In order to increase automation level in rail-yard processes (wagon shunting), VR Transpoint implemented a RFID system. Other objectives were to improve wagon tracking and maintenance, and the use of railway network sensor technology, as well as to increase customer service with real time wagon traceability information.

**Benefits:**
- Improved maintenance: more detailed information, faster repair process
- Improved safety: better detection of damages
- Decreased manual work
- Increased operational efficiency
- Reduced operational costs (hundreds of man years)
- Better customer service: increased wagon availability, information directly to customer’s system in real time

**Starting Point/Objectives/Motivation:**
VR had economic and operational challenges, such as competitive freight pricing, maximizing asset utilization, and controlling capital expenditure levels. Increased automation level of logistics processes using RFID technology was seen as an enabler to improve revenue growth and operational efficiency.

Before the implementation, managers at individual sites assigned tasks to the employees at those locations with pen and paper. Also walkie-talkies and faxes were used and data was entered manually to ERP system.

The purpose was to improve asset management and customer service.

The solution includes:
- Over 10 000 RFID tags on wagons and locomotives,
- 10/100 (VR Transpoint/Finnish Transport Agency) fixed railroad reader unit for wagon detection
- 350 RFID handhelds with mobile network connection to read and transfer the wagons’ RFID information to the backend
- Vilant Train Analyzer Server for data analysis
- Vilant Device Manager for monitoring and configuration
- Asset Tracking software
- Integration to wheel defect measuring device
The system is used in 50 rail-yards for wagon shunting, train composition, work task lists, brake weight calculations, defect reporting (reporting new defects / reading lists of known defects). Defect detection includes wagon axle health data measurement and wheels monitoring for defects with special sensors. Technology includes durable (IP68) EPC Gen 2 passive ultrahigh-frequency (UHF) RFID tag (Confidex Ironside™) with GS1 Global Individual Asset identifier (GIAI) encoding, PRS based and durable (IP 65) handheld RFID readers by Psion, Workabout PRO, with Vilant’s software and Vilant Client in hand helds for shunting yard working.

Vilant’s fixed Railroad Reader Units are capable of reading RFID tagged wagons on the move from several meters and giving real time information such as list of train wagons passing, their speed, direction and orientation and also controlling train washing machine. The information from readers is transferred to VR Transpoint’s Operations management system using Vilant’s Device Manager and Asset Tracking software. Vilant Train Analyzer Server is used for data analysis and tag health checking. The solution can be transferred to other domains where identification of vehicles is needed with some modifications. Standards used in the solution are global and can also be used in other locations.

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