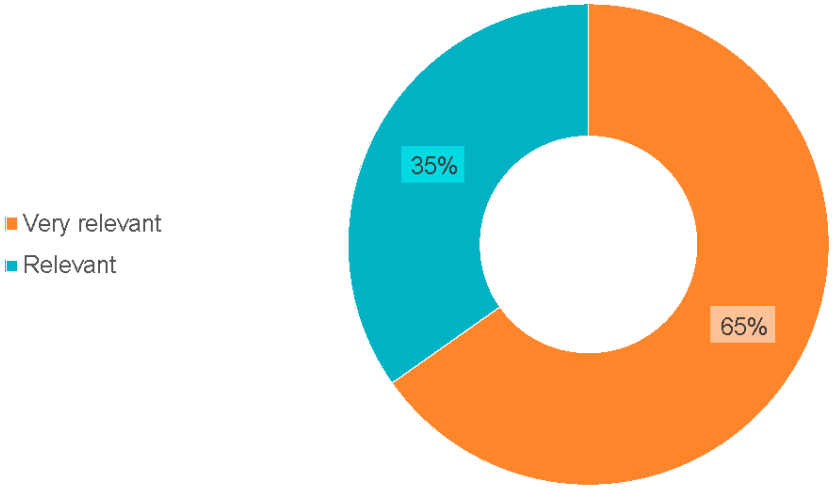

Figure 4: Relevance of sustainability today

When looking at future relevance, the level of importance increases further: 83% expect "very high" relevance and 17% expect "high" relevance. This means that 100% of the respondents assume that sustainability will be an important control parameter in the future.

The self-reported level of knowledge is for the most part robust: 48% consider their knowledge as "very good", 39% as "good", 9% as "adequate" and 4% as "low." Overall, 87% of responds confirm that their knowledge is good or very good. The following picture emerges when examining readiness for sustainability regulation: 26% rate the readiness of their organization as "very good", 26% as "good", 35% as "adequate" and 13% as "inadequate." Taken together, 52% rate themselves as well to very well prepared. (Figure 5: Readiness for sustainability regulations)

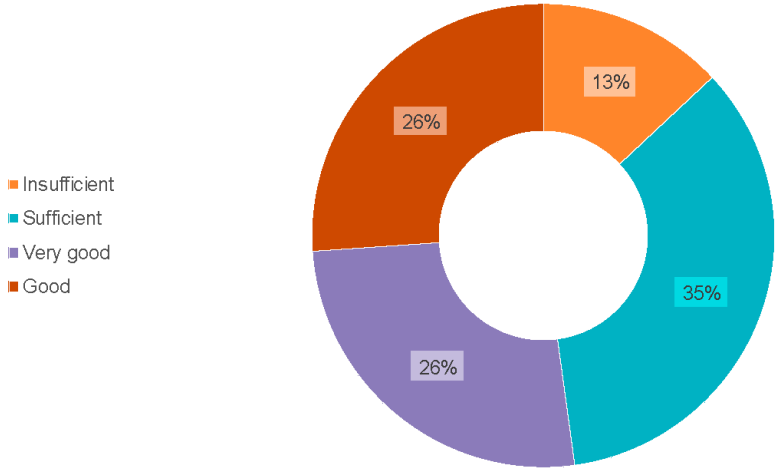

Figure 5: Readiness for sustainability regulations

This relatively high level of self-assessment with regard to readiness should be viewed critically. It is possible that individual respondents were not able to assess readiness independently of their own areas of responsibility (e.g. focusing on a subprogram rather than on company-wide compliance capability across Scope 1, 2 and 3 data chains, the supply chain, product compliance and IT controls). Self-assessments may also tend to be optimistic if processes have been designed but have not yet been fully operationalized, audited or digitalized. Seen from this perspective, the reported 52% rating of "good" or "very good" should be understood as a working hypothesis.

Summary

Sustainability is today already "very relevant" for the majority of the prostep ivip members surveyed and it is expected to become even more relevant in the future. Most of the respondents have a high level of knowledge. This assessment suggests that they are primarily professionals with extensive expertise in the areas of sustainability and regulatory requirements.

3.1.3 Regulations and technologies

The following results provide an overview of the areas in which sustainability regulations are relevant, the progress that has been made with regard to implementing them in the respondents' companies and the extent to which methods and digital technologies are already being used to support sustainability or will become increasingly important in the future.

