



*The Role of Universities in Economic Growth – The German Situation*

PD Dr. Ulrich Schmoch



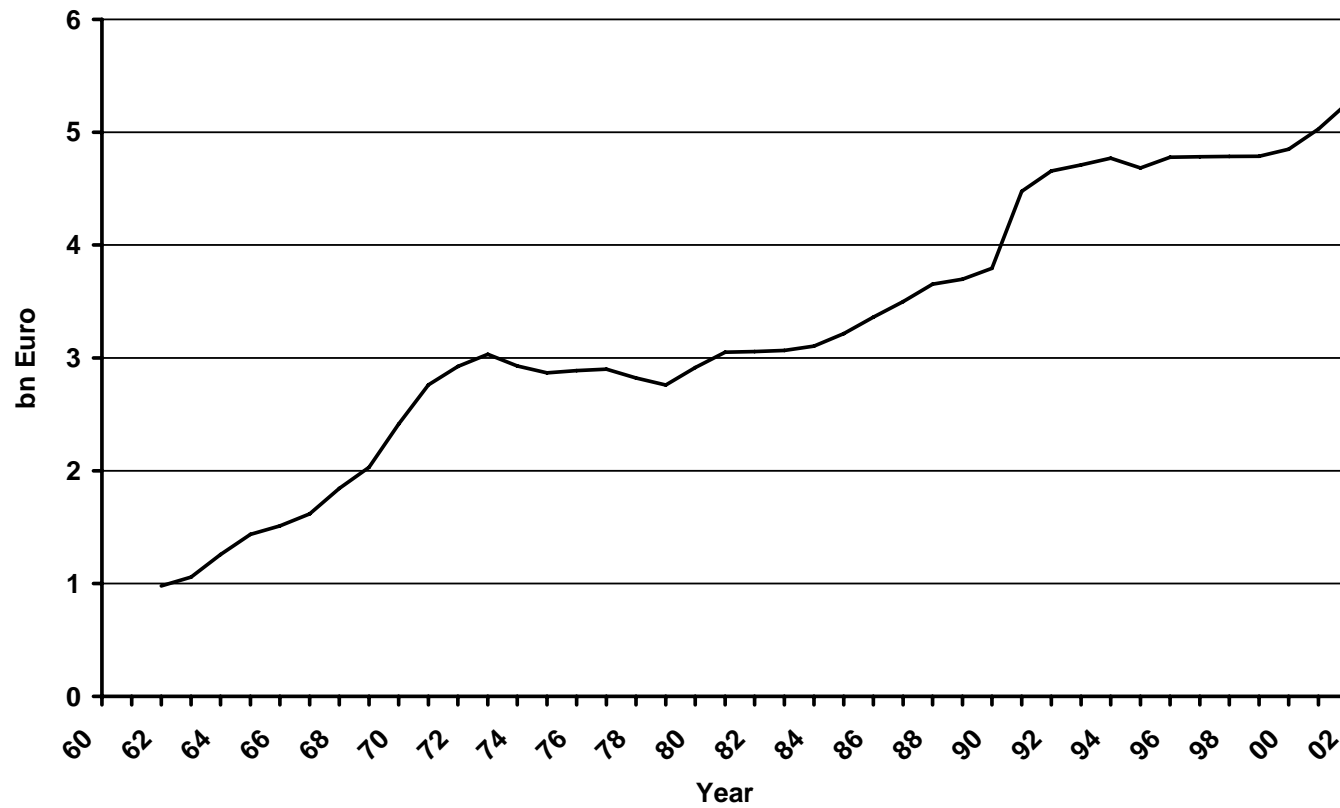
