

NEW FORMS OF GOVERNANCE IN RESEARCH ORGANIZATIONS

New Forms of Governance in Research Organizations

Disciplinary Approaches, Interfaces and Integration

Edited by

DOROTHEA JANSEN

German Research Institute for Public Administration, Speyer, Germany



Springer

A C.I.P. Catalogue record for this book is available from the Library of Congress.

ISBN-13 978-1-4020-5830-1 (HB)
ISBN-13 978-1-4020-5831-8 (e-book)

Published by Springer,
P.O.Box 17, 3300 AA Dordrecht, The Netherlands.

www.springer.com

Printed on acid-free paper

All Rights Reserved
© 2007 Springer

No part of this work may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, microfilming, recording or otherwise, without written permission from the Publisher, with the exception of any material supplied specifically for the purpose of being entered and executed on a computer system, for exclusive use by the purchaser of the work.

Table of Contents

Table of Figures xi
Table Index xiii

Introduction xv
Dorothea Jansen

Section A

I. Governance – A Political Science Perspective 1

***Ia. Governance in Connected Arenas – Political Science Analysis
of Coordination and Control in Complex Rule Systems..... 3***

Arthur Benz

1. Governance as analytical perspective 3
2. Governance in connected arenas..... 5
 2.1 Arenas and governance regimes 6
 2.2 Problems of effective and democratic policy-making in
 governance regimes 9
 2.3 Rule systems, mechanisms of collective action and
 coordination between arenas..... 10
 2.4 Governance failures..... 13
 2.5 Strategies of actors 14
3. Conclusions: dynamics of governance and the problem of legitimacy..... 16
 3.1 Dynamics of governance 17
 3.2 Legitimacy of actors and strategies 18
 3.3 Meta-governance 19
References..... 20

Ib. Governance of Research – Nine Comments on Arthur Benz..... 23

Stefan Kuhlmann

References..... 25

Ic. Comment – An Organizational Economics View 27

Dieter Sadowski

References..... 29

II. Governance – A Legal Perspective.....	31
<i>Iia. Governance Reflected in Political Science and Jurisprudence.....</i>	33
<i>Gunnar Folke Schuppert</i>	
1. Governance as an interdisciplinary bridging concept	33
2. Governance as advanced steering theory – the political-science perspective	35
2.1 Systems-theoretical and actor-centered steering theory as a basic position in social science	35
2.2 Neo-corporatist and network theory concepts of steering as variants of an actor-centered steering theory	37
2.3 From steering to governance or from actors to regulatory structures	39
3. Governance in and by regulatory structures – the jurisprudence perspective	41
3.1 Jurisprudence as a science of control.....	42
3.2 The providing function of law and the design of regulatory structures suitable for governance	44
3.3 State infrastructural responsibility at work: two examples	49
3.4 The role of law in the process of globalization or juridification as an element of global governance	50
References.....	52
<i>Iib. Governance: Interrelationships and Open Questions – Comments on the Article by Gunnar Folke Schuppert.....</i>	57
<i>Hans-Heinrich Trute</i>	
References.....	63
<i>Iic. The Role of the State and Private Actors in Governance – Comments on Gunnar Folke Schuppert from a Sociological Perspective</i>	65
<i>Dorothea Jansen</i>	
1. Defining governance structure for empirical and interdisciplinary research.....	66
2. Governance and the role of state and private actors.....	66
3. Legitimacy of governance structures	67
4. Future research demand	68
References.....	70
III. Governance – A Sociological Perspective.....	71
<i>IIIa. Governance from a Sociological Perspective</i>	73
<i>Rafael Wittek</i>	
1. Introduction.....	73
2. Rationalist approaches to organizations.....	75
3. Culturalist approaches.....	78
4. Structuralist approaches	79
5. Formal and informal governance: a heuristic.....	82

