

# MATERIAL TRACKING

**HKM** Hüttenwerke Krupp Mannesmann GmbH



## SITUATION

HKM is an integrated steel plant, specializing in the production of steel and raw materials for the processing industry. Their production location in Germany runs 24 hours a day, 7 days a week, 52 weeks a year. Since, the blast furnace can not be cooled down under 60 % of the operation heat, the delivery of raw materials needs to be punctual. This in-time supply is not easy to guarantee, especially with a railway network of over 300 kilometres. Having transparency over the whole process by knowing the state and position of the trains within each production step is very crucial to HKM and necessary for an accurate production planning.

## Solution

To increase the logistic transparency and guarantee precise delivery of raw materials like ore and carbon to the blast furnace, 7iD Technologies installed an innovative material tracking solution consisting of 80 read points and 130 tagged wagons and trains. This IoT infrastructure, together with GPS sensors on every train let HKM exactly know where their wagons are. Together with information about quantity, type and loading



## KEY BENEFITS

- Increased logistics transparency
- Higher efficiency due to perfect planning
- Quality increase thanks to reliable RFID components

of the wagons, one system stores all necessary and available data. This knowledge and an intelligent planning visualisation tool build the fundament to master the demanding challenges within the steel industry.



One of the difficulties during the installation was to make sure, that trains are identified on the right lanes. Due to a huge railway network, a very small distance between the rails as well as metal surfaces around the reading points, algorithms to qualify the read events are necessary to guarantee data accuracy.



Another important factor of the solution is the selection heat and dirt resistant components. Tags as well as antennas in the close environment of the blast furnace will get covered with mud and face high temperatures. Both factors influence the quality of RFID technology and need to be considered, especially if an industry demands 99,9 % read rate. Finding solutions in such harsh environments and understanding those physics influencing factors is our USP.

## COMPONENTS

- 7iD's IoT DIP Platform™
- 130 tagged wagons
- RFID gates distributed over 300 km railway network
- GPS sensor on every railway locomotive and GPS ground station
- Tailor-made business processes
- Combination of IoT read events with GPS
- Data Interface to SAP



**tagged for success.**



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