**Fraunhofer**  
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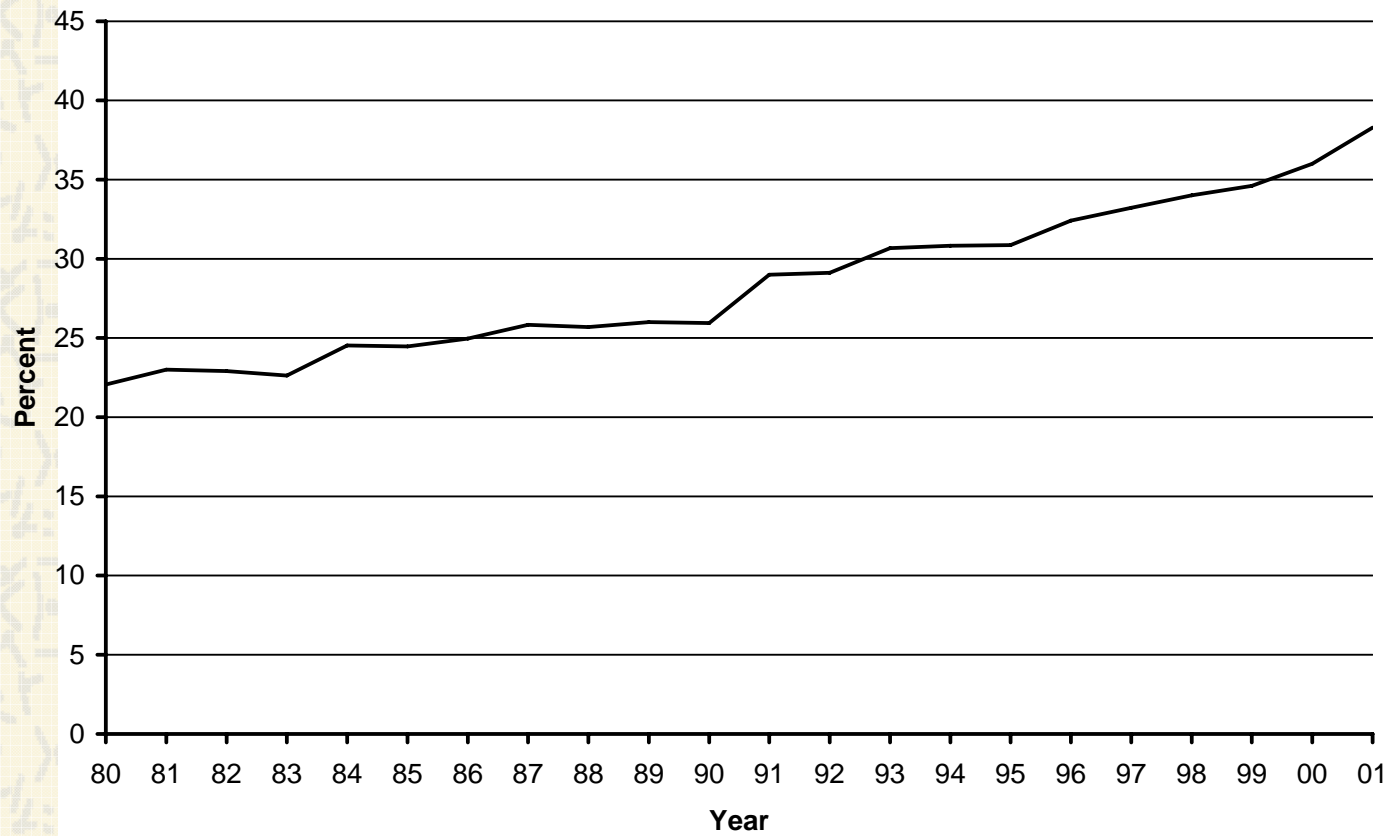
## Topics of the presentation