6.	The governance of research organizations: a case study from the Netherlands	85
7.	Discussion and conclusion.....	93
	References.....	95
IIIb. Governance and Compliance – A Comment on Rafael Wittek		99
<i>Uwe Schimank</i>		
	References.....	102
IIIc. Comment on Rafael Wittek.....		103
<i>Thomas Groß</i>		
1.	The notion of governance	103
2.	Formal and informal governance.....	103
3.	The relation with legal forms of organizations	105
	References.....	106
IV. Governance – An Integrated Theory.....		107
IVa. Governance of Research – Working towards Interdisciplinary Concepts.....		109
<i>Dorothea Jansen</i>		
1.	Introduction	109
2.	Interdisciplinarity: chances, risks, approaches.....	110
2.1	Pros and cons of interdisciplinary research	110
2.2	Approaching an interdisciplinary theory of governance of the research system.....	112
3.	A governance model for the research system	115
3.1	The contribution of the disciplines and a first model of analysis.....	115
3.2	The role of state and private actors in governance patterns.....	117
3.3	Legitimacy and learning capacity in governance patterns.....	120
3.4	Formality and informality in governance patterns: substitution, complementation or blocking.....	122
3.5	“Modest” law and “modest” organizations.....	123
3.6	Competition as a governance mechanism and typical linkages to other mechanisms	125
4.	Conclusion	128
	References.....	130

Section B

I.	On the Way towards New Public Management? The Governance of University Systems in England, the Netherlands, Austria, and Germany	137
-----------	---	------------

Harry de Boer, Jürgen Enders, Uwe Schimank

1.	The governance equalizer	137
2.	Governance changes in the four countries	140
2.1	England	141
2.2	The Netherlands	142
2.3	Austria	144
2.4	Germany	146
3.	Comparative conclusions	148
	References	151

II. Governance Modes in University Reform in Germany – From the Perspective of Law 155

Hans-Heinrich Trute, Wolfgang Denkhaus, Bärbel Bastian, Kendra Hoffmann

1.	On the relationship between legal and non-legal forms of coordination of action	155
1.1	Governance modes as a combination of legal and non-legal forms of coordination of action	156
1.2	On the differentiation of governance modes	157
2.	Governance modes from the perspective of law	158
2.1	State regulation – differentiated normatively	158
2.2	Established procedures as a means for linking different governance modes	162
2.3	The two levels of the university	162
3.	Development trends in the constitution of higher education institutions	163
3.1	The effects of judicial control	163
4.	Conclusion	170
	References	171
	Laws	172

III. The Application of the Concept of Governance to the Structures of German Extra-University Research Organizations from a Legal Perspective 177

Natalie Arnold

1.	The meaning of governance for jurisprudence	177
2.	Connected “arenas” as the starting point of the analysis	178
3.	The necessity of an empirical investigation: interviews in the institutions	178
3.1	Possibilities for the state to exert influence	179
3.2	Autonomy of the individual scientists in the organizations	183
3.3	Organizational participation of the scientists	183
4.	Conclusion and prospects	184
	References	185

IV. Analysis of Heterogeneous Collaboration in the German Research System with a Focus on Nanotechnology..... 189

Thomas Heinze, Stefan Kuhlmann

1. Introduction	190
2. Recent institutional dynamics in the German research system.....	191
3. Why heterogeneous collaboration is important in the German research system: the case of nano S&T.....	194
4. Collaborative research activities in nano S&T	196
5. Rationales for research collaboration.....	199
6. Institutional factors conducive to heterogeneous research collaboration.....	201
7. Institutional factors interfering with heterogeneous research collaboration.....	204
8. Conclusion and discussion.....	206
References.....	208

V. Governance Reforms and Scientific Production Evidence from German Astrophysics..... 213

Andreas Wald, Karola Franke, Dorothea Jansen

1. Introduction	213
2. Reforms in the German research system	215
3. New governance of research – state of the art	216
4. The changing governance of research at the micro-level: research questions and hypotheses.....	218
5. Research design and methods.....	219
5.1 The field of astrophysics in Germany.....	219
5.2 Data collection and analysis	221
6. Results	222
6.1 Governing the choice and alignment of research topics	222
6.2 Governing network formation	224
6.3 Governing the allocation of resources	225
7. Conclusion and discussion.....	227
References.....	229

