



SMART
ENGINEERING

Engineering – smart engineering – is indispensable to the constantly evolving systems, products and applications we build. The lifecycle of engineering systems and software is expanding with more and more stakeholders, more roles in development, deployment, manufacturing and operations, extending further back into design and further forward into operations. We need to bridge the gaps in the lifecycle with solutions in analytics, business with a social objective, agility and scalability. We must also be aware of the growing tendency of the blurring border between data and engineering that is due to behaviour data dependent systems. Simulation and software engineering provide cost-effective, time-reducing options. The open source business model complements other business models that coexist to sustain the tools and services market as a promising way to disseminate and exploit results, provided the ecosystem is sufficiently structured and sustained. We need smart engineering solutions to remain globally competitive by continuously improving performance, reducing costs and boosting quality, security and safety in a value chain that is becoming ever more complex.



Some facts and figures

- Today, high-end cars can have more than 10 million lines of code, and aircraft engine controls incorporate several thousand input and output parameters. [22]
 - The security of a software-intensive system is directly related to the quality of its software. Over 90% of software security incidents are caused by attackers exploiting known software defects. Analysis of 45 e-business applications showed that 70% of security defects were design defects. [23]
 - The take-up of agile development methods over recent years has seen an increase in success rates compared with traditional waterfall projects, with 39% successful projects (against 11% for waterfall) and fewer outright failures (9% against 29%). [24]
- According to Gartner, open source relational database management systems (OSDBMSs) have matured significantly over the years. They predict that by 2018, more than 70% of new in-house applications will be developed on an OSDBMS and that 50% of existing commercial relational database management system instances will have been converted or will be in process. [25]

Imagine ...

Imagine being the master of software development and continuously improving the efficiency, knowing we can forecast the user needs on the basis of his present pain points.

Imagine a team of developers from different countries working cooperatively 24/7 creating substantial software with continuous integration that allows automatic testing every day and deployment in the hand of the end users and getting immediate feedback from these end users every week. Being able to continuously adapt the specifications on the basis of actual user feedback. A secure, resilient world of engineering that enables the engineer to concentrate on the engineering challenge without worrying about the operational issues of using the various engineering tools and the interfaces between them.

Imagine what is possible when we dare to dream, when we reach for the stars in a galaxy full of opportunities ...

