# Model Based Improvement of Development Processes

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## Abstract

Today's cars are mechatronic systems with high complexity. Up to 70 microcontrollers are used and connected by local networks in a car. The trend to increase functionality (and thus complexity) is ongoing. It is accepted that up to 80 % of future innovation is driven by software, which imposes additional requirements from the customer perspective on safety, reliability and quality, all together on a high level. Moreover, managing costs for providing the increased functionality with the increased requirements is an omnipresent topic. An important and central approach to master this business challenge is the focus on the development processes, which have to be mastered and optimized in a permanent activity. In the mid nineties Bosch started to work with model based process improvement in the domain of software development. Reports in the software community lead to the hope, that following this approach would enable meeting the business challenges mentioned above.

This presentation describes the Capability Maturity Model Integrated (CMMI) with respect to the components of the model, the maturity levels and assessment methods and mastering process improvement. It has been found in practice, that model based improvement is capable of providing a direction for improvement activities and connects to business goals. The effectiveness of process improvement was measured on the basis of improvement in these goals. Subsequent to the success in adopting CMMI for software development, a few business lines are adopting CMMI to other domains like electronic engineering and ASIC development. The final part of this presentation gives an outline about fitting and interpreting CMMI in these domains and focusing towards systems.

## Curriculum Vitae

Willy Reiss is a department leader at the Corporate Research and Development of BOSCH. He has extensive experience in model based software development, process improvement and development infrastructure supporting business goals. He was born in 1957 and has studied electronic engineering at the University of Stuttgart. He joined Bosch in 1987.