

International Benchmarking Congress

VERITE - network of the EC, GD ENTERPRISE

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**Germany: Benchmarking Innovation Performance on regional level -
Results for North-Rhine-Westphalia, Bavaria and Baden-Württemberg**

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Outline:

- 1) Short introduction
- 2) EU-Innovation Scoreboard 2001: country trends
- 3) Innovation Scoreboard: Results and trends for Germany
- 4) Regional Innovation Scoreboard 2001: Results and trends for North-Rhine Westphalia, Bavaria and Baden-Wuerttemberg
- 5) Strength and weaknesses compared to European average
- 6) Conclusions
- 7) Recommendations

1) Introduction

Innovation Scoreboard

1) measuring innovation performance of regions

2) highlights strength and weaknesses of member states and/or regions

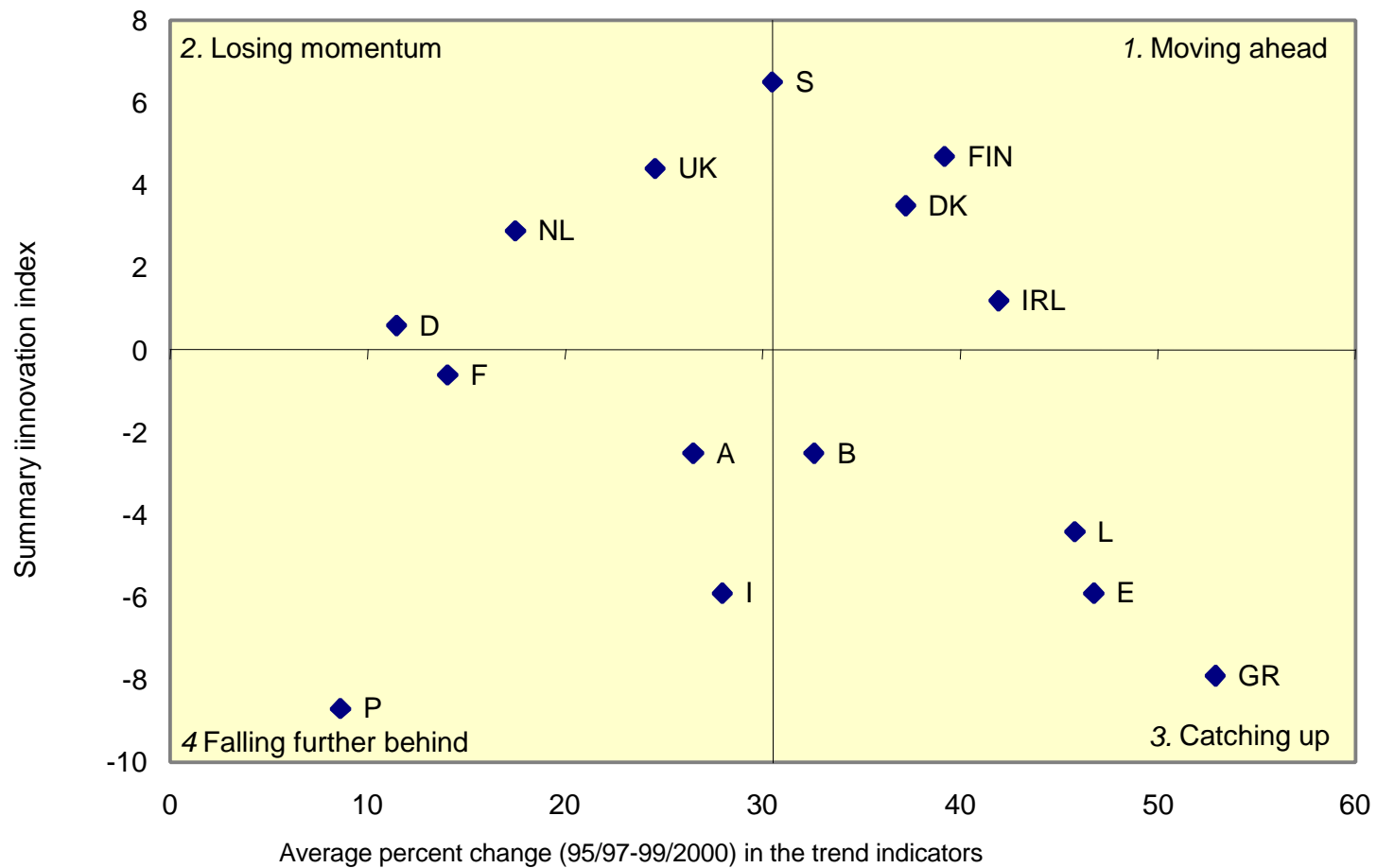
17 innovation indicators in four areas:

- human resources
- knowledge creation
- transmission and application of new knowledge
- innovation finance

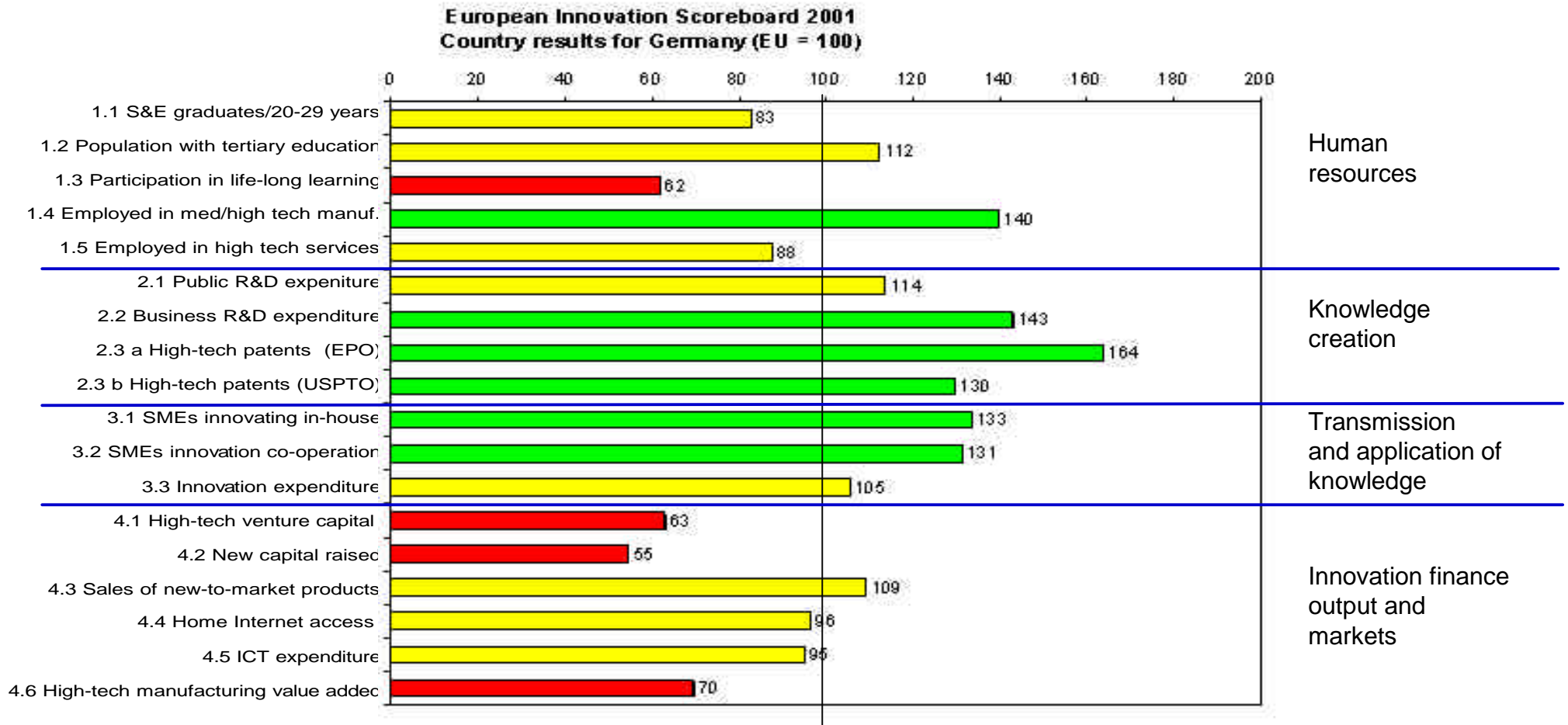
here: application of this benchmarking idea to regional level

