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Digitization of the product development process

Integration of VDA 231-300 in DIN SPEC 91383

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Digitalization of the product engineering process:

Integration of VDA 231-300 in DIN SPEC 91383

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Ongoing digitalization is having an impact on all areas of industrial production and, in particular, on the product engineering process. An important step in this context is the integration of VDA Recommendation 231-300 in DIN SPEC 91383 – a step towards a higher level of standardization and the digitalized future of the product engineering process. This makes an important contribution to increasing efficiency and shortening the time-to-market in the development/innovation process (not only) in the automotive industry.

Future-oriented standards and digitalization in the product engineering process (PEP)

VDA Recommendation 231-300, which was published by the German Automotive Industry Association (VDA), provides the foundation for standardized data exchange in the context of material sampling. Its integration in DIN SPEC 91383 puts this standard on a broader and more binding footing. The CAD-neutral JT data format, which is specified in accordance with ISO 14306, plays a key role here. This format makes it possible to clearly describe and embed material and surface requirements in 3D datasets, resulting in improved collaboration along the entire supply chain.

Importance of end-to-end digitalization for entry onto the market

End-to-end digitalization of the PEP is vital when it comes to increasing speed and innovative power for market entry. The precise and efficient exchange of data is essential in a global market in which development processes are often distributed across multiple companies and ever-more requirements need to be met. Increasing the level of digitalization also serves to improve transparency and traceability in the supply chain – also because of new environmental requirements for materials (e.g. proportion of secondary materials, recyclate, etc.). The use of digital tools and standards means that companies can ensure that everyone involved has access to the same, up-to-date information. This reduces errors and avoids misunderstandings, thus contributing to quality assurance.

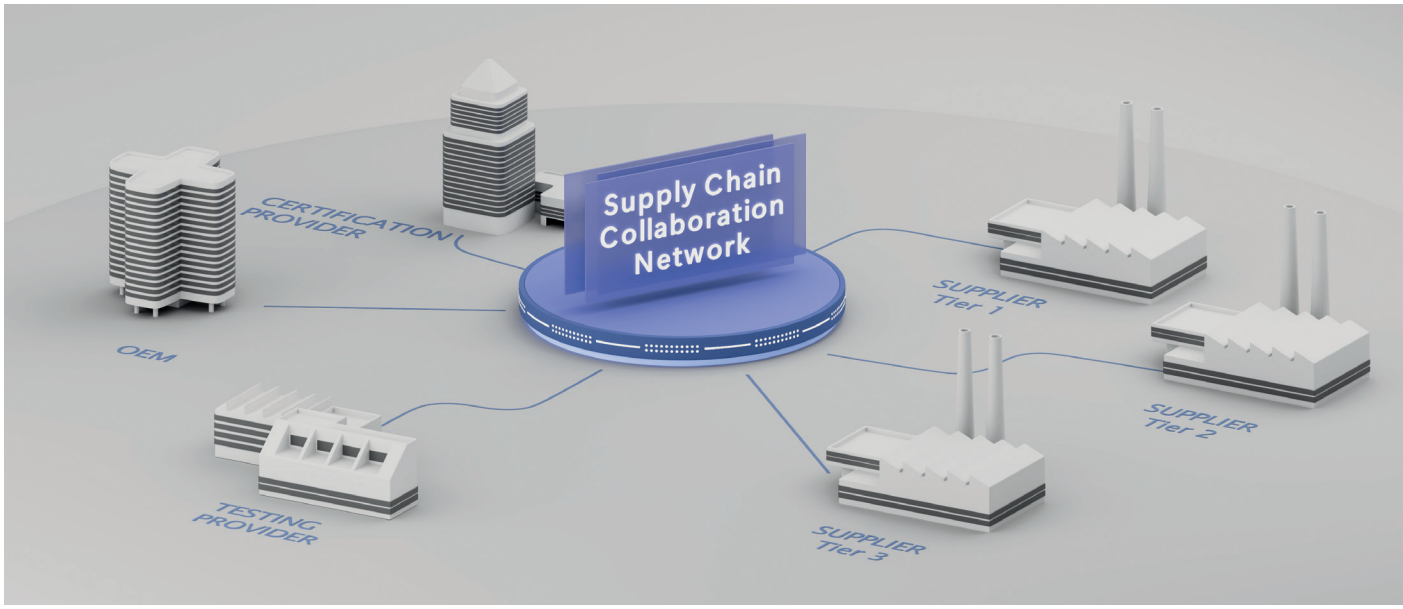

***Figure 1**: Supply chain collaboration networks standardize data exchange and support networking between all participants in the supply network*

Secure data exchange via industry cloud networks

The exchange of standardized data in the PEP ideally takes place via industry cloud networks that guarantee data security and integrity. These cloud software solutions provide a secure infrastructure for accessing and using material and product data. They make it possible those involved to communicate and exchange data productively and securely, which in turn increases the efficiency and quality of collaboration along the entire supply chain. Information from documents that are available in different file formats (e.g. pdf or xlsx), for example, is systematically digitalized to ensure that the data can be used securely via automated processes in other data exchange operations.