- ✦ Present structures of university research
- ✦ Specific contributions of universities to society
- ✦ Problems linked to knowledge and technology transfer

## Tremendous increase of universities' R&D budgets



## Tremendous increase of external funds in R&D



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## Types of high-level education institutions

<b>Institution</b>	<b>Number</b>
Universities	100
thereof	
with clinics	35
with engineering dpts.	17
Pedagogical schools	6
Theological schools	16
Art schools	52
Polytechnical schools	168
Administration schools	29
<b>Total</b>	<b>371</b>

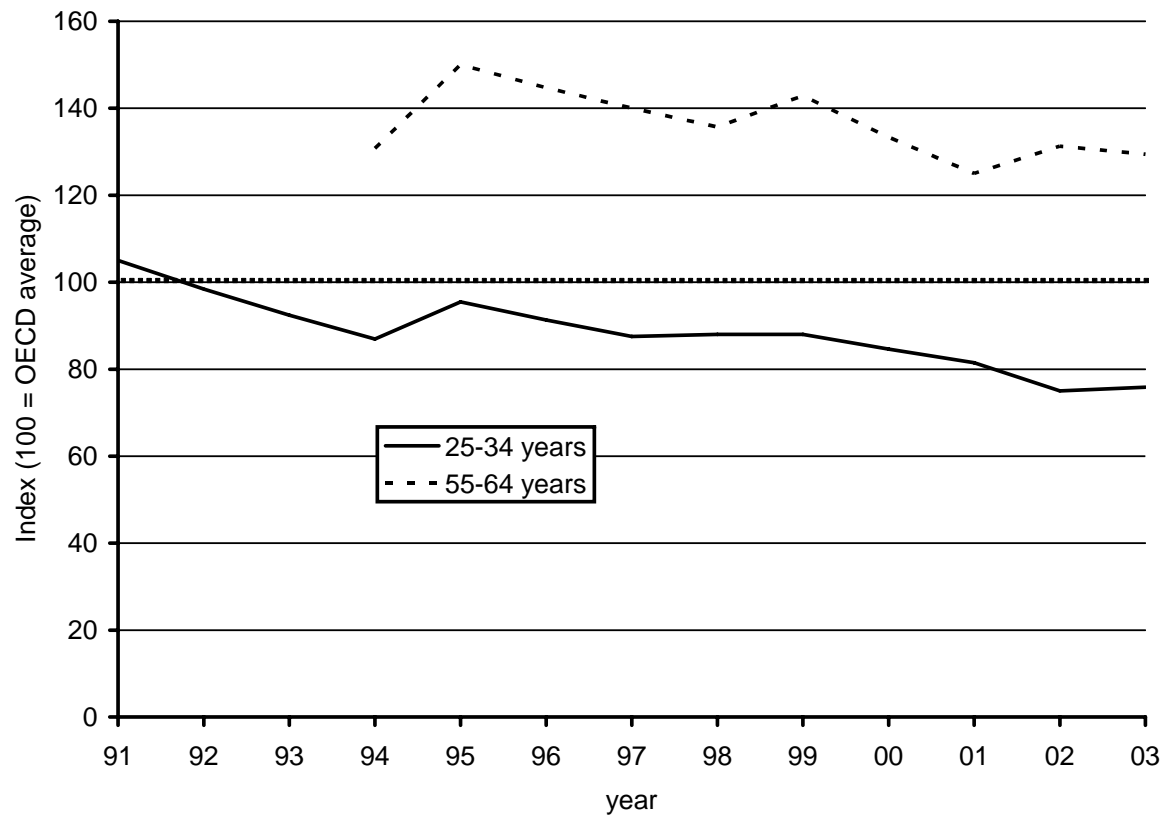
## Number of students and professors, 1999

- ✦ Universities: 1,305,000 students, 29,500 professors  
Staff/prof.: 3.4                      Students/prof.: 44.1
- ✦ Polytechnics: 410,000 students, 14,500 professors  
Staff/prof.: 1.1                      Students/prof.: 28.0

