

## Platform MaterialDigital – enabling the industrial material data space of the future.

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The unsustainable and conditionally reusable way of storing and handling data about materials has been identified by the materials science and engineering community as one of the major constraints for further qualitative growth in materials research and product design. The Initiative MaterialDigital was launched to enable and support a joint effort of MSE specialists from different materials domains and experts in semantic web technologies and IT architecture to explore and find the best digitisation approaches for materials data handling according to the FAIR (Findable, Accessible, Interoperable, and Reusable) principles. The MaterialDigital (PMD) platform aims to provide prototypical solutions for all the processes involved, including data acquisition, structuring, storage and processing. These different aspects are addressed within the platform's focus areas of IT architecture, semantic interoperability and workflows, and disseminated through the focus area community interaction working group. Achieving semantic interoperability of material data across different material domains in an industrial data space is the fundamental goal of the initiative. This is achieved through the development of an appropriate middle-level ontology [1]. The 13 academic-led MaterialDigital projects and 11 industry-led MaterialDigital projects cover a wide range of material domains in their research, from steel and copper to ceramics, semiconductors and rubber. This ensures that the digitisation approaches developed in the platform can be applied to any MSE challenge. The implementation of AI in digitalisation is a constant and important topic in all discussions and workshops of the platform. Some of the projects such as DIGITRUBBER, DiMad and AnAtAll are already developing and using AI in their material domain for different tasks. More information about the Platform MaterialDigital and the satellite projects can be found on our website [material-digital.de](http://material-digital.de). If you would like to contact us, please write to [info@material-digital.de](mailto:info@material-digital.de).

## References

- [1] Markus Schilling, Bernd Bayerlein, Philipp von Hartrott, Jörg Waitelonis, Henk Birkholz, Pedro Dolabella Portella, and Birgit Skrotzki, Advanced Engineering Materials, 2400138 (2024), DOI: 10.1002/adem.202400138.