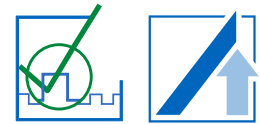# Elaboration of Hardware and Software Target Measures for a Quality Metric System for Automation and Automotive

Lehrstuhl für Automatisierung und Informationssysteme
Technische Universität München
Prof. Dr.-Ing. Birgit Vogel-Heuser

Research Gap:

Technical debt (TD) comprises constructs that offer fast gains yet induce additional system expenses in the long run. Not only is this phenomenon restricted to software systems, mechatronic systems as well suffer from TD incidents and the induced lack of efficiency. Technical Debt Management exists in software engineering, however, they are only applicable to a certain degree to mechatronic systems. In the age of I4.0, we aim to develop a TDM-System for the automated analysis of TD characteristics in the industry.

Research Goal:

The goal of this thesis is the in-depth investigation of target measures in the product life cycle of mechatronic products. We focus on the two domains, automotive and automation, to create an overview of target measures and KPIs for Technical Debt Management. Furthermore, the investigation of existing tools and guidelines is necessary. The scope of work includes the definition and assessment of necessary criteria, the investigation of their metrics, and the connection to existing use case and TD data.

Requirement:

- A precise and structured approach to work
- Creativity and reliability
- Good German/English skills

In case of interest, please send your curriculum vitae and current grade transcripts to the contact below.
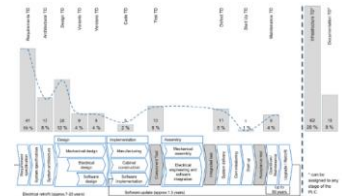

Fig. 6. Distribution of the number of classified TD types – sorted in the order of the mechatronic life cycle.

Fandi Bi, M.Sc.

Tel.: +49 (0) 89 / 289 16445
E-Mail: fandi.bi@tum.de