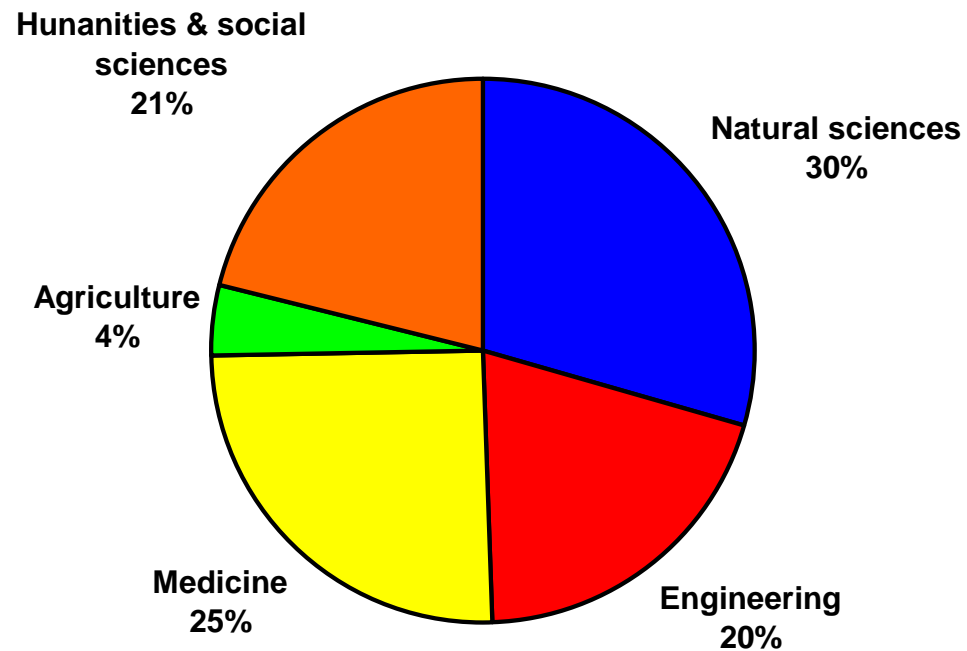
Universities: Better equipment with staff => better structures for research

Polytechnics: Better relation of students to professors => orientation on teaching

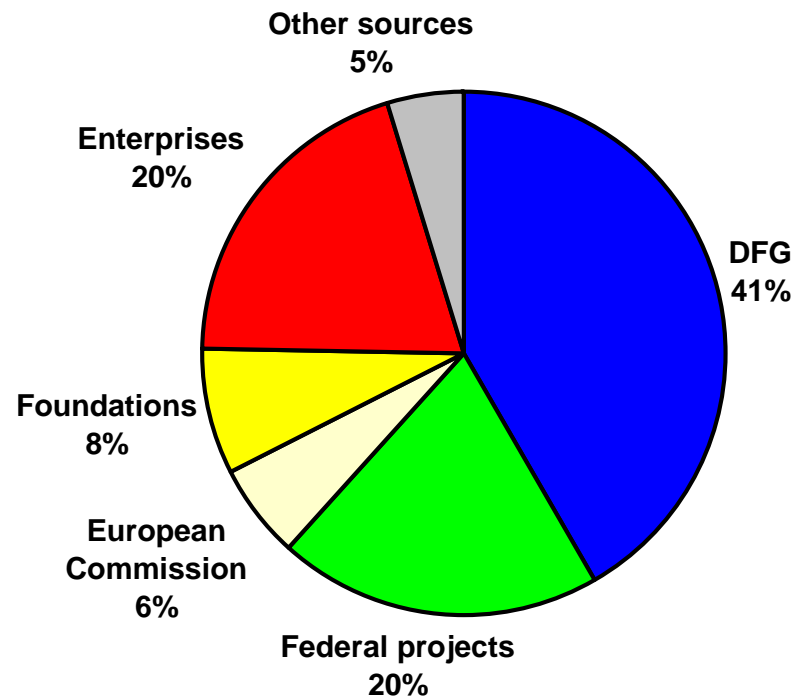
## Share of German population with tertiary education



