



Bombardier Transportation Better Processes For Better Software

Case Study Transportation

Rewriting the book on software development and gaining the accolade: ‘Best Practice’

Company: Bombardier Transportation

Country: Switzerland, Germany, Italy

Sector: Transportation

Business Challenges: Restructure and implement a more robust software development process following dynamic requirement needs, platform strategy and demanding safety norms

Consulting Services: Engineering Efficiency, Change Management

Capabilities: Innovation

Client Quote: *“Thanks to the active support of Celerant Consulting we are now in a much better position to collect measurable and honest data from the organisation, as well as to build more structure and transparency to make decisions based on facts.”*
Director, Product Engineering

Situation

Bombardier Transportation is the global leader in rail technology, a sector of rapid development. The Locomotives business unit is recognised in the market for its wide range of locomotives in operation and its capacity for innovation. Functionalities that used to be carried out mechanically or electrically are now performed by hardware and software. This has led to improved functionalities and flexibility, but also to the false impression that software can be adapted at the last minute to add extra requirements. The company also has to constantly improve its software, so structured development processes are essential, not just for quality, but for increasing normative demands for homologation. Celerant Consulting was appointed to analyse the way the business unit Locomotives developed its software and identify the root causes of quality gaps, over runs and delays. Then, based on the analysis, we were asked to set-up and drive an improvement programme.

Approach & Delivery

Celerant Consulting’s analysis quickly highlighted the fact that the different software development stakeholders had different interpretations of the current development process, and that requirement entry points and go/no-go decision making points weren’t always followed. So there was an urgent need for a commonly agreed, transparent process supported by standardised document templates. Aided by cross-functional teams from all locomotive development stakeholders, a Celerant-Bombardier Taskforce revised existing procedures and developed a commonly shared and accepted Gate Review Process with checkpoints, detailed deliverables

checklists and defined roles and responsibilities. A solid management system for software development (MCRS®) was developed which included a MS Project planning process, project status KPIs to aid management decision making and a revised meeting structure focused on effectiveness and efficiency. A pilot project was then selected to test and fine-tune the developed methodologies.

Celerant Consulting’s unique Closework® approach was used to further improve the new processes by incorporating first-time user feedback and before roll-out across all projects, a training plan was implemented with more than 130 people trained at different sites. Each project team was also supported by the Celerant-Bombardier Taskforce.

Results

The entire set of new processes and supporting materials has been consolidated in a Software Engineering Process & Management Handbook which is now considered best practice at Bombardier. A short version is also available on each engineer’s desk as a Pocket Guide.

Increased process transparency has improved organisation wide acceptance of go/no-go decision points and has also reduced the number of software requirements being identified at a late stage of the development process.

The new processes, which are fully compliant with European regulation (EN5012X), ensure on time provision of high quality software, strengthening Bombardier’s position in the market.

Celerant Consulting also helped to apply the same principles in a subsequent systems development improvement project.