In which of the following areas are sustainability-related regulations relevant for your company and to what extent have related measures been implemented?

The analysis shows that regulatory requirements are of great importance to the respondents' companies in almost all of the categories surveyed. Looking at the average values (excluding "further"), the following overall picture emerges:

- 7,2 % of responses indicated "Not relevant"
- 23,6 % indicated "Relevant / not implemented"
- 41,1 % indicated "Relevant / partially implemented"
- 25,6 % indicated "Relevant / implemented"

This means that the majority of regulatory-related topics are relevant to the companies, while only about 7% are considered irrelevant. Over 41% have already been partially implemented and another 26% have been fully implemented.

EU regulations, in particular, have high relevance and implementation rates. This becomes particularly clear in the areas waste management, the circular economy, and digital and data regulations (e.g. the digital product passport (DPP)). There is a particularly high number of mentions involving these areas in the categories "Relevant / partially implemented" and "Relevant / implemented", which indicates that companies are actively addressing these topics and have to some extent already translated regulatory requirements into concrete measures.

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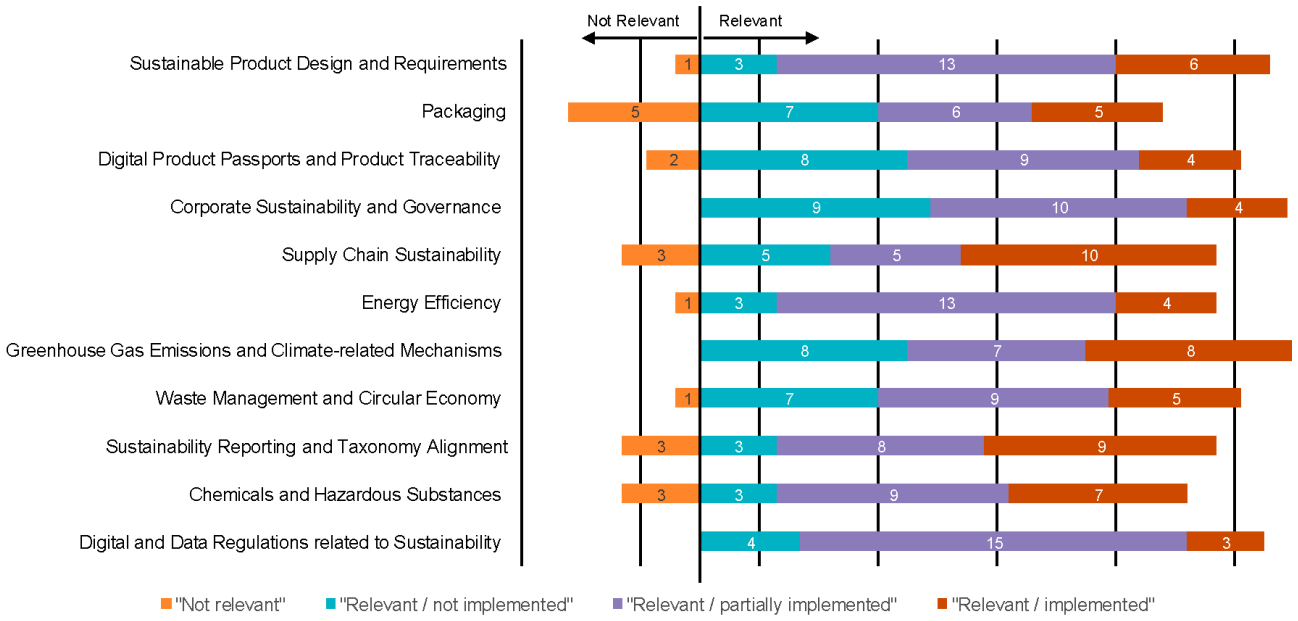

Figure 6: In which of the following areas are sustainability regulations relevant to your company, and to what extent have corresponding measures been implemented?

