

Don't Take Any Wooden Nickels: Smart and Sovereign Data Use for Sustainable Production in the Wood Industry from the Perspective of Higher Educational Institutions

by Thomas J. Lampoltshammer | Daniel Bachlechner | Lea M. Ranacher | University for Continuing Education Krems | Fraunhofer Austria Research GmbH | Wood K plus-Kompetenzzentrum Holz GmbH

The wood industry takes the role of a central economic sector in Austria. Within that sector, one faces an ambivalent situation. On the one side, wood from sustainably managed forests is of high importance concerning the transition towards a low carbon economy. On the other side, wood sourcing faces trade-offs between societal expectations towards nature conservation and reducing the use of fossil resources. Therefore, efficient use of wood resources and efficient processing is pivotal. In consequence, measures of optimization and efficiency increase are of high importance to the involved actors. However, optimization usually goes in hand with standardization, which stands diametrical to the high level of individualization and needs-based customization expected in major areas of the wood industry. In addition, the maturity level concerning the state of play of Industry 4.0 (I4.0), as well as data governance and data excellence, varies greatly between companies. Although the paradigm of I4.0 has been around for more than a decade and offers great potential for production and service-related value chains, its full potential in the sector of the wood industry is still to be exploited. It is exactly this area of tension where the exchange of best practices - both from science and industry - becomes crucial to the future success of the wood sector, as well as to the individual companies within it. This contribution thus discusses concepts of intelligent and sovereign data exchange within federated data ecosystems such as data circles and data spaces with relevance for the wood industry. It further demonstrates the importance of higher educational institutions as a sandbox environment for innovation and a platform for exchange via their postgraduate programs, addressing sustainable technology use for key aspects such as traceability, planning, control, and quality assurance in a sectoral and cross-sectoral context.

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