Case Study

Basic Data

Subject: Outsourcing of an ongoing embedded system development project from an automotive safety equipment vendor to Ericpol as the external supplier

Industry: M2M, Automotive

Service: Outsourcing/Embedded System Development

Customer: Autoliv Electronics

Location: France, Sweden, Poland

Timeframe: 2006 - 2008

Tools and Technology: ANSI C, MKS, DOORS, CodeWarrior, CanCase, Canoe, RealViewARM, QAC, Polyspace, Coverity, VisualState, uATB, MISRA-C, uCOS, openAT

Case Description

Part 1 – Customer Benefits

- Customer was able to finalize behind-schedule project without penalty from the end customer
- Despite huge initial delays at the start of the outsourcing process, product was delivered on time, according to specifications and within budget
- Customer gained software development process expertise
- Customer put its key resources to best use in hardware R&D
- Customer gained innovation as Ericpol initiated a number of process and product improvements. Examples: Software project methodology, SW robustness and scalability, fault visibility, better communication flow, cross-team competency backup, flexible resource allocation
- The business case for the new embedded system was significantly improved due to the design task shift from Sweden to Poland, resulting in lower total costs of solution

Part 2 – Challenge

In 2004, Europe’s second largest car manufacturer opened a tender for a contract to develop a black box car safety device. The main functionality of such a black box device is to summon the emergency service in case of an accident, providing the exact position and state of the car in order to facilitate the emergency operation. In addition it may perform many other Telematics functions, such as remote diagnostic testing of the car, aiding navigation, facilitating car rescue services, etc.

The contract was won by Autoliv Electronics, and since Autoliv’s competencies were mostly in hardware design progress was satisfactory in the initial part of the project. However, when the project reached software development stage in 2006, insufficient expertise in software system development began giving rise to problems, resulting in large delays to the project.
Initially, Autoliv turned to Ericpol seeking an expert in software testing to augment their staff. After being extremely satisfied with his performance, the Swedish development team was further augmented with 5 Polish engineers. At that time, the project was 6 months behind schedule, over budget and plagued by numerous problems. Our team fought hard to bring the project back on track. Impressed by the progress the Ericpol team made, Autoliv decided to outsource the entire software development of their embedded system to the Ericpol office in Lodz. In the summer of 2006, the Polish development team reached full capacity with a staff of 15 engineers.

Other very important challenge faced by Autoliv was to cope with the high pressure for cost reduction due to a severe crisis in the automotive industry. Therefore, lowering the total cost of solution was critical to the customer, going hand-in-hand with a necessity to increase project performance. In addition, as multiple subcontracting parties were involved in hardware and low level design, close and comprehensive cooperation among all teams and the end customer was required.

**Part 3 – Responding to the challenge**

The largest challenge of the project was to improve the project performance and address communication needs. From the organizational point of view, 2 subprojects coexisted: one hardware (HW) subproject carried out by Autoliv and one software subproject (SW) which Ericpol was responsible for. Software development was run in Poland, but Ericpol assigned a local coordinator from its Swedish office in Linköping to work within its customer organization in order to ensure close cooperation between all the involved parties. Since on the hardware (HW) side there were a number of third-party subcontractors responsible for various subsystems, system integrators and other consultants, the scope of responsibility had to be clarified and escalation paths firmly set.

Gradually Ericpol introduced process improvements to aid information flow between software and hardware projects, and to increase productivity. Agile/SCRUM methodology proved a perfect fit, enabling the pace of development to be picked up. Information flow improved due to the introduction of appropriate key persons into the project structure (Technical Coordinator, Sub Project Manager, Quality Manager). Direct contact between Ericpol engineers with the end customer was introduced to shorten escalation loops, remove communication bottlenecks and serve as proof of competence, and this worked to the benefit of everyone.

As a result of these efforts, the project was finalized within the originally assumed timeframe and final product hit the market window in time. The success of Ericpol’s team was reflected in Autoliv’s continuing to team up with on Telematics projects for another 2 years. After the conclusion of the SW development project, Autoliv outsourced to Ericpol the support and maintenance of the embedded system. This arrangement remains in force to date and includes: bug fixing, functionality updates, corrective and maintenance releases. Concurrently, the next generation of the safety system is being developed in another joint project of Ericpol and Autoliv.

Our customer was able to outsource 85% of the gross volume of product development activities to the Polish office, which resulted in an immediate 45% cost reduction, allowing Autoliv to improve its business case, fulfilling contract obligations and securing prospective revenues.