Summary and Conclusion..... 233

Dorothea Jansen

1. The changing governance of the German research system.....	233
2. Advancement of the governance model.....	236

Index..... 241

Table of Figures

Section A

Ia. *Arthur Benz*
Figure 1: Types of governance 8
Figure 2: “Composite” governance regimes 9
Figure 3: Consequences of rule systems in different governance structures 12

IIa. *Gunnar Folke Schuppert*
Figure 1: Societalization and juridification in global governance..... 52

IVa. *Dorothea Jansen*
Figure 1: Levels of analysis in the German research system114
Figure 2: Governance model of the research group (as of 2003)..... 116

Section B

I. *Harry de Boer / Jürgen Enders / Uwe Schimank*
Figure 1: Shifts in university governance of the four countries compared 149

IV. *Thomas Heinze / Stefan Kuhlmann*
Figure 1: Institutional dynamics in the German research system between 1990 and 2002 194
Figure 2: Motives and reasons to engage in inter-institutional research collaboration..... 199
Figure 3: Governance dimensions of research collaboration 202

Summary and Conclusion *Dorothea Jansen*
Figure 1: Theoretical framework of the research group..... 240

Table Index

Section A

IIIa. *Rafael Wittek*

Table 1: Ideal types of formal and informal governance according to three different sociological paradigms	82
Table 2: Heuristic for the description of different forms of governance and social control	83
Table 3: Number of frequently cited publications in different nations (million inhabitants)	86
Table 4: Number of scientific publications per million inhabitants	87

Section B

IV. *Thomas Heinze / Stefan Kuhlmann*

Table 1: Key facts of the German research system.....	192
Table 2: Publication output and co-publications of German research institutions in nano S&T, 1999–2003.....	197
Table 3: Co-publications between German research institutions in nano S&T, 1999–2003	198

V. *Andreas Wald / Karola Franke / Dorothea Jansen*

Table 1: Influence on the research topics	222
Table 2: Influence on network building	224
Table 3: Allocation of internal resources	226

Introduction

Dorothea Jansen

Universities and extra-university research organizations in Germany have been subject to increasing reform pressure since the mid-1990s. Due to changed and contradictory expectations by state, industry and civil society actors, increased competition for scarce resources, and the accelerated internationalization of knowledge production, German research organizations must reposition themselves within an emerging European Research Area. This was the motivation for a meeting of scholars at a research workshop at the Institute for Public Administration Speyer in May 2001, funded by the German Research Foundation. We discussed the reforms and changes in Germany and compared them to reforms under way in other European systems of higher education and research, namely in the United Kingdom, France and Norway.¹ A group of researchers from several universities and research organizations in Germany set out to build a research program for the analysis of the – potentially – historical changes that the German research system is undergoing. The members of this group come from several disciplines and research fields, from political science, sociology, jurisprudence and economics and have dealt with fields such as higher education, science and technology studies, research policy, organizational studies, systems of innovation and administrative law. In 2002, we developed a common research framework for the study of the higher education and research system in Germany and its comparison with other national systems from different disciplinary and object-related angles. This research program was approved by the German Research Foundation in 2003, and the research group FOR 517 on “International competitiveness and innovative capacities of universities and research organizations – New forms of governance” was established in summer 2003.²

¹ Conference on “International Competitiveness and Innovative Capacity in Universities and Research Organizations – New Modes of Governance” May, 3-4, 2001, Research Institute for Public Administration Speyer. More information available at: <http://www.foev-speyer.de/governance/english/index.html>

² The research program by now comprises six projects complemented by two central projects for coordination, the speaker’s coordination project, and a project devoted to the provision of performance data. We acknowledge funding by the German Research Foundation. The projects are:

This is the first joint book of this research group.³ It takes up the issue of governance, which has been debated in many recent academic discourses. In addition to building an inventory of the ongoing reforms in the German university and research system, the group addresses several questions – and the governance concept is central to all of them. The overarching goal is to create an interdisciplinary theory of governance and apply it to the object of study – the research system. There are several steps to this goal:

- The identification of different governance mechanisms and their analysis from different disciplinary perspectives.
- The analysis of a combination of governance mechanisms to form typical patterns, particularly in multi-level systems of governance. The concatenation of various governance mechanisms at the same level, or at different levels of the research systems, is a vital point in identifying counterintuitive and undesired effects of newly introduced governance regimes.
- An analysis of the effects of governance mechanisms and their combination to patterns on research behavior and research decisions of individual researchers, groups and organizations. Research decisions and academic work finally determine the research output in a quantitative and qualitative perspective at different levels of the research system. The causal nexus between institutional characteristics of the system, behavior of organizations and actors and their performance must be scrutinized in detail.

P1: Governance of the Cooperation of Heterogeneous Partners in the Research and Innovation System (Stefan Kuhlmann and Ulrich Schmoch, Fraunhofer Institute for Systems and Innovation Research, Karlsruhe)

P2: Networking Strategy and Network Capacity of Research Groups (Dorothea Jansen, German Research Institute for Public Administration, Speyer)

P3: Management and Self-Government of Universities: Comparison of Decision Processes and Consequences for Research (Uwe Schimank, University of Hagen, Jürgen Enders, University of Twente, Barbara Kehm, University of Kassel)

P4: Innovation Promoting Governance Structures of the German University System (Hans-Heinrich Trute, University of Hamburg)

P5: Innovation Promoting Governance Structures of Research Organizations (Thomas Groß, University of Gießen)

P6: Organizational Determinants for Successful Promotion of Junior Research Workers by Graduate Programs: An Institutional Economics Investigation. (Dieter Sadowski, University of Trier, Uschi Backes-Gellner, University of Zurich)

Z1: Speaker's Coordination Project (Dorothea Jansen, German Research Institute for Public Administration, Speyer)

Z2: Performance Indicators for Research Institutions, in Particular Research Groups (Ulrich Schmoch, Fraunhofer Institute for Innovation Research, Karlsruhe).

³ Numerous people contributed to this publication project. I would like to mention here Heide Klug, the scientific coordinator of the group. She patiently dealt with overrun deadlines and disciplinary differences. Special thanks also goes to Pascal Sadaune who formatted and reformatted the manuscript several times until it looked good.

Last but not least, the group strives not only to describe typical empirical forms of governance and their relevance in numbers and distribution within the research system, it also sets out to search for innovative and productive forms. Accordingly, an analysis of positive and normative requirements for the implementation of new governance forms and the identification of control parameters for the reform process shall be concluded.

This book contributes to the first two goals addressed in the research program. Part A begins with a discussion of disciplinary concepts of governance. Here we present the results of a theory workshop that took place in July 2004 at the Institute for Public Administration Speyer. Several external colleagues joined the group for this workshop. Comments from group members aim at identifying relevant examples from our research object – the research system –, testing the adequateness of assumptions and evaluating relevant applications of the models proposed. In Part B, the group presents its recent evidence on the functioning of governance patterns in the multi-level system of research. The focus is here on the linkages of external and internal governance of organizations and the relationship between formal and informal mechanisms at various levels.

A theory of the governance of research institutions has not been available until now. Not only have we lacked a useful, adequate theory of governance applicable to research organizations and the research system, even the disciplinary theory models for the governance of organizations, of groups of confederate organizations and of policy fields range somewhere between heterogeneous and contradictory. They extend from a perspective of internal organizational efficiency influenced by Williamson's (1975) comparison of market and hierarchy, to actor-centered institutionalism that regards normative-legal enforcement as a definition criterion of institutions and rules (Ostrom 1990: 50; Mayntz and Scharpf 1995), and even to the cultural, institutional sociological approaches that emphasize the importance of informal governance dimensions such as culturally embedded self-images or networks (Powell 1990; March and Olsen 1989). The latter mechanisms coordinate action without hierarchical decision making instances or threats of formal sanctions. In jurisprudence, the concept of governance is not yet established with a discipline-specific meaning. The concept of regulatory structure comes closest, in which the important actors for the regulation of a task, benchmarks, instruments of action and coordination mechanisms are considered in their interaction.

