

The specialization Software Engineering

- Prof. Dr.-Ing. Peter Liggesmeyer *, apl-Prof. Dr.-Ing. Mario Trapp **:
Software Engineering: Dependability
- Prof. Dr. Ralf Hinze:
Programming Languages
- Prof. Dr. Arnd Poetzsch-Heffter***:
Software Technology; currently being offered by Dr. Annette Bieniusa
- Many lecturers from Fraunhofer IESE

* Executive director of Fraunhofer IESE

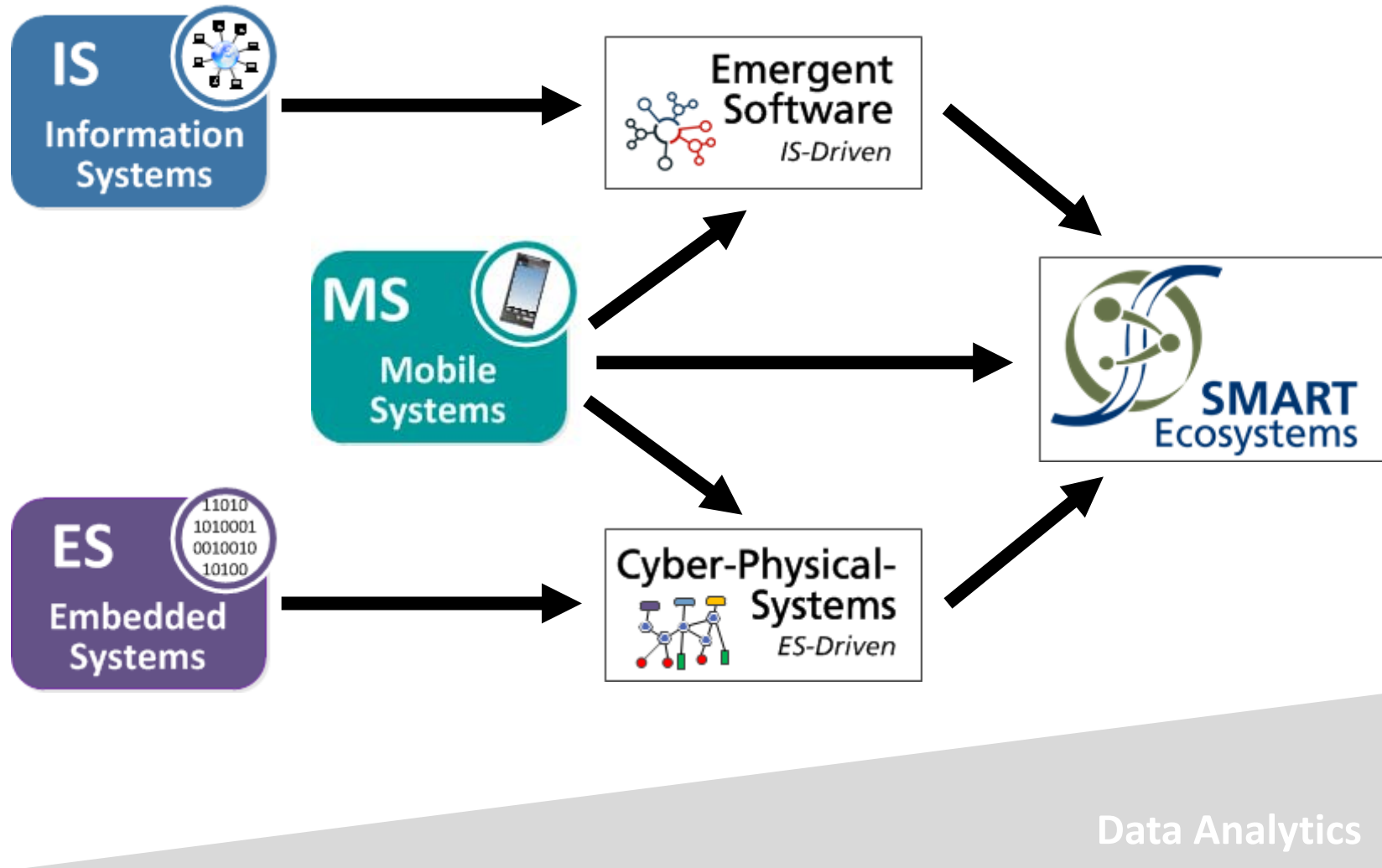
** Acting executive director of Fraunhofer ESK, Munich

*** Vice president for research at TUK

Why Software Engineering?

