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# **Governance of inter-institutional collaboration in the German research system. An analysis with a focus on Nano S&T.**

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Session 11B: New Universities and New Institutional Environments  
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# Research problem

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1. New emerging fields of nano S&T
2. Inherited institutional landscape of research
3. Mismatch between field dynamics and institutional structure
4. Understanding factors that facilitate (or hinder) inter-institutional knowledge flows

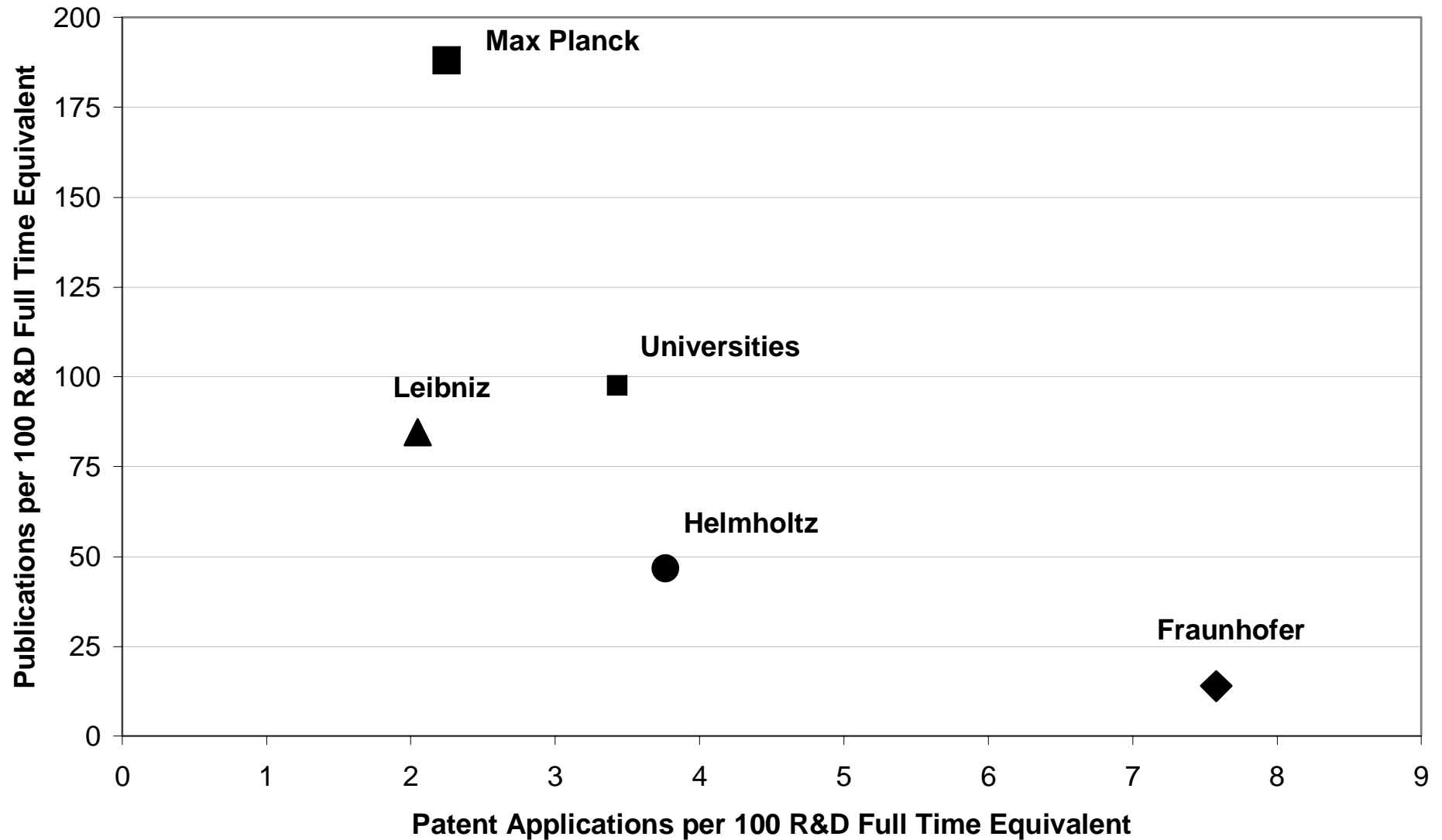
# Presentation

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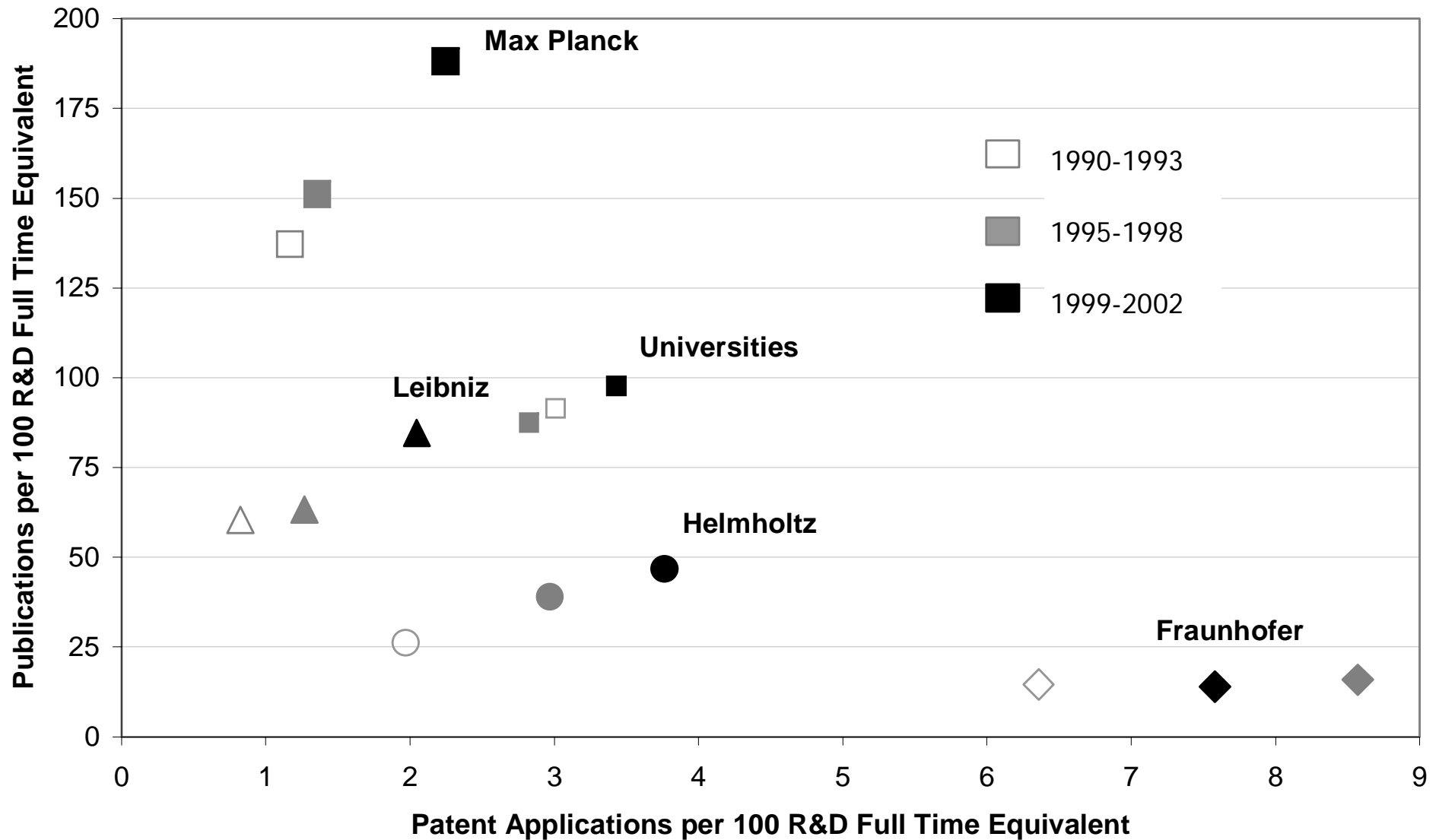
1. Research problem
2. Institutional dynamics in the German research system
3. Collaborative research activities in Nano S&T
4. Analysis of inter-institutional collaboration
5. Discussion

# The German research system today

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# Institutional dynamics in the German research system 1991-2002