2) EU- Innovation Scoreboard 2001: country trends

Overall country trends by innovation index



3) Innovation Scoreboard: Results for Germany

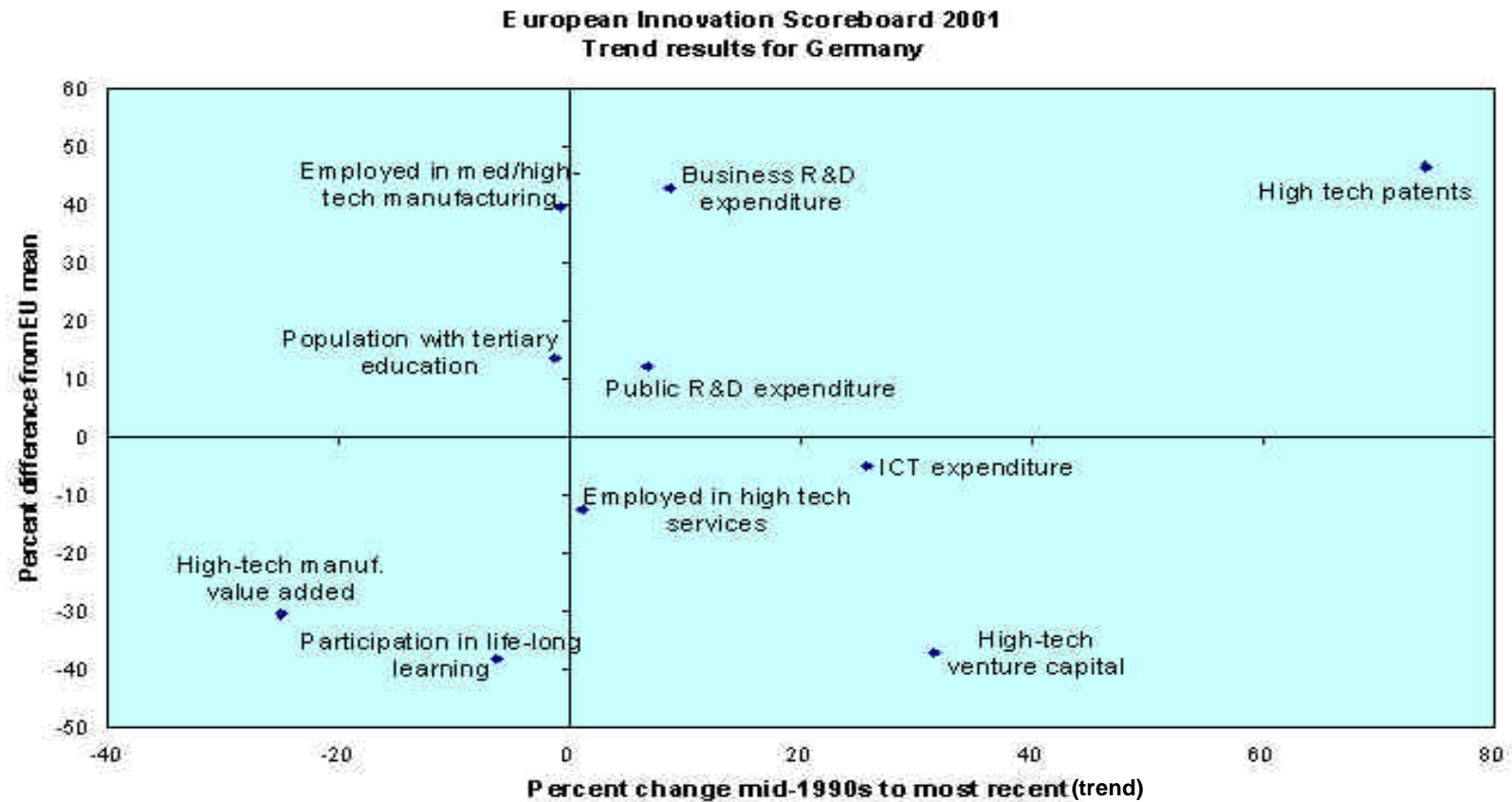


Source: European Commission(2001)