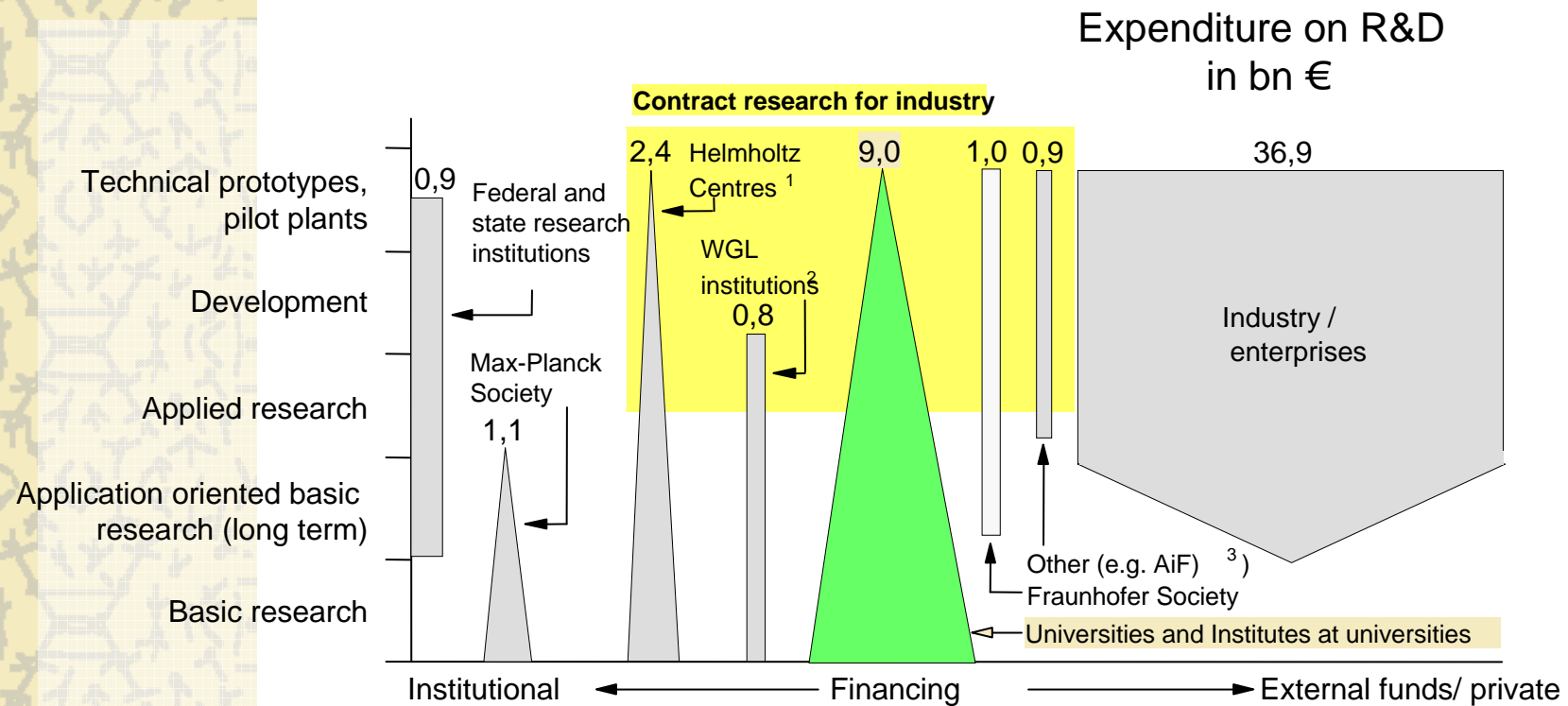
## Research expenditure by discipline, 2001



