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More Clout in the Paradigm Shift

The classic Start of Production (SOP) belongs to the past. The vehicle becomes part of the Internet of Things that need to be kept up-to-date also when sold. But the current E/E architecture with dozens of ECUs communicating is not flexible enough for that, and the overall software complexity can hardly be managed anymore.

The solution is known: Service-oriented software architectures using high-performance computing platforms, cyber-secure and with the ability to be updated and upgraded Over-the-Air (OTA) are on the roadmap of many OEMs.

But the challenge lies in the implementation: new thinking, new structures and new processes are needed. Organizational structures therefore need to be adopted to initiate change. Courage is needed to counterbalance current hardware-centric thinking by establishing a strong software-focused development organization – maybe even on board level.

Consequences need to be accepted: Upfront investments must be planned to realize platforms based on common standards: Objective is to decouple the development of new functions and features and vehicle projects. That requires also to decouple platform development and maintenance as much as possible from its first use – from a timing, organizational and financial perspective.

This approach has been a good practice for decades in engine development. New engines are typically developed independent

from new vehicles and deployed only in already launched cars to minimize risks.

Creating a powerful software development unit with organizational freedom is needed: To do that, during the last two years some OEMs did take over software engineering centers which were not needed anymore by the semiconductor and technology companies because of changed strategies. By establishing own organizational units on “arms lengths” to the core engineering center, a nucleus for change with enough critical mass is created.

In a next step, also customer relevant functions can be continuously developed in a “Software Factory” and deployed through OTA updates. Blueprint is the DevOps model, in which development engineers also take operational responsibility for the release and deployment of series software code.

Keeping the organization “on-board”: A clear migration path for the existing organization is necessary to provide attractive perspectives and chances for the employees working in current, classical electronics projects. Organizational and processual changes are not only needed in engineering, but also in purchasing, sales, production and controlling to establish a software centric working mode.

By doing so, the connected vehicle becomes a so-called mobile device on wheels – and the classic SOP becomes “Release 1.0.”