



Self-driving a Car with Fraunhofer and Planck: University – Industry Interaction in Germany

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Outline

1. Scientific societies in Germany
2. R&D Organization at SDA / EIS departments in Bonn
3. Funding opportunities
4. Collaboration with business



Scientific Societies in Germany

- Leibniz Association
 - Interdisciplinary research



Scientific Societies in Germany



- Leibniz Association
 - Interdisciplinary research
- Helmholtz Association of German Research Centres
 - Physics, energy, biomedical research



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 - Physics, energy, biomedical research
- Max Planck Society
 - Basic sciences, fundamental research





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- Fraunhofer Society
 - Applied research





Leibniz Association



- Interdisciplinary research
- 91 research institutes
- Employees: ~18 700
 - Foreigners: ~2 500
 - Scientists: ~9 500
 - Women: ~10 000
- Budget (2017): €1.7 billion
 - 80% - public funds
 - 20% - contracts with business



Source: <https://www.inp-greifswald.de/en/about-us/leibniz-association/>



Helmholtz Association

- Physics, energy, biomedical research
- 18 research institutes
- Employees: ~38 700
 - Foreigners: ~7 500
- Budget (2017): €4.5 billion
 - 70% - public funds
 - 30% - contracts with business



HELMHOLTZ
| ASSOCIATION



Source: <https://www.helmholtz.de/ueber-uns/helmholtz-zentren/>



Max Planck Society



MAX-PLANCK-GESELLSCHAFT

- Basic sciences, fundamental research
- 84 research institutes
- Employees: ~23 000
 - Foreigners: ~11 000
 - Scientists: ~14 000
 - Women: ~ 10 000
- Budget (2017): €1.8 billion
 - 70% - public funds
 - 30% - contracts with business



Source https://www.mpg.de/institutes_map



Fraunhofer Society



Fraunhofer

- Applied research (MP3!)
- 72 research institutes
- Employees: ~25 000
 - Grads, undergrads: ~ 6 500
 - Scientists, engineers, administrative: ~ 17 500
- Budget (2017): €2.3 billion
 - 70% - contracts with business
 - 30% - state funding



Source: <https://www.fraunhofer.de/>



Fraunhofer Society Worldwide



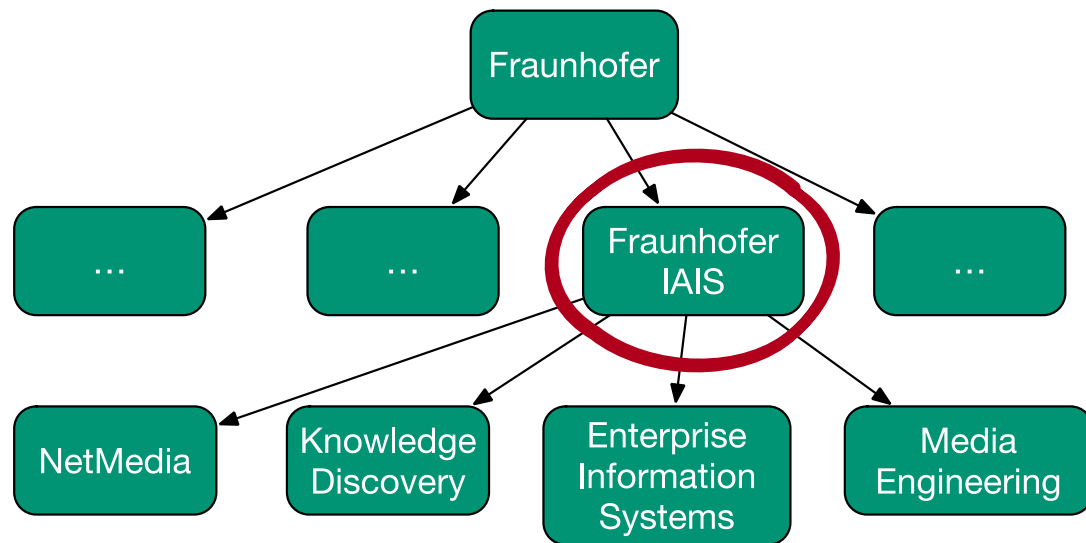
Source: <https://www.fraunhofer.de/>



Fraunhofer Institute for Intelligent Analysis and Information Systems (IAIS)

IAIS Research scope:

- Artificial Intelligence
- Data Science
- Cognitive Robotics
- Multimedia Pattern Recognition
- Semantic Technologies & Linked Data