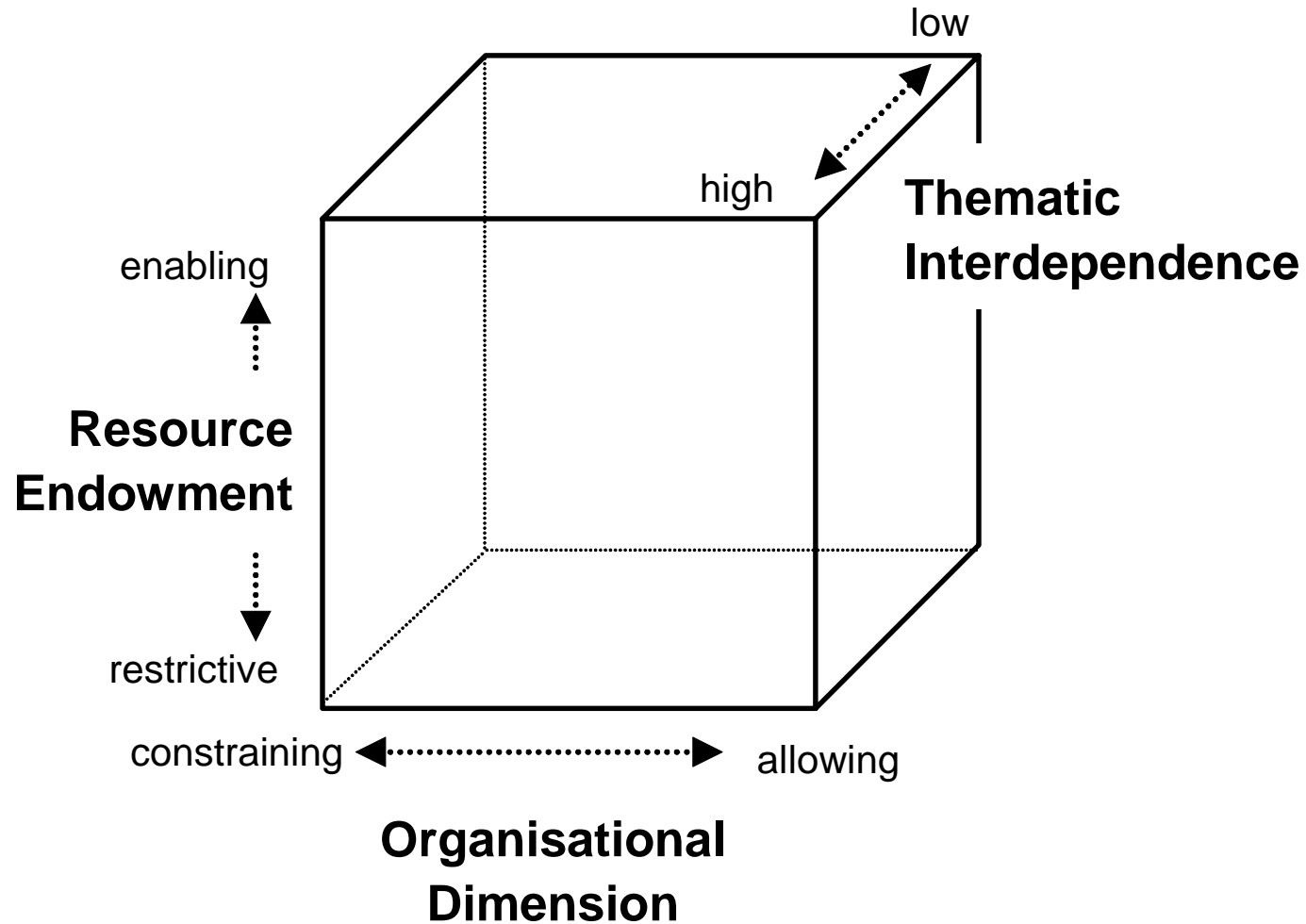
# Data collection: Collaborations in Nano S&T

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1. Systematic screening of collaborative activities using co-publication analysis, project databases, internet search
  - a) Strongest collaboration between Max Planck institutes and universities
  - b) Max Planck institutes and universities have strongest international orientation
  - c) Lowest collaboration between Fraunhofer institutes, Max Planck institutes and Helmholtz centers
2. In-depth interviews
  - a) 14 interviews at organisational macro-level (Max Planck, universities, Fraunhofer, Helmholtz)
  - b) 18 interviews (12 institutes) at meso-level (Nano electronics, Nano interfaces)

