

Project SMARTChain: Steps towards digital integration in the NGO electrical steel value chain

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In line with the Clean Steel Partnership (CSP) Strategic Research and Innovation Agenda (SRIA)¹, digitalisation plays a strong role in enabling the carbon-neutral transition. Therefore, the optimal deployment of digitalisation, through an integrated approach across the steel value chain, is required. Within this framework, SMARTChain aims to advance digitalisation in the steel industry, taking process control and optimisation a step further. It supports horizontal integration in the steel value chain through secure data sharing and promotes interoperability of systems and tools. This enables higher quality of final and intermediate products, optimises energy consumption, and consequently reduces CO₂ emissions, contributing to the achievement of the EU climate neutrality goal².

In Use Case 2: NGO Electrical Steel Digital Passport, the steel value chain between SIJ Acroni, a steel producer, and Hidria, a steel user, is examined in terms of mechanical and electrical properties to enhance the quality of automotive components. Hidria uses NGO electrical steels from SIJ Acroni to manufacture stators and rotors for EV/HEV drivetrain applications in the automotive industry, employing the rapid stamping process. The software environment for the digital integration of the steel value chain, enabling data sharing both within and outside the steel plant, will be presented in detail. A robust software environment architecture has been designed, enabling regulated and secure data sharing through technologies such as IDS, DMP/DPP, and blockchain. The environments include the SMARTChain Platform for steelmakers and the SMARTChain platform for end users, as well as AI-based modules for holistic optimisation of the value chain, including LCA estimation.

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1. [CSP-SRIA-Oct2021-clean.pdf](#)
2. [SEAMLESS DIGITAL INTEGRATION IN STEEL VALUE CHAIN FOR HIGH QUALITY FINAL PRODUCTS | SMARTChain | Project | Fact Sheet | HORIZON | CORDIS | European Commission](#)