## External funds at universities, 1997

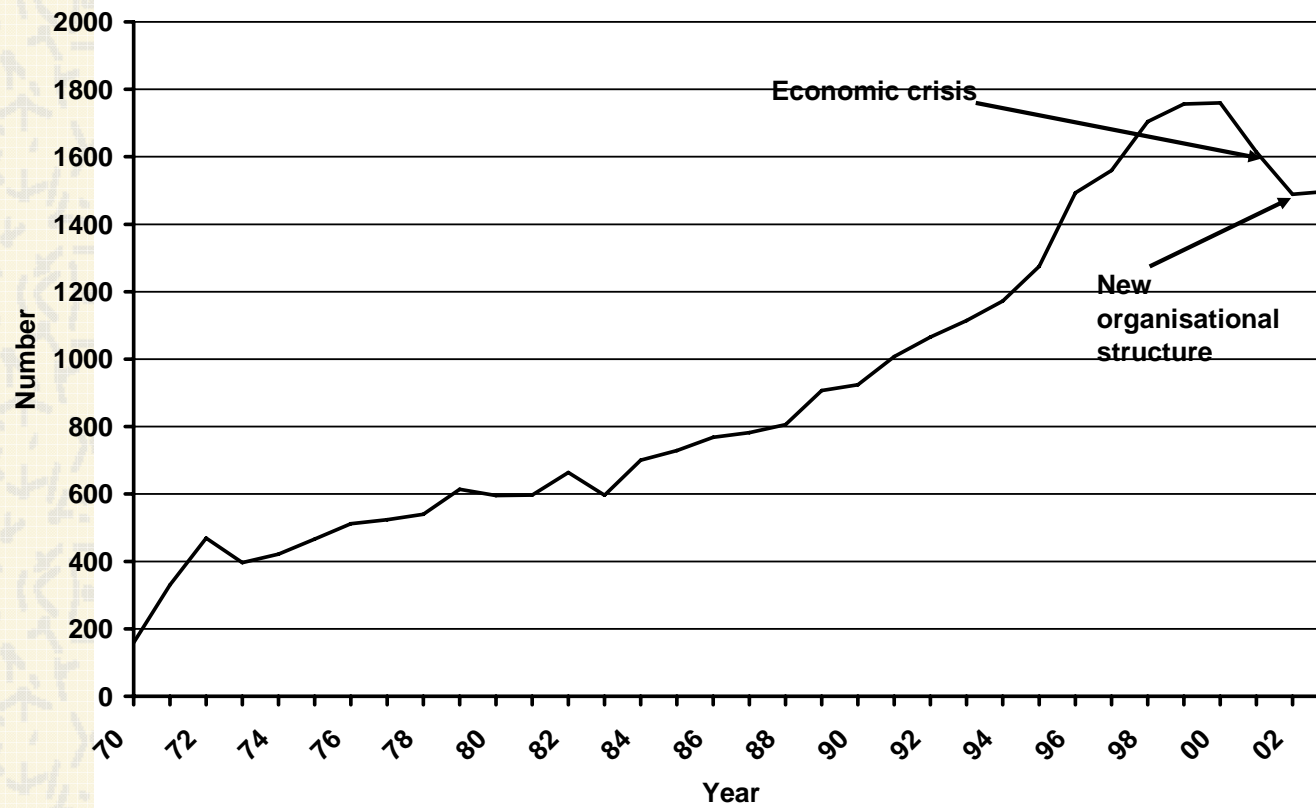


# Institutional landscape in German research, 2002



- 1 Hermann von Helmholtz Association (HGF)
- 2 Science Association Gottfried Wilhelm Leibniz (WGL)
- 3 Federation of Industrial Research Associations 'Otto von Guericke' e.V.

## Increase of university patents





## Problems linked to KTT

- ✖ Increasing political expectations in KTT
- ✖ Expectations in short term results
- ✖ Neglect of long-term research
- ✖ Insufficient understanding of university focus on complex areas
- ✖ Insufficient differentiation of user needs
- ✖ Too one-sided assessment of universities by their success in technology transfer