Practical application: material and surface information in the JT format

A concrete example of the application of VDA 231-300 is the coding of material and surface information in the JT format. This information is attached to the respective bodies in the 3D dataset as attributes and is thus available to all downstream processes. This makes both seamless integration and use of the data along the entire supply chain possible. A clear and concise use case is the exchange of material information and surface qualities as attributes in the JT format, which enables standardized and more efficient collaboration.

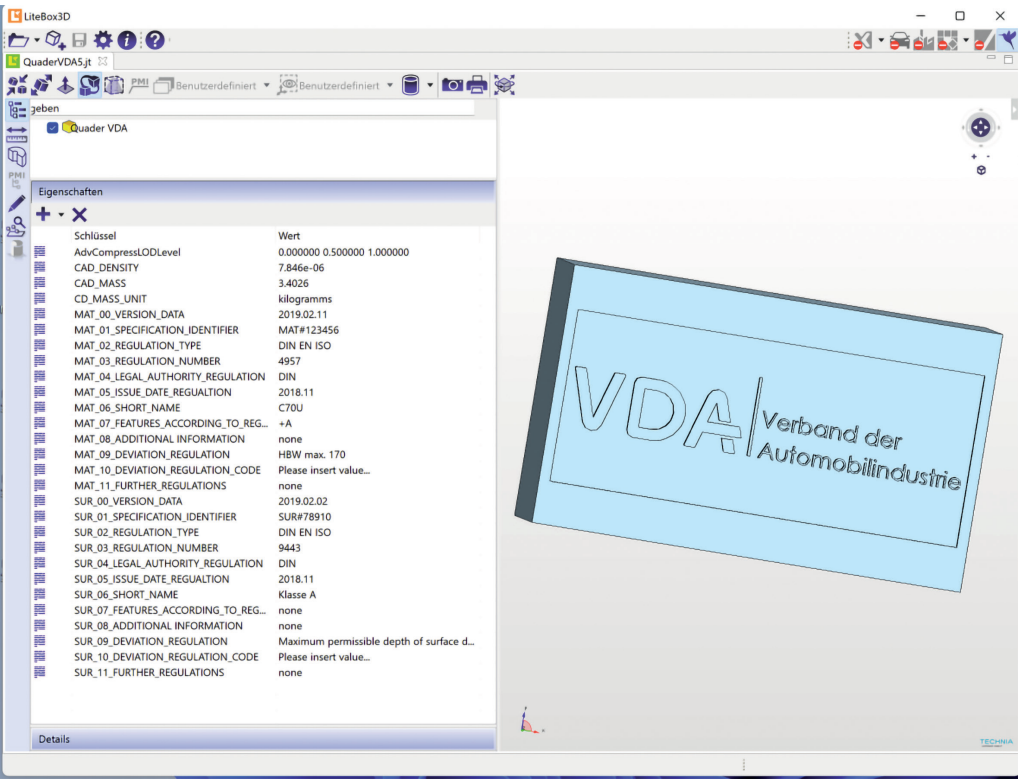

Figure 2: *Example of a property field in the JT ToGo Viewer*
Source: VDA

Standardizing material and surface information in JT files means that everyone involved in the supply chain has access to consistent and accurate data. This increases both effectiveness and accuracy in the development process and also ensures that the correct materials are used.

Use of material databases during development

Design engineers can access a material database containing standardized construction materials during development. This data is integrated in the JT file. The most important information however is the ID, which allows the dataset in the database to be identified. This ensures that everyone along in the supply chain has access to consistent and accurate information. This method promotes efficiency and accuracy in the development process. It also makes certain that the correct materials are used.

