Camunda BPM at DB Cargo

- Optimization of European rail freight transport
- International communication via digitized processes
- Process orchestration as enabler for European booking platform for single wagonload traffic

The Background

DB Cargo AG is the most productive freight railway in Europe with 4,520 trains running per day. Located in the heart of the dense Central European rail network in Frankfurt am Main, DB Cargo provides Europe-wide rail transport for business customers from all sectors. One of the biggest challenges in long-distance, cross-border traffic is fulfilling the transport of cargo reliably and on schedule. To guarantee this, DB Cargo is part of the European production alliance Xrail which optimizes cross-border interoperability through the means of a central broker and agreed on process models.

The Xrail production alliance consists of the seven freight railways DB Cargo (Germany), Rail Cargo Group (Austria), CFL Cargo (Luxembourg), Green Cargo (Sweden), LINEAS (Belgium),

SBB Cargo (Switzerland) and Fret SNCF (France) with the goal of establishing a capacity-tested network for international single wagonload traffic. The IT system Transport Chain and Service Management (TSM) serves as a platform for connecting DB Cargo to Xrail Capacity Booking.

DB Systel GmbH supports the development and integration of this module into the existing system landscape of DB Cargo as a technical partner. Accelerated Solutions – Accso – GmbH, a Camunda partner and BPM expert, supports the process automation with the Camunda Process Engine which forms the basis of TSM.

The following interview was conducted with DB Cargo project manager Guido Adolphi, responsible for connecting DB Cargo to Xrail Capacity Booking.

The Challenge

"As part of the digitization program, DB Cargo is introducing the capacity checked network. This is intended to have a sustainable impact on the attractiveness of single wagonload transport for customers. The core of this project is the introduction of a new capacity management system which forms the foundation for both national and international transport. With this in mind, an architectural approach was initially chosen to connect DB Cargo to the Xrail production alliance. DB Cargo's IT architecture was connected to the central Xrail broker and each system had to be individually linked to that central broker. As a result, the business logic and technical functions required for the Xrail processes would have to be distributed across all involved systems, resulting in increased complexity in regard to service orchestration and

transformation functionalities. This seemed to be very inefficient and would have caused negative effects on further development of DB Cargo's business logic."

Why Camunda BPM?

"The findings mentioned above revealed the need for a central orchestration component to ensure that the Xrail business logic can be integrated efficiently and with reduced complexity into DB Cargo's systems. This orchestration component is implemented by the new TSM system.

During the selection process of a platform for service orchestration, the following requirements among others were deciding factors:

- Flexible integration with legacy systems and fast adaptability to changing conditions.
- Compliance with SLAs for high availability (99.98%) and response time behavior.
- Visible execution of business processes for functional and technical monitoring.

Initial market research revealed two potential candidates for consideration as workflow engines for DB Cargo. When choosing Camunda as the implementation platform, the decisive factor was that the workflow engine can be embedded in the TSM application. In addition, Camunda is a lightweight BPMN solution which can be integrated with common and widely used development tools."

The Implementation

"TSM is a central system component that is used to decouple order management from capacity management and provide the technical interface to the Xrail Broker. The Camunda platform forms the basis for these ambitions and enables DB Cargo to react efficiently to changing conditions even during the course of the project.

Since 2015, DB Cargo and its technical partner DB Systel have executed development projects with agile working methods to ensure the capability of continuous delivery. This goal was also supported by the decision to operate TSM in the cloud. The synergy of cloud

operations, ranging from scalability and high availability to the pay-per-use payment model are complemented by the use of Camunda's workflow and decision engine."

The Impact

"The basic functionalities of TSM will be tested in pilot phases with the other Xrail members. The Camunda Cockpit application included in the Camunda Enterprise Platform has proven to be a valuable tool for efficient analyses.

The service offered is well rounded because of the fast support by Camunda and the exchange of experiences within the Camunda community.

Camunda is a driving force for DB Cargo in the realm of digitalization as process automation and the information obtained during process execution supports continuous process optimization. In the future, there will be extensions to the business logic that require adjustments of the system landscape and Camunda enables DB Cargo to meet current and future challenges efficiently."