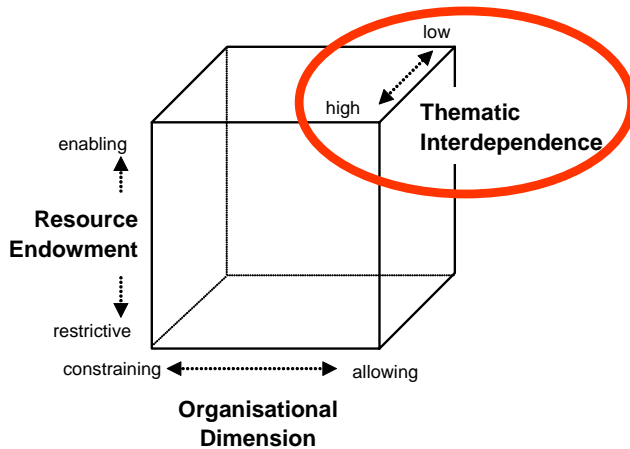
# Analysis of inter-institutional collaboration: The "Governance Cube"

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# Thematic interdependence

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## 1. Clear research profiles

- a) Themes, areas or methods
- b) Complementary knowledge domains

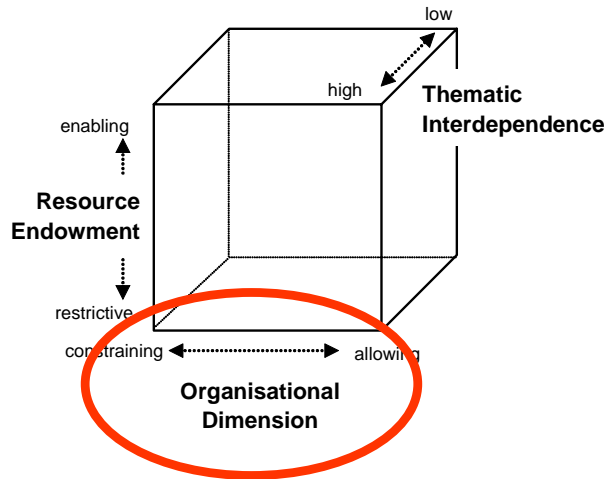
## 2. Anchorage in science

- a) Scientific communities
- b) Reputation and visibility

## 3. Institutionalized research mission

- a) Fundamental or applied research
- b) Routine research, breakthroughs

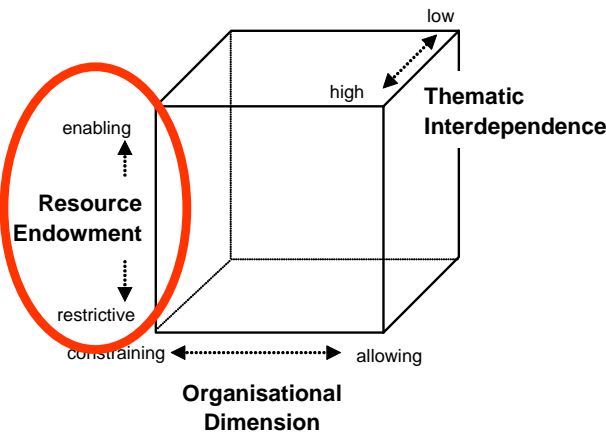
# Organisational Dimension



1. Job mobility across organisational boundaries
  - a) Institutional "empathy"
  - b) Professional networks
2. Research leadership
  - a) Coalition building
  - b) Resource acquisition
3. Organisational routines and stereotypes
  - a) "Engineering attitude" of Fraunhofer
  - b) "Playing attitude" of Max Planck
  - c) "Bureaucratic science" of Helmholtz
4. Lack of interface management
  - a) President level "rhetoric"
  - b) Too little extra resources for building up relationships

# Resources

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## 1. Funding structure

- a) Core funding for building up research profiles
- b) External funding for coordination of research agendas

## 2. Flexibility in funding allocation

- a) Project funding: allocation according to research dynamic and job mobility
- b) Some funding variations within group or organisation

## 3. Sustained budget cuts

- a) "Unhealthy" competition
- b) Erosion of research profiles
- c) Status hierarchies

# Discussion

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1. Policy measures
2. Further institutional factors
3. Insights from other research system