A platform KoKoBahn facilitates simple and cost-efficient electronic data exchange between seaports and actors involved in intra-port and hinterland-related railway transport. All communication partners send their data from their system via existing standardised interfaces to a common platform. There, first, all data destined for the recipients’ systems are checked whether the transaction partners communicate using the same data format. If this is not the case, the data will be transformed into XML format and converted coherently from XML into the data format accepted by the recipient(s). Lastly, the converted data are distributed to the recipient(s).

Benefits
- Financially: Increased company profitability
- Economically: Increased efficiency/productivity of logistics processes, ideal utilisation of infrastructure
- in the field of services: Increased competitiveness and quality services
- Benefits for the society: Safety and security
- Environmental benefits: Reduced emissions, Limited climate change
- Support of SME/advancement of competition in the railway sector

Success factors
- costly definitions of interfaces can be avoided
- systems in use can be continued to be used without any modifications
- new communication partners can be easily integrated
- option of changing/modernising the IT structure of one partner without affecting the communication partners
- high level of data security
- validation function enabling to put a request for missing data
- possibility to subscribe services
- simple, flexible and sustainable (future-oriented) data exchange

Supported strategic targets
- Ideal utilisation of infrastructure
- Competitive logistics
- Highest safety and security
- Increased efficiency
- Increased company profitability
- Increased competitiveness
- Increased quality
- Increased safety and security
- Equal access to information
- Limited climate change
- Reduced emissions
- Conservation of resources
- Support of SME, advancement of competition in the railway sector

What was the main problem, idea or motivation that led to the development and introduction of the new practice?
Discussions had in the ports community revealed that there was a careless and incorrect flow of information between the seaports and their hinterland. There used to be insufficient linkage of transport planning and operational data among terminals, port railways and the connecting German and European rail network. The ICT systems required to achieve this were either not available or could not cope with the requirements.

What was the common practice before the implementation?
Notices that are exchanged in the context of railway operations in German seaports and their hinterland were not communicated real-time and processed differently by the ports and railway companies involved. Data and data formats were not harmonised throughout ports, terminals, and railway undertakings. Friction occurred in the transport-related information flow, requiring manual intervention (re-entry or formatting of data). This wasted personnel resources and increased the risk of errors.

What was the purpose and the sustainability objective of the case?
The task of the KoKoBahn project was to develop a platform for electronic communication and standardised data exchange concerning railway traffic in and between the German seaports and their hinterland.

Solution
KoKoBahn improves the B2B communication and, thus, the engagement in hinterland transport by rail. The involvement of (smaller) private railway undertakings in automatic data transfer increases competition in the sector, making the hinterland traffic by rail generally more attractive to shippers.
KoKoBahn caters for the dialogue between different systems, providing distribution and translation. The platform is capable of splitting messages and/or sending messages to one or more recipients. For the user, this results in one interface to many partners for various types of messages. The purpose is the secure, real time and detailed communication of rail-relevant data in form of services and formats, in order to gain synergy effects and more efficiency at railway companies and railway customers, especially at SME (including private railway undertakings), to enable them to make use of railway transport services to/from the seaports. A web application for the entry, administration and sending of vehicle dispatch cards was developed.

KoKoBahn is based on a Service Oriented Architecture (SOA). Enterprise Service Bus (ESB) formed the technical basis for the realisation. It serves as the loose coupling of heterogeneous IT systems.

The components of the ESB (and the KoKoBahn demonstrator) are:
• Connectors: ‘binding components’ for transport protocol conversion;
• Converters: Transformers of data formats into/from XML;
• Validation: Check of the syntax of ingoing messages (whether it is correct)
• User management: Based upon publish–subscribe messaging pattern.
• Routing: Forwarding to the recipient(s);
• Accounting: Auditing of accounts for message services;
• Logging: monitoring of all data flow.

List the relevant transport modes or supply chain elements
• rail transport

Main actors involved
• Railway undertakings,
• rail infrastructure operators,
• sea port operators,
• terminal operators,
• (intermodal) transport operators,
• railway transport users (shippers)

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