- ❑ Software Engineering provides many facets => Techniques, methods, processes, management
- ❑ Software Engineering influences every domain (e.g., banking, insurance companies, automotive, aerospace, medical, automation,)
- ❑ Software Engineering is a discipline in computer science, that always needed more workforce than available (more open positions than applicants)
- ❑ Software Engineering is international
- ❑ The market for Software Engineers ist still growing => good career opportunities

Future systems: Smart Ecosystems



The Software Engineering Chairs

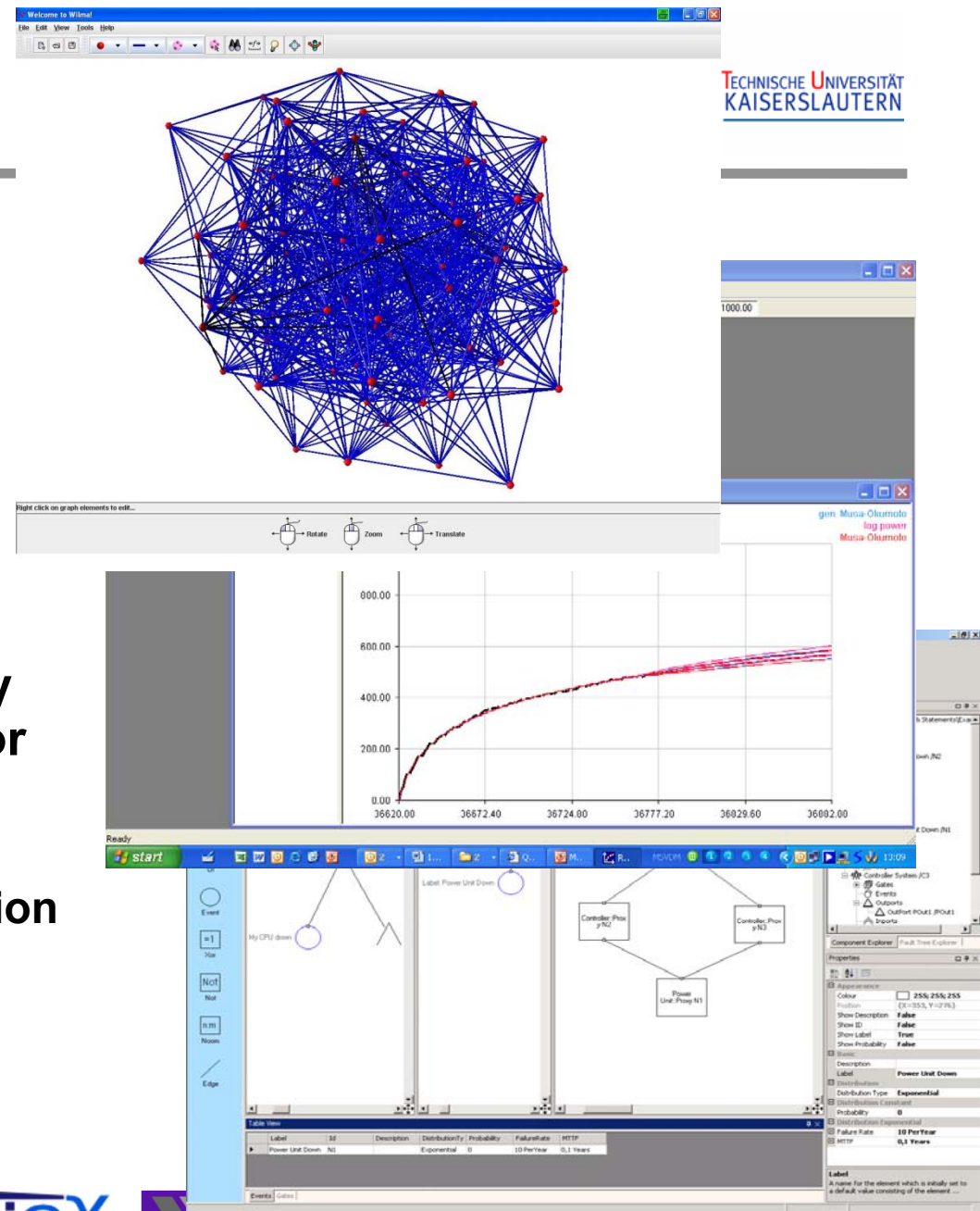
- Software has to have specific properties (e.g., safety, availability) => Quality assurance:
Software Engineering: Dependability
- Definition and processing of software => Models, techniques and tools:
Software Technology
- Writing software requires appropriate programming languages =>
Programming Languages

