National Innovation Systems and Global Innovation Networks

Germany

Eike W. Schamp and Andreas Stamm, DIE-GDI

(1) A brief introduction into the German NIS

(2) Formation of Global Innovation Networks?

(3) Challenges to the German NIS

© 2010 Deutsches Institut für Entwicklungspolitik (DIE)

Some features of the German NIS

- Largest economy in Europe, third largest exporter worldwide
- strong manufacturing base in „medium high technologies“ (OECD)
- large MNCs and globally active *Mittelstand* companies
- still coordinated governance of the business system

© 2010 Deutsches Institut für Entwicklungspolitik (DIE)

Actors in the German NIS

Table 4.1: Contribution of different sectors to GERD/GDP ratio, 1995-2007 (in per cent GDP)

Year	1995	2000	2005	2007
Private sector	1.45	1.73	1.72	1.78
Universities	0.40	0.39	0.41	0.41
Public laboratories	0.34	0.33	0.35	0.35
Total	2.19	2.45	2.48	2.54

Source BMBF 2010

© 2010 Deutsches Institut für Entwicklungspolitik (DIE)

Table 4.3: R&D expenditures (total and intra-mural) of different sectors of the German economy (Rammer et al. 2010, 15)

Sector	R&D expenditures total (in billion €)	R&D expenditures intra-mural (in billion €)	R&D expenditures intra-mural (per cent)
Chemical industry	8.3	6,7	80.7
of which			
Pharmaceutical	4.7	3.4	72.3
Mechanical engineering	5.5	5.0	90.1
Electrical industries	10.8	8.7	80.6
Automotive industry	20.0	15.1	75.5
Business services	4.7	4.1	87.2

© 2010 Deutsches Institut für Entwicklungspolitik (DIE)

Intra-organisational innovation networks

Table: The geography of German R&D abroad, 1990s and 2000s, as measured by share of patents (Belitz et al. 2009)

	1990-3	2002-5
Western Europe	47.3	60.1
US	44.0	30.7
Japan	5.0	2.3
East Asia (Korea, China)	1.0	2.4

© 2010 Deutsches Institut für Entwicklungspolitik (DIE)

3. Challenges to the German NIS

- demography
- the German Paradox
- pre-competitive innovation networking versus strong control of intra-mural innovation
- still outmoded models in innovation policy

© 2010 Deutsches Institut für Entwicklungspolitik (DIE)