



EUA - European University Association

Doctoral Programmes

for the European Knowledge Society

Salzburg, February 3-5, 2005

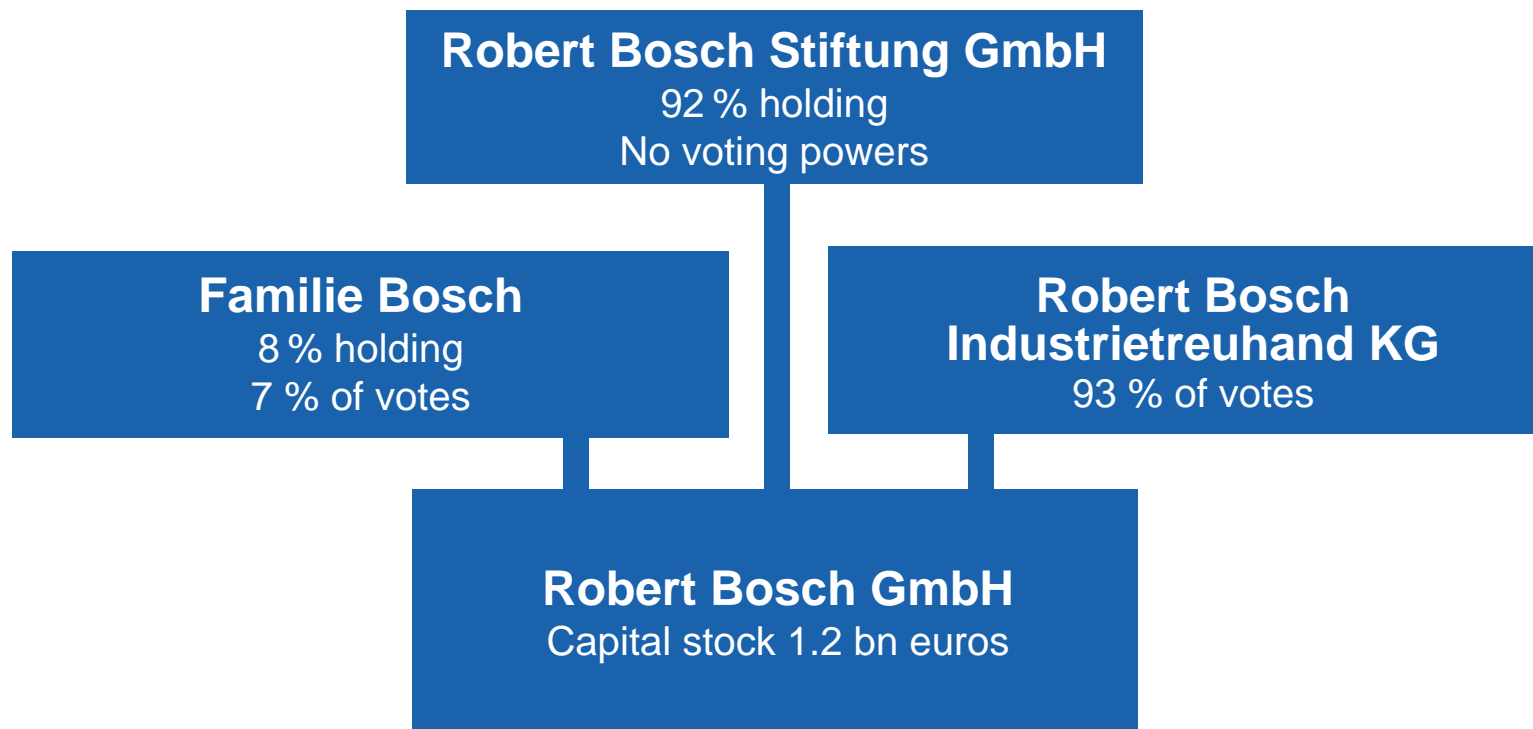
Maria Rimini-Döring
Robert Bosch GmbH, Germany



- The Robert Bosch Group
- Competence Profiles for Permeability
- “Industrial Research Degree”