Software Engineering: Dependability (Prof. Liggesmeyer)

- Software Engineering for technical systems (Cyber-physical systems)
- Safety, reliability, availability

**Research topic:
Development and quality assurance techniques for safety-critical systems**

=> Assessment and reduction of risks



Research topics

- Object oriented and component based programming
 - Component models and their integration
 - Parallel and distributed programming
- Modeling and generation of software
 - Software modeling on higher abstraction levels
 - Domain specific models
 - Generation of efficient code based on models
- Specification and verification of software properties
 - Specification and Verification languages and tools
 - Dynamic property checking

The specialization Software Engineering

Prof. Dr.-Ing. Liggesmeyer, Prof. Dr. Poetzsch-Heffter, Prof. Dr. Hinze, Dr. Bieniusa and Lectures from Fraunhofer IESE

Software Engineering: Dependability (seda)	Fraunhofer IESE
Prof. Dr. Liggesmeyer	
Kontakt: C. Frey, frey@informatik.uni-kl.de, http://seda.cs.uni-kl.de	

- Modellierung, B, 2V+1Ü, SS (D), *Liggesmeyer*
- Foundations of Software Engineering (FSE), B/M, 2V+1Ü, SS (E), *Lig.*
- Safety and Reliability of Embedded Systems (SRES), B/M, 2V+1Ü, WS (E), *Lig.*
- Software Quality Assurance (SQA), M, 2V+1Ü, every 2. WS (E), *Liggesmeyer*
- Quality Management of Software and Systems (QMSS), M, 2V+1Ü, every 2. WS (E), *Liggesmeyer*

Programming Languages (AGPL) / Software Technology (softech) Prof. Dr. Hinze / Prof. Dr. Poetzsch-Heffter / Dr. Annette Bieniusa
Kontakt: J. Stengel, stengel@informatik.uni-kl.de, https://pl.cs.uni-kl.de

- Grundlagen der Programmierung, B, 4V+4Ü, WS (D), *Hinze*
- Programmierpraktikum, B, 2P, SS (D), *Hinze*
- Training für Programmierwettbewerbe, B, 2S, SS(D) unregelmäßig, *Bieniusa*
- Funktionale Programmierung, M, 4V+2Ü, SS (D, ggf. E), *Hinze*
- Compiler and Language Processing Tools, 3V + 3Ü, WS (E), *Bieniusa*
- Programming Distributed Systems, 3V+3Ü, SS (E), *Bieniusa*
- Replication and Consistency, 2V+1S, WS (E), *Bieniusa*
- Programmieren in C, B(Hörer anderer FBs), 2V+2Ü, SS (D), *Bieniusa*
- Programmieren in Anwendungen, B(Hörer anderer FBs), 2V + 2Ü, SS (D), *Bieniusa*
- Programmierprojekt, B (Hörer anderer FBs), 2P, SS (D), *Bieniusa*

- Empirical Model Building & Methods, M, 2V+1Ü, SS (E), *Jedlitschka*
- Bus Systems, M, 2V+1Ü, WS (E), *Kuhn*
- Requirements Engineering, M(Inform.), B(SoziInform.), 2V+1Ü, WS (E), *Dörr*
- Einführung in die Sozioinformatik, B(SoziInform.), 2V+1Ü, WS (D), *Dörr et al.*
- Process Modeling, M, 2V+1Ü, SS (E), *Heidrich*
- Software Project and Process Management, M, 2V+1Ü, SS (E), *Heidrich*
- System and Software Architecture, M, 2V+1Ü, SS (E), *Oliviera*
- Automotive Software Engineering, M, 2V+1Ü, SS (E), *Trapp*
- Product Line Engineering, M, 2V+1Ü, WS (E), *Becker*
- Projekt Agile Methoden, B(SoziInform.), 2P, SS (D), *Dörr*

Common offers

- Projekt, B/M, 4P, WS/SS (D/E), *all*
- Bachelor-/Masterseminar, B/M, 2S, WS/SS (D/E), *all*
- Bachelor-/Masterarbeiten, B/M, (D/E), *all*