KEY RESULTS OF THE EUROPEAN SCOREBOARD 2001

Indicator	Year	EU-Mean	EU leaders			FRG	US	JP
S&T graduates/20-29 years	99	10,4 %	17,8 (UK)	15,8 (F)	15,6 (IRL)	8,6	8,1	11,2
Population with tertiary education	00	21,2 %	32,4 (FIN)	29,7 (S)	28,1 (UK)	23,8	34,9	30,4
Participation in lifelong learning	00	8,4 %	21,6 (S)	21,0 (UK)	20,8 (DK)	5,2		
Employed in med/high-tech manufacturing	99	7,8 %	10,9 (FRG)	8,3 (S)	7,6 (I/UK)			
Employed in high-tech services	99	3,2 %	4,8 (S)	4,5 (DK)	4,3 (FIN)	2,8		
Public R&D/GDP	99	0,66 %	0,95 (FIN)	0,87 (NL)	0,86 (S)	0,75	0,56	0,70
Business R&D/GDP	99	1,19 %	2,85 (S)	2,14 (FIN)	1,63 (FRG)		1,98	2,18
High-tech EPO patents/population	99	17,9	80,4 (FIN)	35,8 (NL)	29,3 (FRG)		29,5	27,4
High-tech USPTO patents/population	98	11,1	35,9 (FIN)	29,5 (S)	19,6 (NL)	14,4	84,3	80,2
SMEs innovating in-house	96	44,0 %	62,2 (IRL)	59,1 (A)	59,0 (DK)	58,7		
SMEs innovation co-operation	96	11,2 %	37,4 (DK)	27,5 (S)	23,2 (IRL)	14,7		
Innovation expenditure/total sales	96	3,7 %	7,0 (S)	4,8 (DK)	4,3 (FIN)	3,9		
High-tech venture capital/GDP	00	0,11 %	0,26 (UK)	0,20 (S)	0,17 (B)	0,07		
New capital raised/GDP	99	1,1 %	5,6 (NL)	4,5 (DK)	4,4 (E)	0,9	1,9	
Sales of new-to-market products	96	6,5 %	13,5 (I)	9,5 (E)	8,4 (IRL)	7,1		
Home Internet access	00	28,0 %	55 (NL)	54 (S)	52 (DK)	27	47	28
ICT markets/GDP	00	6,0 %	7,4 (S)	6,6 (NL)	6,6 (P)	5,7	5,9	4,3
High-tech value-added in manufacturing	97	8,2 %	20,5 (IRL)	18,8 (S)	12,5 (FIN)	5,7	25,8	13,8

3) Innovation Scoreboard: Trends for Germany



Remark: The trends refer to the percentage change between 1995-1997 and 1999 or 2000

All indicators to the right of the vertical axis have shown growth in the country, while all indicators above the horizontal axis are above the EU average.