The Bosch Constitution





Key Data

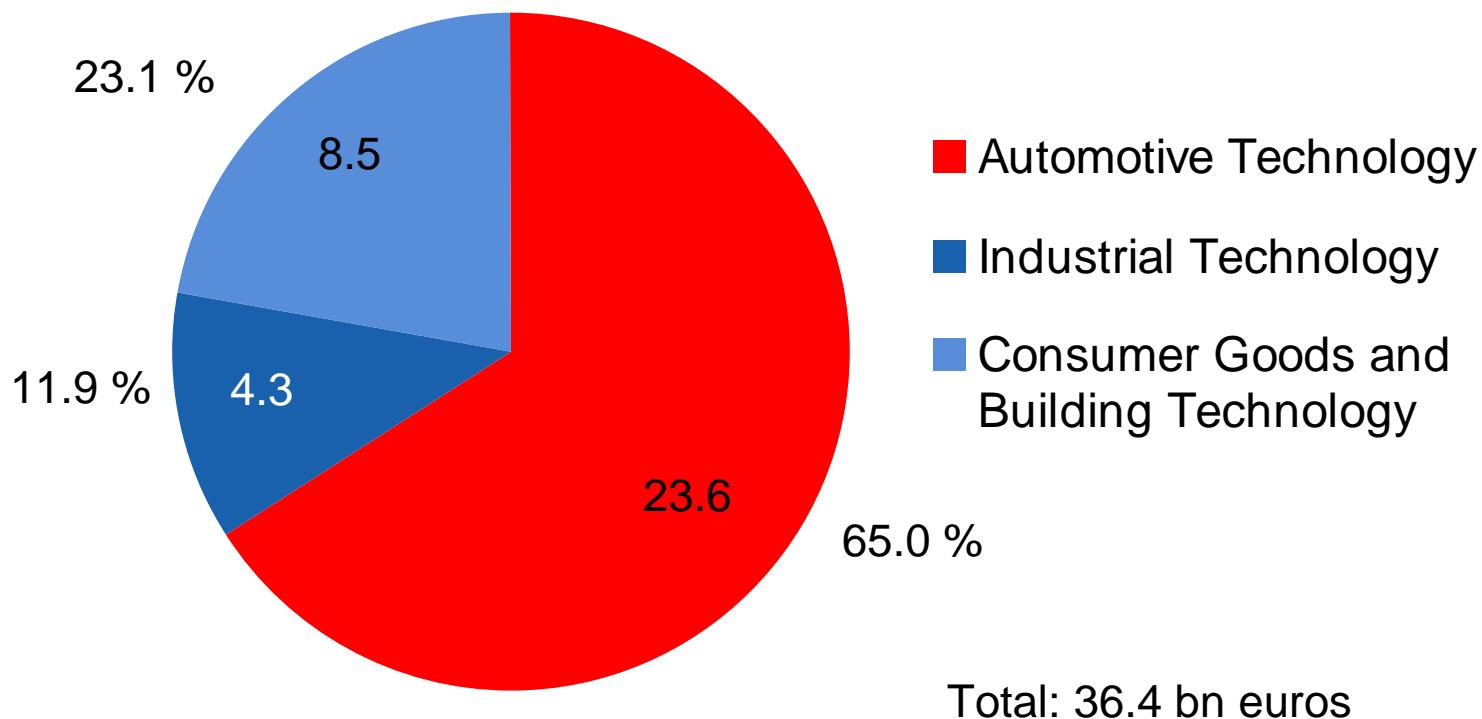
	2003	2003
Sales	36,400	40,000
Sales outside Germany as percent of total	71	
Average number of associates	229,400	240,000
in Germany	105,600	
outside Germany	123,800	
Investments in tangible fixed assets	2,000	
Expenditures for research and development	2,700	3,000
Net income	1,100	