The following dominated in response to the question regarding the three most important sustainability standards or initiatives (Figure 7: Key sustainability standards and initiatives).
The most frequently cited standards were:

- CSRD (Corporate Sustainability Reporting Directive)
- ESRS (European Sustainability Reporting Standards)
- ISO 14001, ISO 50001, ISO 26000
- REACH, Eco Design, DPP / Digital Product Passport
- Industry- and region-specific requirements, e.g. JEA, UNECE for Life Cycle Assessment (LCA)



Figure 7: Key sustainability standards and initiatives

Evaluation of the relevance and implementation of different methods and technologies indicates a high overall level of implementation but also significant implementation gaps. On average:

- 3,92 % „Not relevant" (Ø 0,92)
- 29,00 % „Relevant / not implemented" (Ø 6,67)
- 45,33 % „Relevant / partially implemented" (Ø 10,42)
- 18,42 % „Relevant / implemented" (Ø 4,25)

This means that although a large majority considers methods such as LCA, simulation, quantification of environmental information, supply chain assessments and data spaces to be relevant, only 18% have been fully implemented.

This indicates that although companies already have a clear idea of relevant methods, many are still in the pilot or early rollout phases.

Responses to the question about current use of digital tools in sustainability management yields show the following average picture:

- 6,7 % „Not relevant for managing Sustainability" (Ø 1,55)
- 40,3 % „Relevant but not used" (Ø 9,27)
- 53,0 % „Currently used" (Ø 12,18)

This indicates that digital tools are already being actively used by the majority (53 %). At the same time, the high rate of 40% shows that there is still substantial potential for broader implementation.

Worthy of note is the particularly large number of "Currently used" responses given to data spaces. This suggests that the need for cross-company data spaces for the purpose of fostering transparency and collaboration across company and supplier boundaries is being addressed. This high level of responses may also represent proof of concept (PoC) and pilot phases without necessarily implying that these tools are already in widespread, fully operational use.

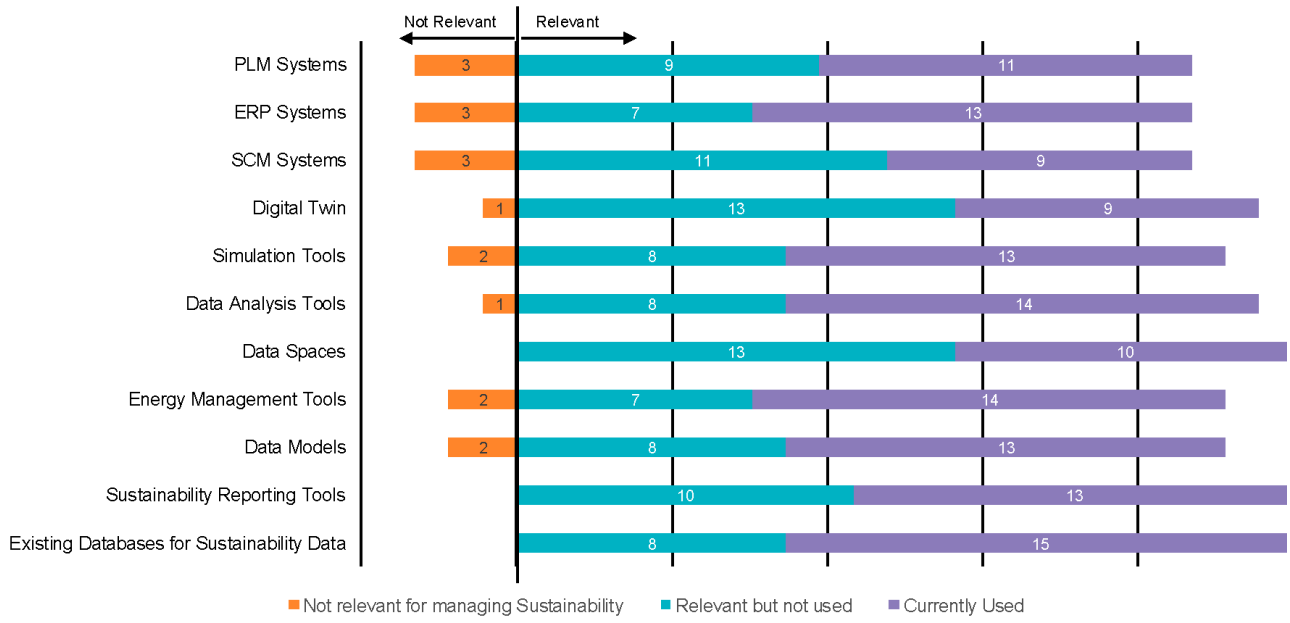

Figure 8: How do you assess the current use of the following digital tools and technologies for managing sustainability in your company?

