

*All thoughts must be distilled into action and action that brings results.*

# Rewriting the book

*When Bombardier Transportation wanted to improve its software development processes, Celerant Consulting was brought in to help write the definitive handbook.*

**'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.

**B**ombardier Transportation is the global leader in rail technology, a sector that's growing rapidly as functionalities that used to be carried out mechanically or electrically are now performed by software and hardware. This has led to improved functionalities and flexibility, but also to the false impression that all software can be adapted at the last minute to add extra requirements.

The company is also constantly improving its software, so structured development processes are absolutely essential, not just for quality, but for the increasing normative demands for homologation. As a result, Celerant Consulting was appointed to analyse the way that Bombardier Transportation developed software and identify the root causes of over runs and delays.

### Checkpoints and decision points

Celerant's analysis quickly highlighted the fact that each software development stakeholder had a different interpretation of the current development process, so requirement entry points and Go/No-Go decision points weren't always being followed. An agreed, transparent, common process with a standardised document template was urgently needed.

### BEST PRACTICE RESULTS

- All new processes and supporting materials have been consolidated into a **Software Engineering Process & Management Handbook** which is now considered best practice at Bombardier. A short version is also on every engineer's desk as a Pocket Guide.
- Increased process transparency has improved organisation wide acceptance of Go/No-Go decision making points and reduced the number of software requirements being identified late in 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.

Working in partnership with cross-functional teams from all the main software development stakeholders, a Celerant-Bombardier Transportation Taskforce revised existing procedures and developed a commonly shared and accepted Gate Review Process, with checkpoints, detailed deliverables checklists and defined roles and responsibilities.

### Improving through Closework® feedback

A solid software development MCRS® Management System was also developed which included a 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 everything. Celerant also used its unique Closework® approach to further improve the new processes by incorporating first-time user feedback. Then, before roll-out across all projects, a training plan was implemented and more than 130 people trained at sites in Switzerland, Germany and Italy. Each project team was also supported by the Celerant-Client Taskforce during the initial application phase. ■