Amounts in million euros



Distribution of Sales 2003

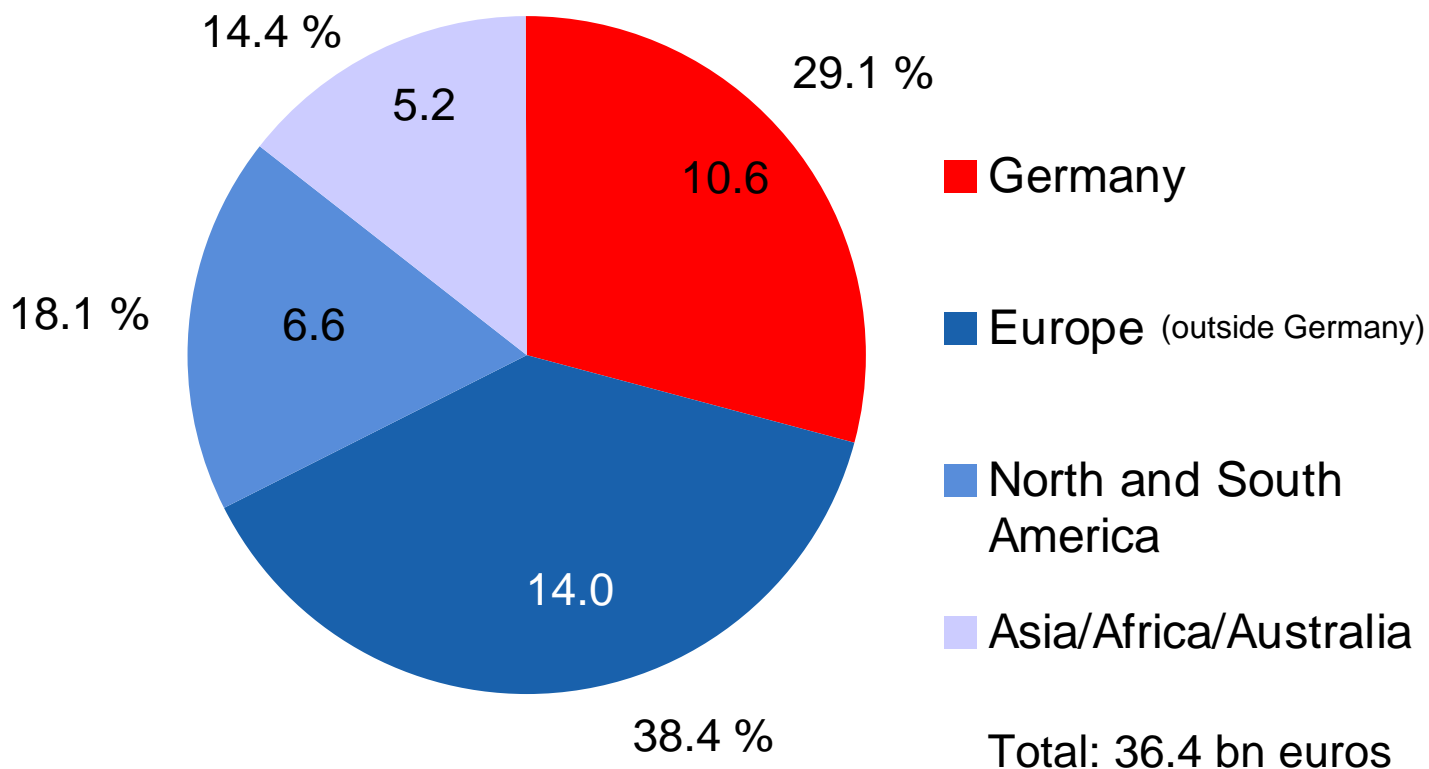
by business sector





Distribution of Sales 2003

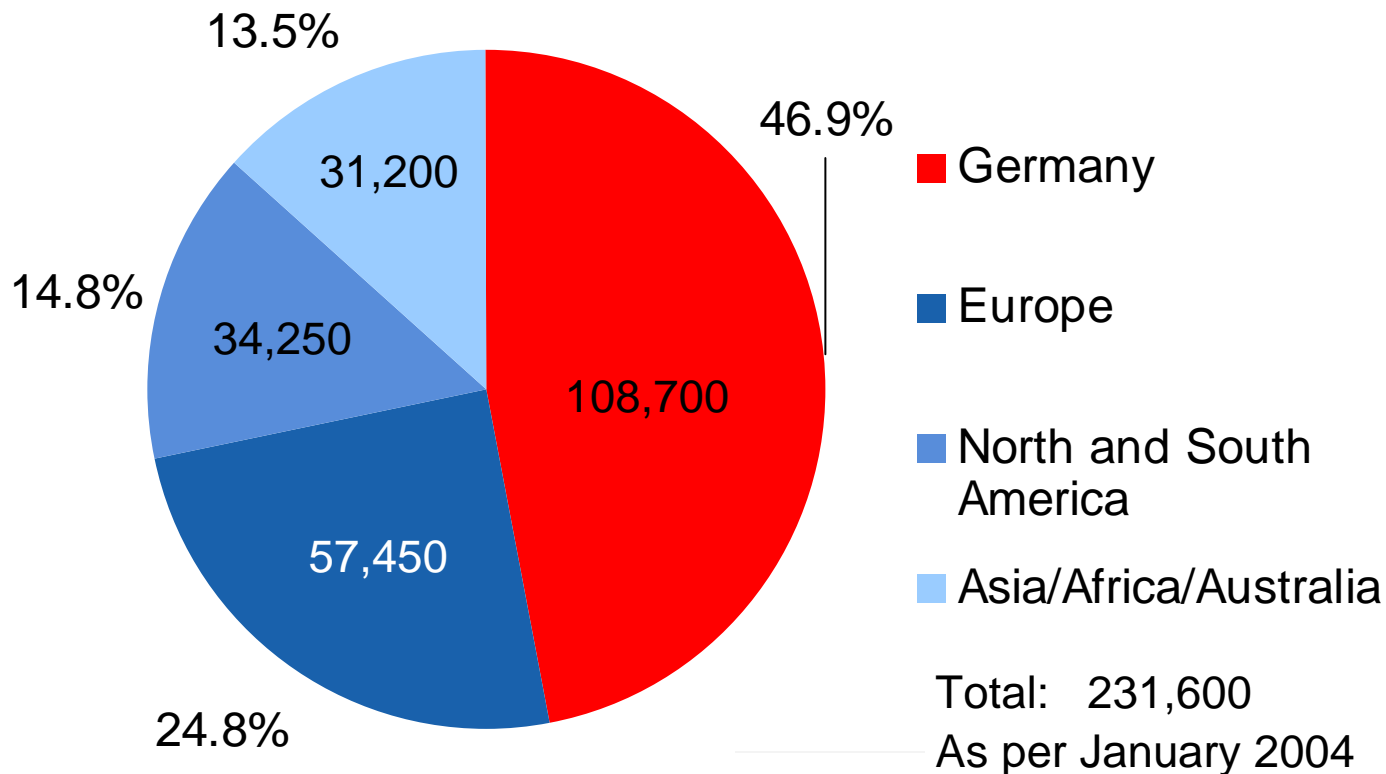
by region





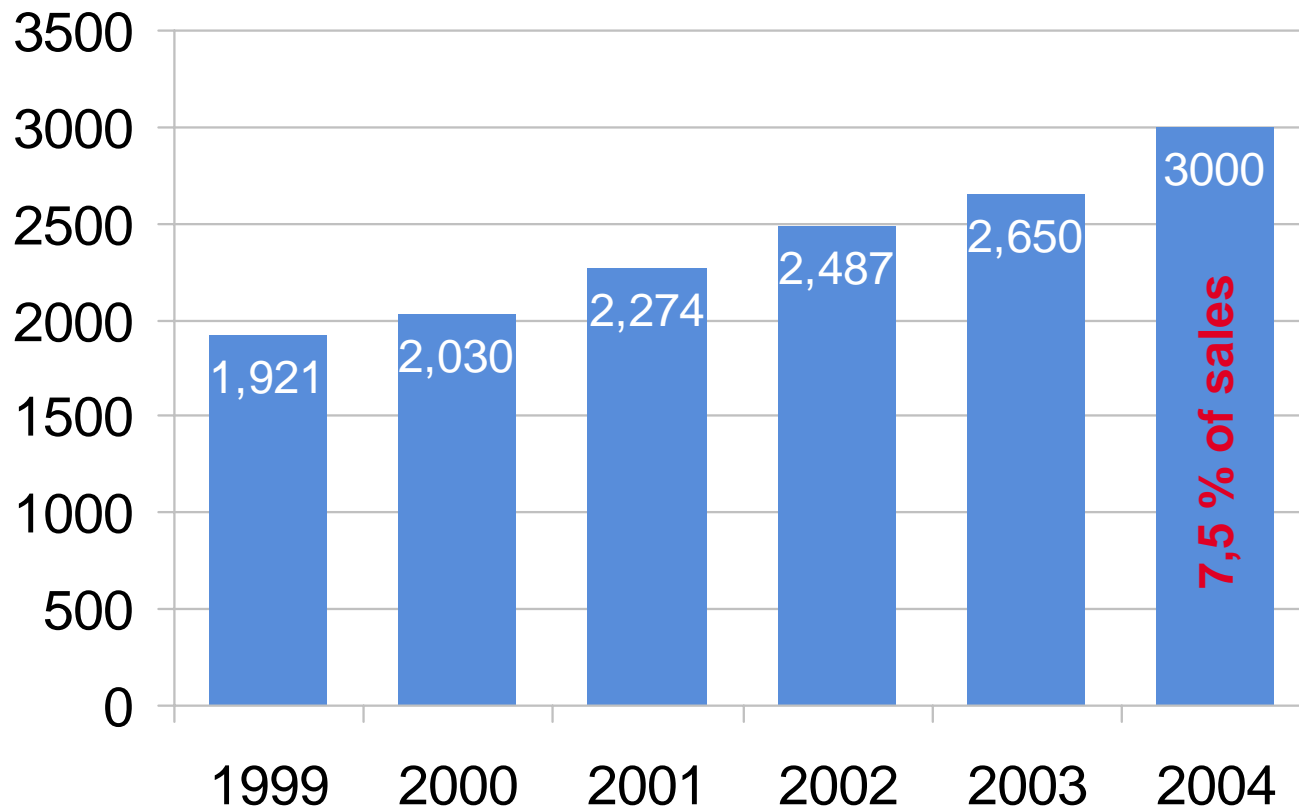
Associates

by region





Expenditures for Research and Development



Amounts in
million euros



- Over 11000 people in R&D, 70% engineers and scientists
- Recruitment of ca. 2500 academics per year
- Co-operation with about 200 Universities and Research Institutes
- Over 2500 Internships (8 weeks to 6 months) per year
- Over 130 Diploma students (4 to 6 months) in the Corporate Research
- **Over 160 PhD students (3 years)**
- 140 Trainees (2 years)



General Issues leading to Employability

- Research training as part of lifelong training
- Research training in a changing labour market: **skills and competences**
- Career attractiveness for young researchers: **issue of permeability**
- New routes to research training: e.g. **industrial degrees**
- Role of mobility: geographic and inter- & trans-disciplinary
- Promoting women careers



Intellectual curiosity and flexibility

- High level of analysis and synthesis skills
- Critical capabilities: learning how to ask (the right, not the easy) questions
- Open mindedness and readiness to take on responsibility
- High language skills (not only English) and multicultural experience

In particular, goals for research training:

- **Learning how to learn** - prerequisite for lifelong learning - and curiosity
- “Feeling” for complex and changing “systems”, (feedback, instability,...)
- Understanding of models, their limits, assumptions, boundary conditions
- Promoting an atmosphere of fault tolerance for creativity development

➔ Long-term employability in a changing environment



“Diversity” management

- Integration of different methodological approaches to the same subject
- Integration of approaches from different disciplines
- **Exchange between public sector and industry**

In particular, goals for research training:

- Understanding of complex system dynamics and sustainability issues
- **Training of roles:** facilitator, scenario developer, supervisor, communicator
- Training of team work and project structures (incl. time & budget issues)
- Multi/crosscultural environment: higher social and communication skills

→ Wide-range employability



Career paths in the public and private sector

- **Attractiveness** for young researchers based on:
 - Possibility of flexible exchange between the two sectors
 - Recognition for the experience and achievements in both
 - Development of research careers also in the industrial world
- **Advantage** for all stockholders from:
 - Mutual trust (not the “ivory tower vs. profit makers” - prejudice)
 - Mutual learning from the experience in different environments
 - New and independent approaches from different disciplines
 - Availability of “exercise space“ for complementary methods
- **Consensus**-building in the society by a shared “language” to address:
 - Economic and ecological sustainability
 - Issues of social and political balance



Bosch Doctorate Programme

- Three years for technical degree (2 for social & economic sciences)
- Work on a research project with a monthly pay + social security
- Development of methodological skills
- Investment on language skills (analysis, documentation, transfer)
- Researcher as daily supervisor & contact with University (Doktorvater)
- PhD student “Colloquium”, lunch-meetings, ...
- Over 90% stay at Bosch after the degree
- Suggestions:
 - Integration of industrial experience with curricular courses
 - Mentoring Programmes (Carrier Planning & Life-Long-Learning)



Suggestions for discussion

- Education and/**vs.** training goals: transparency of contents and methods
- How much deepness + how many specialists?
- “Professional” training needs a wide quantitative basis but
- Research training only with highest quality standards
- Short-time scale: different skills and people
 - Talent scout is a very early task, a wide(r)-angle search
- Long-time scale: need for people that can be employed with **flexibility**
 - Personal level: the possibility of continuous **personal growth**
 - Structural level: cultural effort to support **permeability**
- Creativity to master the challenges of today and tomorrow