The future relevance of digital technologies is almost always rated as very high. On average:

- 7,5 % „Not relevant" (Ø 1,73)
- 92,5 % „Anticipated importance in the next 3–5 years" (Ø 21,27)

This very high level of agreement indicates that digitalization is considered a key prerequisite for sustainability management, transparency and regulatory compliance. A significant increase in importance is expected for all the technologies surveyed – from PLM and ERP to data spaces and digital twins through to reporting tools.

3.1.4 Challenges faced when addressing sustainability

This section provides a summary of where companies see the biggest hurdles, which internal structures already exist and what support they prioritize in order to implement sustainability effectively.

Respondents were asked to rank a number of hurdles according to priority (Figure 9: What do you consider the biggest challenges in implementing sustainability within your company?). The results indicate that data is the main hurdle when it comes to implementing sustainability. In the ranking of the biggest hurdles, "insufficient data quality" takes first place (average rank Ø 3.73), closely followed by obtaining and validating sustainability data from external suppliers (Ø 4.05) and high implementation costs (Ø 4.10). Compliance with regulations and standards also ranks high (Ø 4.26), while integrating sustainability goals into existing processes constitutes a moderate challenge with an average rank of Ø 4.78. Resistance to change is on average viewed as the smallest hurdle (Ø 8.38). This ranking shows that companies are, in general, open to changes in the direction of sustainability; the biggest challenges when it comes to implementation are data quality, supplier integration, and the effort and cost involved.

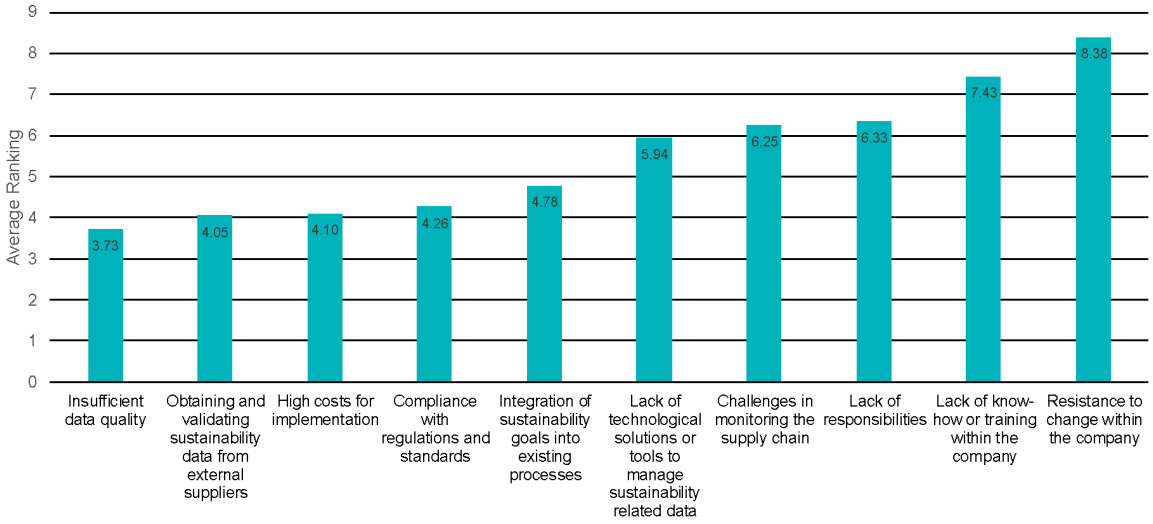

Figure 9: What do you consider the biggest challenges in implementing sustainability within your company?

When asked about the biggest challenges with regard to sustainability (Figure 10: In which areas do you see the biggest challenges related to sustainability?), the following picture emerged: In addition to data quality and verification (Ø 3.48), the concept/design phase (Ø 4.23) in particular is considered critical. Collaboration with external companies (Ø 4.29) is the third biggest challenge and provides confirmation that sustainability-related information often has to be consolidated across company boundaries. This indicates that sustainability must be taken into account as early as in the (product) development phase and that collaboration across company boundaries plays an important role.