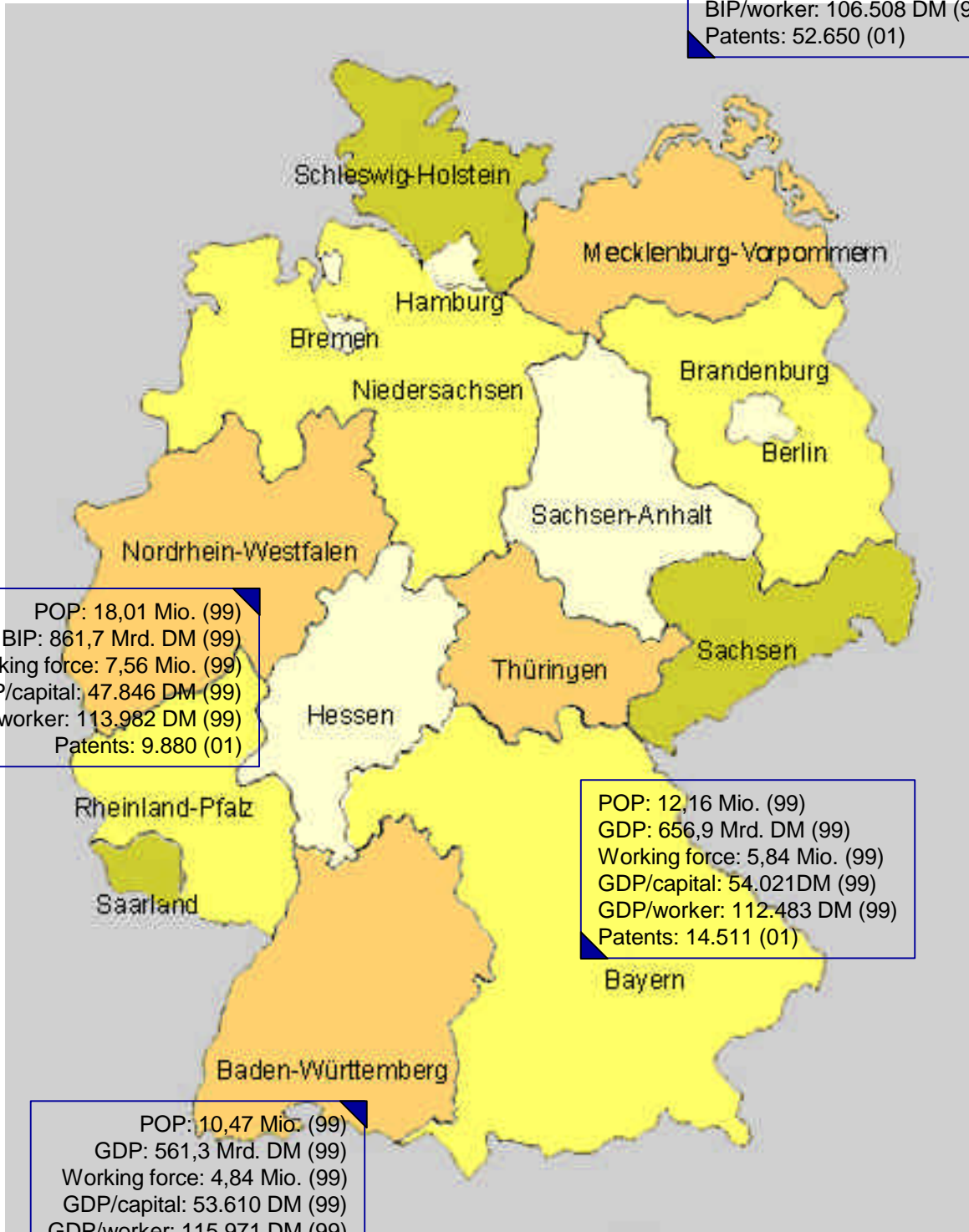
Trends in innovation performance (percentage change)

Nr.	Indicator	EU-average	Leading countries in the EU			FRG	US	JP
1.2	Population with tertiary education (96/97 vs. 00)	15 %	73 (A)	56 (FIN)	24 (UK)	? 6		
1.3	Lifelong learning (95/97 vs. 00)	29 %	134 (B)	81 (UK)	67 (LUX)	? -67		
1.4	Employment in medium/high-tech manufacturing (96/97 vs. 99)	1 %	8 (GR)	4 (IRL)	4 (I)	? -1		
1.5	Employment in high-tech services (95/97 vs. 99)	12 %	70 (IRL)	65 (L)	22 (UK)	? 1,5		
2.1	Public R&D (95 vs. 97 to 00)	-6 %	13 (FIN)	12 (GR)	11 (P)	? -1,3	-10	2
2.2	Private R&D (95 vs. 97/99)	-1 %	48 (FIN)	21 (E)	20 (DK)	? 9	11	12
2.3a	High-tech EPO patents (95/97 vs. 99)	59 %	350 (IRL)	157 (L)	120 (E)	? 88	65	23
2.3b	High-tech USPTO patents (94/96 vs. 98)	76 %	234 (E)	181 (DK)	143 (FIN)	? 67	-10	200
4.1	High-tech venture capital (98 vs. 99)	74 %	350 (GR)	230 (DK)	168 (I)	? 31		
4.5	ICT markets / GDP(96/97 vs. 00)	18 %	41 (GR)	36 (E)	33 (I)	? 26	-18	-10
4.6	High-tech manufacturing value-added (93 vs. 97)	-12 %	87 (IRL)	73 (FIN)	70 (S)	? 25	21	-21

remark: the trend analysis are based on the country related averages

FRG

POP: 82,16 Mio. (99)
 GDP: 3877,1 Mrd. DM (99)
 working force: 36,40 Mio. (99)
 GDP/capital: 47.200 DM (99)
 BIP/worker: 106.508 DM (99)
 Patents: 52.650 (01)