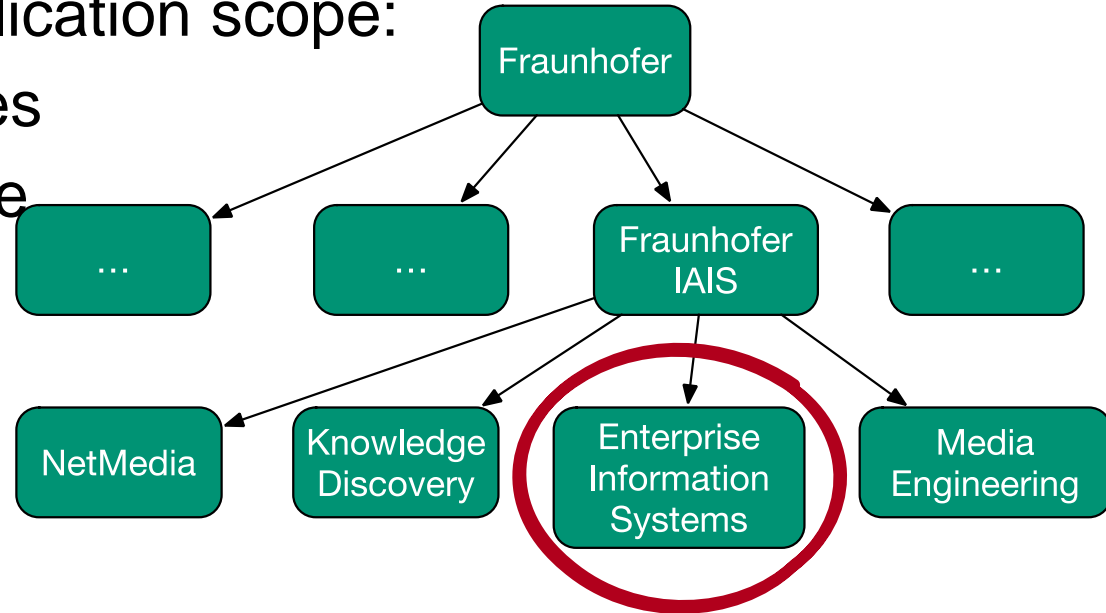




Enterprise Information Systems (EIS)

EIS Research and Application scope:

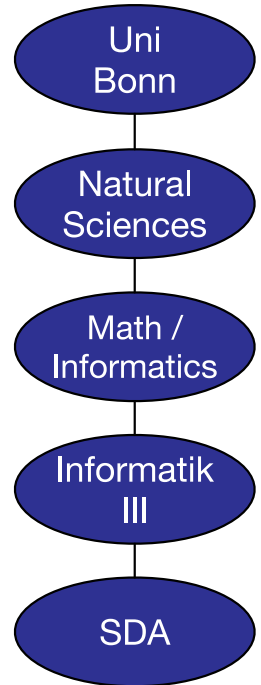
- Semantic Technologies
- Enterprise Architecture & Data Integration
- Industry 4.0
- Smart Cities





Smart Data Analytics @ Uni Bonn

- Research department @ Uni Bonn
- Offers AI courses:
 - Deep Learning
 - Semantic technologies
- > 300 enrolled students each semester
- > 20 MSc students supervised in 2017



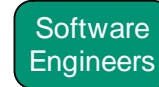
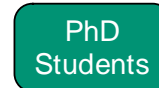
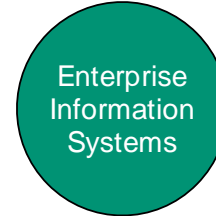
Research – SDA @ Uni Bonn

Industrial Implementation of Research Achievements – EIS @ Fraunhofer



R&D at SDA / EIS

Fraunhofer IAIS



- 1 Professor
- 1 Assistant Professor
- 6 Software Engineers
- 4 Business Developers
- 7 Industrial projects (2017)
- 107% Contractual funding



Activities:

- EU Research
- Industrial Contracts
- Customer Interaction

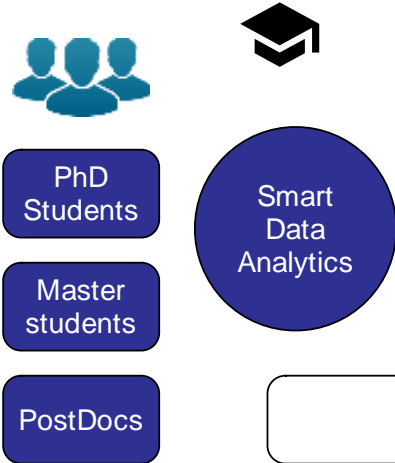


R&D at SDA / EIS

2017 achievements:

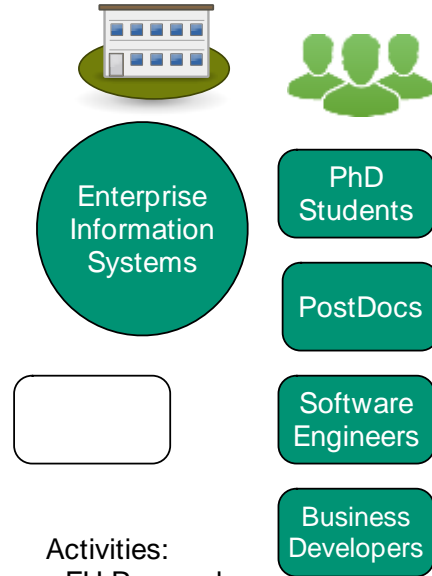
- 15 PostDocs
- 41 PhD Students
- 11 MSc Students
- 46 published papers
- 10 awards
- >3000 citations

