

Before considering tools it is essential to have a handle on

Vector Consulting, with its eASEE product, is offering a complete tool environment for managing and controlling engineering business processes. The software is capable of organizing all of the processes and product data for software and electronic systems over their entire product life cycle. ATZ elektronik magazine spoke with Dr. Thomas Beck, CEO of Vector Informatik and Vector Consulting GmbH, about development processes in developing automotive electronics and about the advantages of eASEE (pronounced: “easy”).



Dr. Thomas Beck, CEO of Vector Informatik GmbH and Vector Consulting GmbH

ATZ elektronik: Dr. Beck, what are the typical issues that arise in the development process for automotive electronics?

Beck: First a distinction should be made between two subject areas here. They are the engineering process on the one hand, and the management process on the other.

The engineering process is concerned with mastering technical complexity, i.e. the interaction of electronic components that are evolving into increasingly comprehensive systems, e.g. driver assistance systems, ACC, lane keeping systems, etc. These systems offer great challenges to automotive manufacturers.

In the context of management processes the primary concern is with planning and control of engineering, such as in project planning and tracking. However, improved communication between producers and suppliers and the challenge of continually bringing new products to market faster and more efficiently are also requirements of the management process. When one examines the methods, processes and organizational forms with which the automotive industry has typically operated, the writing was already on the wall several years ago: Manufacturers and suppliers had to improve their system development capabilities enormously to even be able to develop complex networked electronic systems and to thereby remain competitive. If you look into large corporations today, you will see that extensive programs are being started everywhere to improve development processes and enhance quality.

ATZ elektronik: What does eASEE contribute in this context, and how are development tools linked to it?

Beck: Vector has set up a team that works intensively in consultation services related to development processes. These are specialists who together with customers, i.e. OEMs and Tier-1 suppliers, analyze and optimize their development processes. Before considering the tools to be used, it is necessary to have a handle on the process level first – i.e. to understand and document it.

A tool like eASEE can help to firmly embed processes in the organization in a lasting way. This protects investments made in process improvement projects. eASEE supports all technical processes in an organization, such as configuration management, change request management, project management and product life cycle management. Our tool handles all of an organization’s data storage needs. To some extent this makes eASEE a backbone that offers certain functionalities, and engineering tools dock to this system. Examples of such tools are: Doors, our DaVinci tool, Ascet SD and Matlab Simulink.

ATZ elektronik: What does the intelligence look like for linking these useful data that originate from very different sources?

Beck: eASEE has various modules: Engineering Data, Workflows, Process and Project Management and Strategic Project Planning. This means that we also offer Engineering-Data Management. This module provides the necessary logic for linking different documents and data. The documents are embedded in a coherent corporate data structure, and rela-

tionships are established between them – according to pre-defined processes. The questions addressed here are always process-related. Supplemental logic is required for data that are relevant to mechanical design. Such data are integrated into the system in the form of customizing.

A data structure might represent a vehicle configuration for a passenger car or heavy truck, for example. Data it contains might belong to the Engine Management System, Gateway, or Transmission System; in the specific control module these data extend deeper into the software, into functionality, to the CAN message level or to the model level, for example a Matlab Simulink model. As an analogy, one might picture a well-organized drawing cabinet containing all of the elements that make up the vehicle.

ATZ elektronik: How is eASEE implemented at your customers?

Beck: The prerequisite for meaningful use of such a product is that the customer must have already defined its processes internally. If that is not the case, the customer cannot even start to use eASEE. In introducing the product to a company it is unimportant whether we perform the service or another consultation firm handles it. In principle, potential collaborative partners not only include large corporations like IBM, but also small companies who are specialists in this area. Once processes have been clearly defined, the product must be “customized” to the processes. Vector already offers prepared solutions here that can be adapted to a customer’s needs.

ATZ elektronik: Sometimes it is not so simple to introduce new processes. What has your experience been in this area?

Beck: In projects that we performed recently, management stood clearly behind process development. The bottom line is that engineers too are upset when they cannot find documents or when cooperative work efforts do not succeed. The climate for processes has been transformed in recent years based on this fact. Good organizational development means addressing both sides. It must be a Win-Win situation for management and engineers. To cite another example: At all times the engineer has the opportunity to observe in eASEE, the workflow process has taken to date as well as the current

status of the process. After all, the purpose of such a system is to produce transparency. To use an example: eASEE is like a corset that should be supportive but not restrictive.

ATZ elektronik: Let’s take a recent example like AUTOSAR: What role does eASEE play here?

Beck: AUTOSAR defines a great deal of information. Essentially you must differentiate two levels: The base software, CAN networking, LIN networking, etc. on the one hand, and above these the so-called AUTOSAR software components that specify how a function such as exterior lighting control or interior lighting control must be described. It is precisely this information that must be managed. The AUTOSAR data backbone accomplishes this, in this case eASEE. By the way, one of our next development goals is to offer a standard environment that mirrors the AUTOSAR data model and development process. AUTOSAR takes the complexity of the development process to a yet higher level, making eASEE that much more beneficial.

Author:

Dr. Thomas Beck studies Electrical Engineering to 1986; doctorate degree in 1992; began business career in various positions at Bosch and ETAS; from 1997 to 2000 CEO of the ETAS Group; and since 2001 partner and CEO of Vector Informatik GmbH and Vector Consulting GmbH