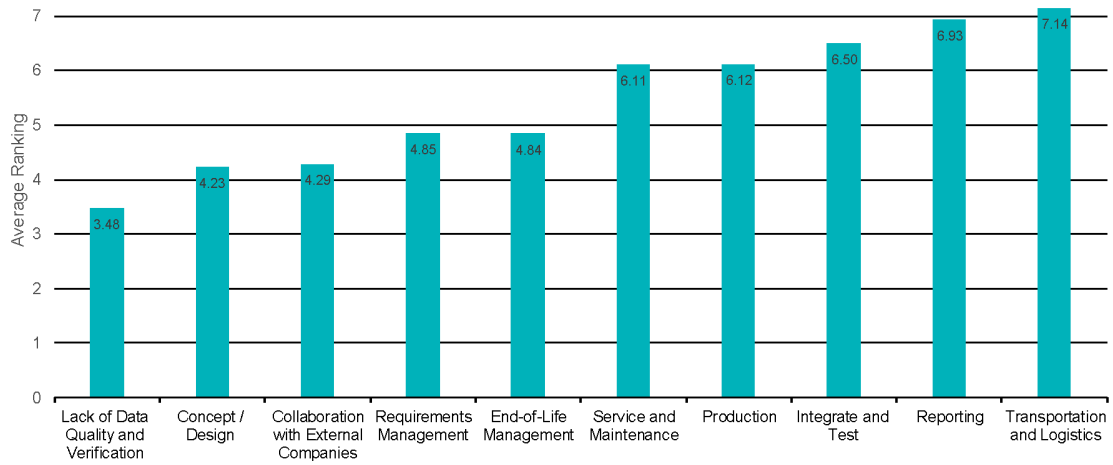

Figure 10: In which areas do you see the biggest challenges related to sustainability?

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the same time, key prerequisites are already in place. When asked about existing internal corporate structures and processes that support the implementation of sustainability, most respondents indicated that sustainability is already strategically embedded in their companies. This corresponds with the high level of relevance seen with regard to sustainability-related topics. The use of standards, IT systems/tools for support, clearly defined responsibilities and a high level of internal know-how were also frequently cited. Centralized data management systems, however, are currently used by only a small number of companies. In summary, strategic integration is already clearly evident in the companies surveyed, while centralized data management is rarely used to implement sustainability. Data models and interoperable IT architectures can provide support for compliance with regulatory requirements, reporting and operational improvements.

A similar picture emerges when asked about the support needed to implement necessary adjustments and be well prepared for future sustainability requirements. Most frequently cited was the need for greater cooperation with suppliers and partners (13 mentions), followed by the introduction of new technologies (12), guidelines and standards (12) and exchange of ideas and information with other companies (12). High priority was also given to collaboration platforms (10), process review and the development of metrics/monitoring (9 each), as well as data management systems for sustainability and training (8 each). The frequently cited needs and challenges from the previous question reveal similar subject areas: collaboration, technology/data management, standards and measurable KPIs.

3.1.5 Summary of the survey

The survey indicates that sustainability is already strategically embedded in most of the companies surveyed and will become even more important in the future. With regard to the relevance and implementation of regulatory requirements, EU-driven topics such as waste management and the circular economy, as well as digital and data regulations, are making visible progress in the context of implementation. Digital tools and methods are already being actively used to manage sustainability in many companies and, even if implementation has not yet been performed, are viewed as being highly relevant. Worthy of note is the strikingly high rate at which data room technologies are currently being used, which would indicate a need for cross-company transparency and collaboration. At the same time, it should be noted that the degree of implementation was not queried and that these initiatives may still be in the pilot or early implementation phases. Digital technologies will also continue to be considered of great importance in the future.

The biggest hurdles are data- and collaboration-driven. In the ranking of implementation hurdles, insufficient data quality and obtaining/validating of supplier data are at the top of the list. Most respondents consider the early phase of the product lifecycle – in particular the concept and design phase – one of the biggest challenges. At the same time, key prerequisites are already in place in the companies. In most cases, sustainability is incorporated in corporate strategy. Standards, IT systems/tools, clearly defined responsibilities, and a high level of internal know-how also already exist in most companies. Data management, however, remains a challenge. The need for support therefore focuses on greater cooperation with suppliers and partners, the introduction of new technologies, guidelines and standards, and the exchange of ideas and infromation with other companies. These priorities accurately reflect the previously mentioned hurdles and highlight the areas of action in which prostep ivip can create significant added value by its work on interoperability, standardization and ecosystem.