University of Bonn



- Activities:
- Teaching
 - Supervision
 - EU Research projects

Fraunhofer IAIS



- Activities:
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 - Industrial Contracts
 - Customer Interaction

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Funding Opportunities

SDA @
Uni Bonn

EU
Grants

BMBF
& DFG
Project
s

Short-term research
projects (3-12 months)

Tailored Task Force for
specific tasks

- Long-term research projects (3 - 4 years)
- Consortium of universities and companies

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Industrial
contracts

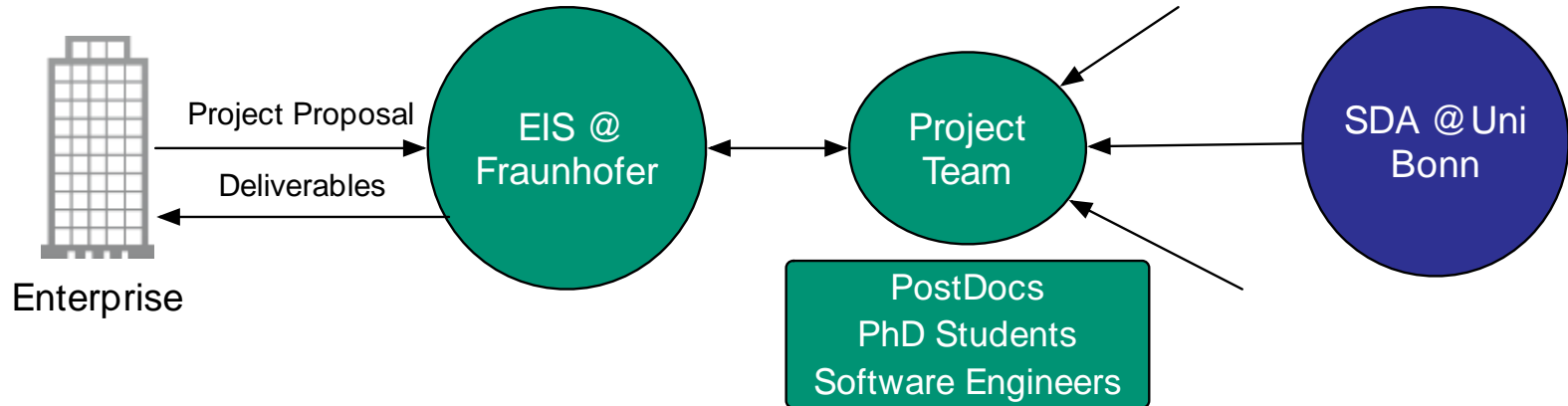
EIS @
Fraunhofer

- > 70% of the budget
- Mid-tem projects (6 months - 2 years)



Collaboration with Business – Way 1

70% overhead: administrative costs



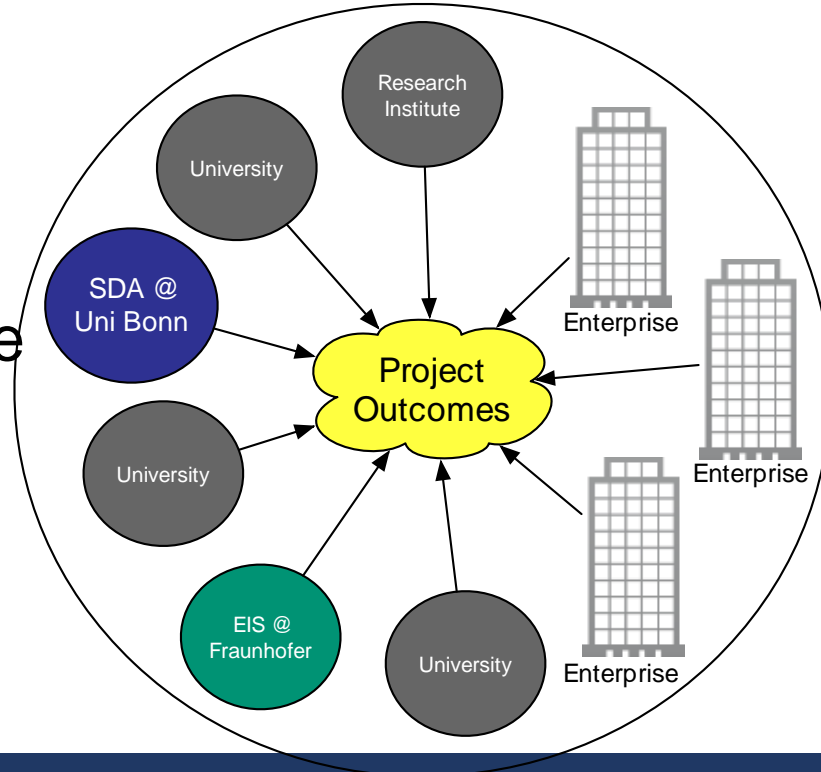
Example: Advanced cruise-control system (self-driving car)
for a large German car manufacturer



Collaboration with Business – Way 2

EU Project Consortium

Example:
Industrial Data Space





THANK YOU !

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