Arthur Benz, coming from a political science perspective, addresses both goals identified above, the characterization of the working of different governance mechanisms and their combination to form integrated rule systems for collective action in various connected arenas. Gunnar Folke Schuppert underlines the role of the governance concept in stimulating an interdisciplinary dialogue and exemplifies this with the dialogue between the political science and law. Both scholars deal more or less with a macro-level analysis and focus on output dimensions such as democratic legitimacy and efficiency of the political discourse. Rafael Wittek, as a sociologist, starts at a different level of analysis – the organizational level.

Wittek deals with (research) productivity at the organizational and individual level. He states that the interplay between formal legally enforceable rules on the macro-level is connected to monitoring and sanctioning of rules at the organizational level. His thesis is that formal incentives set at the macro-level may combine with informal governance mechanisms at the meso-level to result in high research productivity of individuals and the organization.

Part B assembles five papers that analyze the relationship between the internal organizational and micro-level governance and the external governance of universities and research organizations. The first chapter by de Boer et al. sets the stage for an analysis of university reforms. It devises an instrument to measure the milestones achieved by four countries studied in this project – Germany, Austria, The Netherlands and England – on their way from the traditional academic self-governance of universities towards a new public management model of the university governance. Trute et al. take up this concept and demonstrate its fruitfulness for a legal analysis of university acts recently issued by three federal states in Germany. A special characteristic of the German research system is the strong role that large, publicly funded, extra-university research organizations such as the Max Planck-Society or the Fraunhofer Society take on in this system. Chapter B III, by Natalie Arnold, deals with the decision making process of organizations from three of these confederations of research organizations. The focus here is on how the relations between the federal state, the organizational or institute decision making and the level of the individual researcher are effected by the recent governance reforms. A special focus here, as well as in the paper by Trute et al., is given to the issue of the autonomy of science and its guarantee and protection by the state according to the German basic law.

While Chapters B I to B III all focus on macro-level governance reforms and their effects on organizational decision making structure and behavior, the two concluding chapters deal with the research process at the meso- and micro-level of analysis. Chapter B IV deals with one of the disciplinary subfields that has been selected for study in the research program of the group: nanotechnology. Chapter B V focuses on another field: astrophysics. Heinze and Kuhlmann analyze the causes for the lack of cooperation between the various science organizations that are constituted by the confederations of different types of public research organizations in the German research system (e.g., Max Planck Society, Helmholtz Association, Fraunhofer Society). This lack of cooperation and the failure to take advantage of potential synergies has been stated repeatedly by several evaluations since the late 90s. The chapter identifies the causes that promote or hinder interinstitutional collaboration and describes the institutional interfaces in working collaborations. Chapter B V by Wald, Franke and Jansen asks for the influences of formal and informal governance mechanisms on decisions regarding research lines and research network building in the field of astrophysics. The interplay between formal governance mechanisms such as market-like competition for funds or hierarchical management and informal coordination by the scientific community or within the research organization are discussed. The empirical evidences are weighed against three potential models of governance of research: the management

model, the traditional model of academic self-organization and a mixed model combining external competitive pressure, self governance in professional organizations and intellectual governance by the scientific community.

References

- March, J. / J.P. Olsen, 1989: Rediscovering Institutions. The Organizational Basis of Politics, New York, The Free Press.
- Mayntz, R. / F.W. Scharpf, 1995: Der Ansatz des akteurzentrierten Institutionalismus, in: idem (eds.), Gesellschaftliche Selbstregulierung und politische Steuerung, Frankfurt am Main, Campus, 39-72.
- Ostrom, E., 1990: Governing the Commons. The Evolution of Institutions for Collective Action, Cambridge, Cambridge University Press.
- Powell, W.W., 1990: Neither Market nor Hierarchy. Network Forms of Organization, In: Research in Organizational Behavior 12, 295-336.
- Williamson, O.E., 1975: Markets and Hierarchies. Analysis and Antitrust Implications, New York, The Free Press.