3.2 Taking a look back at the prostep ivip Sustainability Day 2025

On 3 December 2025, prostep ivip hosted a Sustainability Day in Darmstadt with the aim of promoting an exchange of information and ideas on sustainability-related topics across company boundaries. The event brought together experts from leading companies and representatives from the research community to discuss key issues related to sustainable transformation. Focus was placed on the shared understanding that sustainability has long been more than just a regulatory obligation. It is increasingly becoming a key value driver that speeds up innovation, increases cost efficiency and makes companies more resilient vis-à-vis market and supply chain risks. This perspective was confirmed by the introductory presentations in particular, which demonstrated how sustainability can be used as driver of competitiveness.

A key topic of the day was the importance of high-quality, interoperable and reliable data for any form of sustainable corporate management. Various speakers made it clear that many companies continue to struggle with fragmented data silos, incomplete information and the cost and effort involved in data acquisition. At the same time, it became apparent that companies are increasingly seeking clearly defined standards, harmonized data models and scalable technologies to ensure that they can get to grips with these challenges more efficiently in the future.

The invited speakers used practice-oriented use cases to illustrate how state-of-the-art digital technologies support this transformation. Schaeffler, for instance, demonstrated how standardizing data can lay the groundwork for the DPP. Siemens showed how digital twins can provide support for implementation of the DPP and circular strategies. AVL, for its part, explained how product-related data will in the future make robust ESRS reporting possible. TU Berlin complemented these perspectives by highlighting just how important it is to systematically formalize implicit design knowledge in order to support sustainable product-related decisions in the early phases of development.

The event also underscored the increasing relevance of collaborative ecosystems and cross-industry standardization. On the whole, the Sustainability Day demonstrated that sustainable transformation is most successful when technical innovation, data quality, organizational collaboration and regulatory clarity come together. The event offered those attending not only technical guidance but also concrete ideas for practical implementation – ranging from digital tools and standardization initiatives to cross-organizational exchange formats.



Figure 11: Sustainability Day

4 Summary and outlook

This white paper makes it clear that sustainability has become a strategic driver of industrial transformation across all industries. Companies are facing increasing regulatory, societal and economic pressure to make their environmental impacts transparent, comply with standards and develop products and processes that are more sustainable. At the same time, they are becoming more aware of the opportunities that sustainable value creation offers: greater efficiency, potential for innovation, resilience in global supply chains and better access to markets and investors.

An analysis of regulatory and methodological frameworks indicates that companies have to navigate a complex web of mandatory requirements (e.g. CSRD, ESRS) and voluntary standards (e.g. GRI, ISO). In addition, technical methods such as the PACT framework or industry-specific rulebooks such as the Catena-X PCF Rulebook are becoming increasingly important when it comes to generating and exchanging consistent sustainability data along the value chain. This development makes it clear that interoperability across company boundaries and robust digital data management are crucial for sustainable transformation.