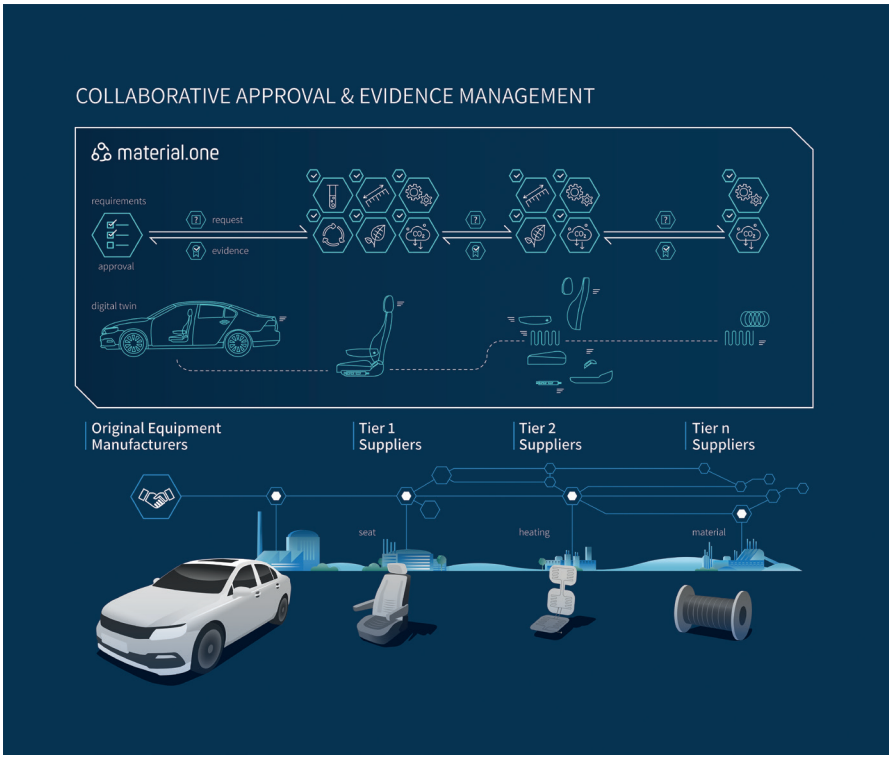

Figure 3: *Illustration of the process based on a supply chain collaboration platform*
Source: material.one AG; ©infografik.pro

Support for subcontractors and automated inspection plans

Subcontractors also benefit from this standardization, as they receive the information they need for planning and manufacturing the components. Access to the material database allows them to view the data required for the sampling and approval process. Ideally, the material database is connected to a requirements database for industry standards and the factory standard of the OEM. Cloud-based software platforms like material.one support this process by automatically creating Design Verification Plan and Reports (DVP&R) with detailed inspection plans. This concept works along the entire supply chain and also includes Testing, Inspection and Certification (TIC) service providers to ensure the integrity of the information. The integration of VDA 231-300 in DIN SPEC 91383 represents significant progress in the digitalization of the PEP. Standardization and digital data exchange not only increase efficiency and speed but also improve the quality and reliability of products along the entire supply chain.

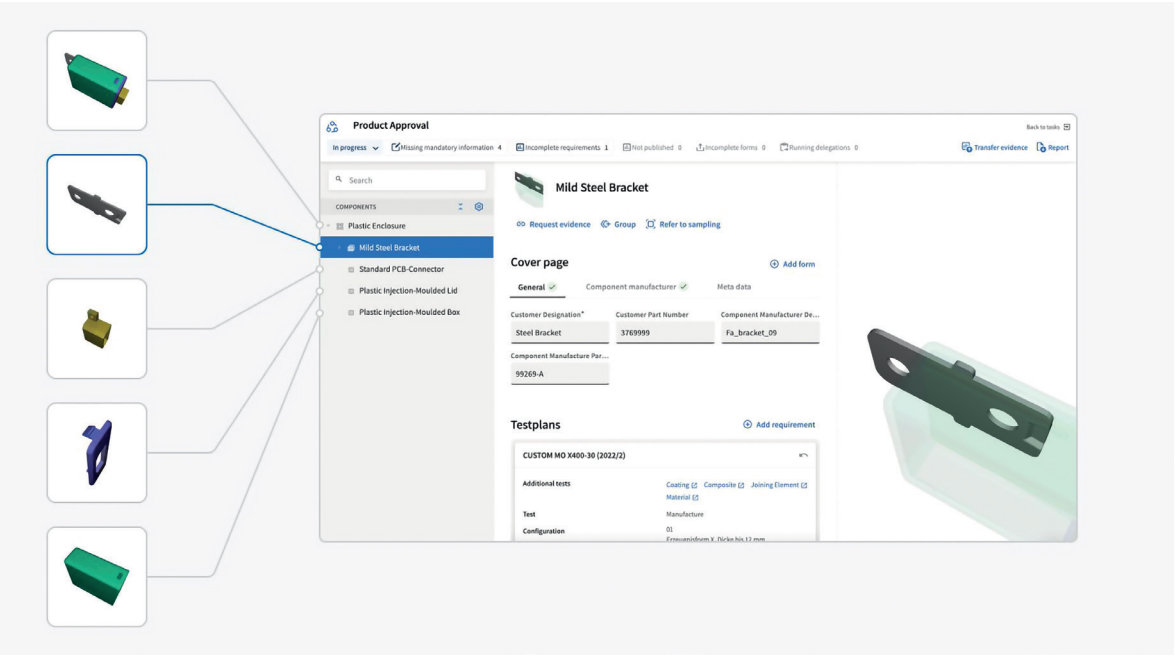

Figure 4: *Screenshot of the product release process in accordance with VDA 231-300: Components in tree structure with different inspection requirements*
Source: material.one AG

Conclusion

The integration of VDA 231-300 in DIN SPEC 91383 marks an important step forward in the digitalization and standardization of the PEP. The CAD-neutral JT data format enables the precise exchange of material and surface information, which significantly improves efficiency and quality along the supply chain.

Secure data exchange via industry cloud networks and the use of material databases enhance the consistency and accuracy of the information. Subcontractors benefit from standardization as it provides them with access to the information they need and automated inspection plans with the support of platforms like material.one.

Integration increases overall efficiency, quality and sustainability in the PEP and paves the way for an innovative and competitive future in the automotive industry.

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