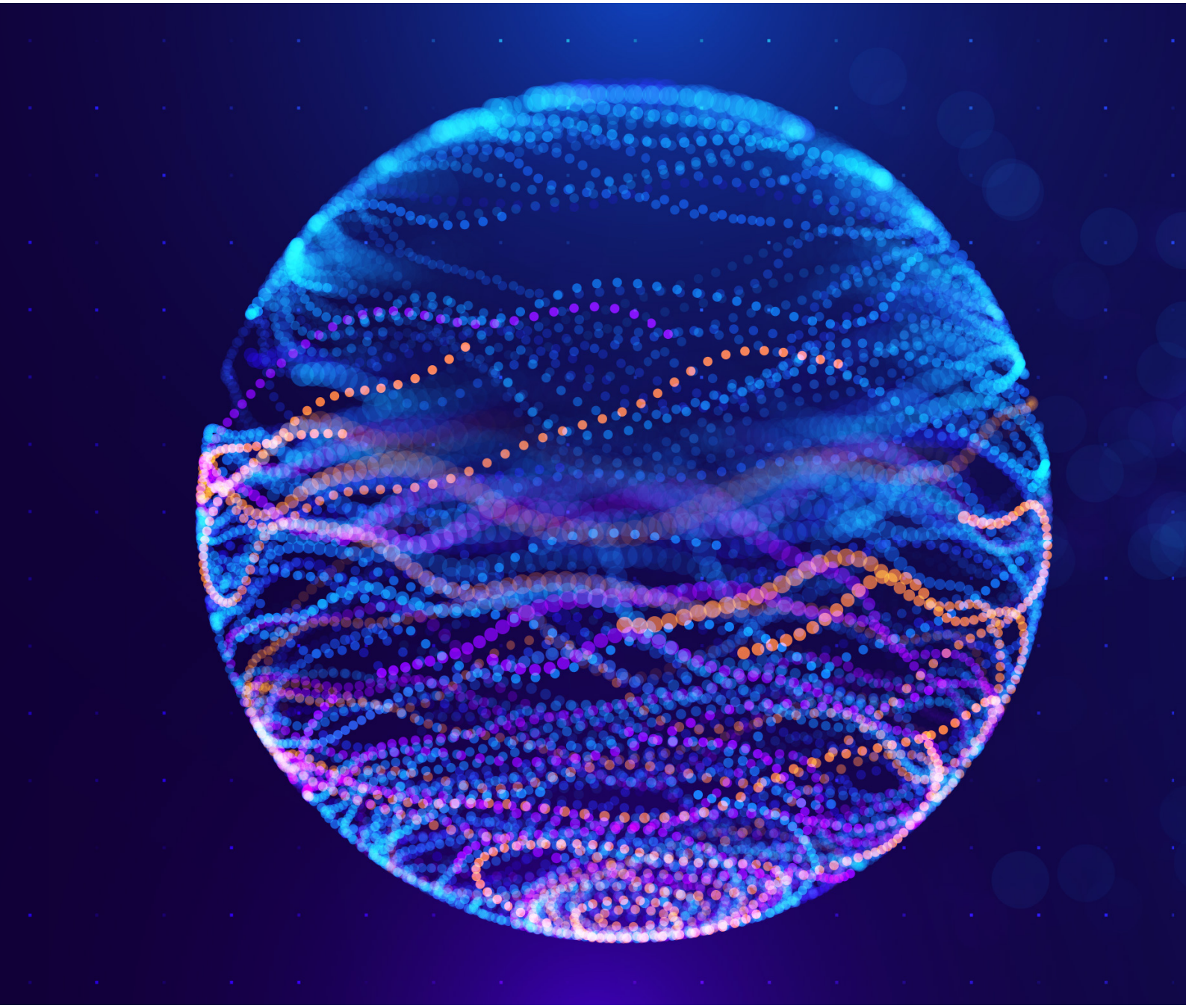
The survey conducted within the prostep ivip community paints a clear picture: sustainability is already highly relevant today and will become even more important in the future. Digital methods and tools are essential for meeting regulatory requirements and making data-based business decisions. Despite this awareness, however, there remains a significant gap between relevance and operational implementation. The quality, availability and interoperability of sustainability data – both internally and across supply chains – are considered major obstacles in this context. Incorporating sustainability early in the product lifecycle also poses a challenge. In the future, companies will have to place greater focus here if the selection of materials, circular economy strategies, repairability and end-of-life options are to be addressed systematically. Companies see a need for support, first and foremost, in closer collaboration with suppliers and partners, the introduction of new technologies, an exchange of information on best practices, and the development of harmonized standards.

The prostep ivip Sustainability Day 2025 was a first step toward promoting cross-company exchange and underscored the importance of cross-company collaboration. Practical examples from industry and the research community illustrate how digital technologies – such as the digital product passport, digital twins and standardized data models – are already bringing about measurable progress. At the same time, it became clear that the success of sustainable transformation depends on a variety of different factors, including reliable data, clearly defined standards, scalable digital solutions and collaboration networks.

This provides industry with a clearly defined operational framework. Sustainability should become an integral part of engineering and PLM architectures to an even greater extent. Standardized, interoperable data models are a key prerequisite for enabling regulatory compliance and circular value creation. In addition, companies must systematically expand their capabilities in the areas data quality, supplier integration and early-stage product development.

The prostep ivip Association and the SSB can provide support by continuing to drive standardization, interoperability and cross-industry collaboration forward. This will make a major contribution to designing sustainable, digitally supported industrial ecosystems, while at the same time laying the groundwork for sustainability not only as a regulatory obligation but also as a driver of innovation and a competitive advantage.

prostep IVIP



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