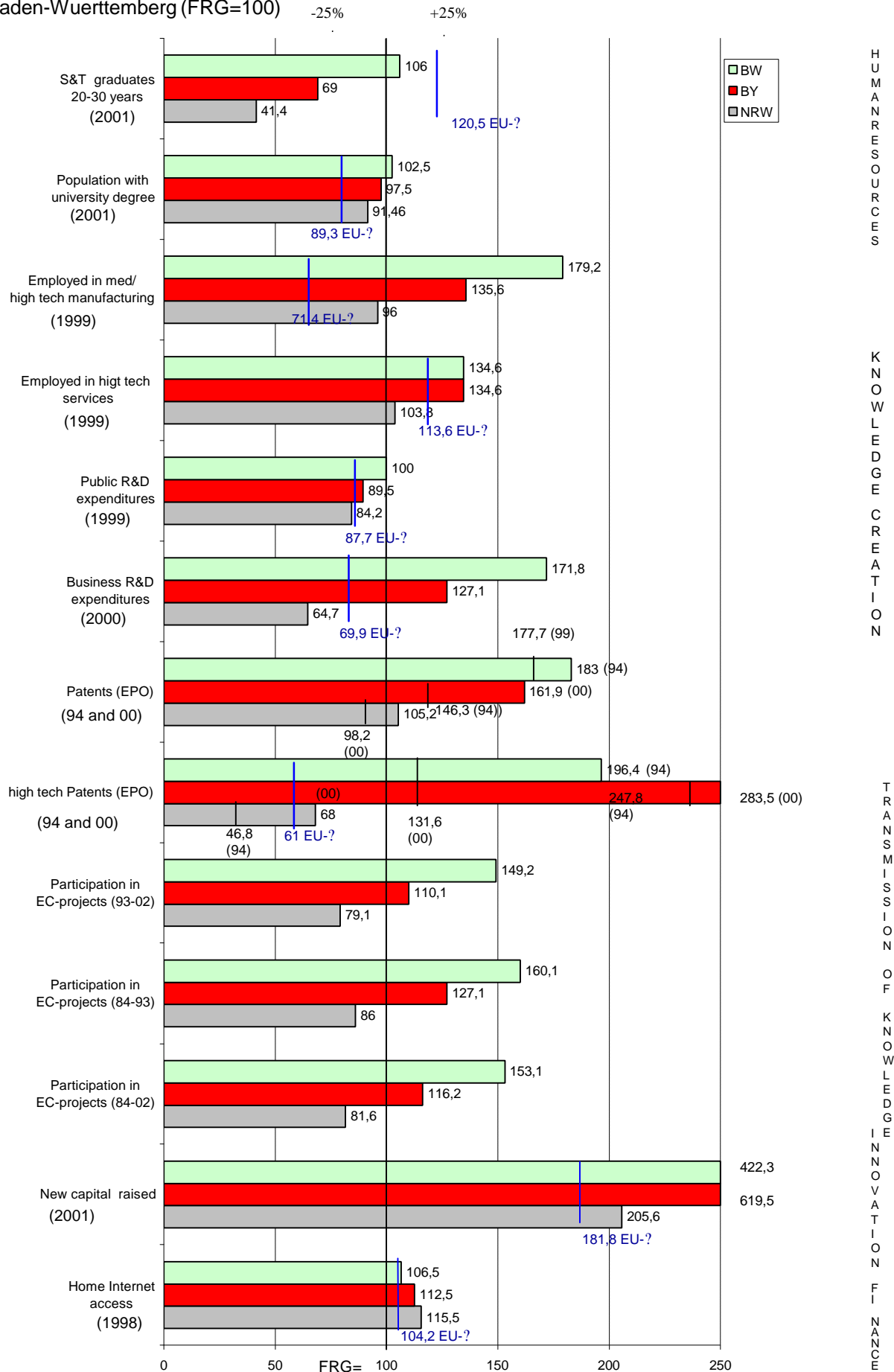


POP: 18,01 Mio. (99)
 BIP: 861,7 Mrd. DM (99)
 Working force: 7,56 Mio. (99)
 GDP/capital: 47.846 DM (99)
 GDP/worker: 113.982 DM (99)
 Patents: 9.880 (01)

POP: 12,16 Mio. (99)
 GDP: 656,9 Mrd. DM (99)
 Working force: 5,84 Mio. (99)
 GDP/capital: 54.021DM (99)
 GDP/worker: 112.483 DM (99)
 Patents: 14.511 (01)

POP: 10,47 Mio. (99)
 GDP: 561,3 Mrd. DM (99)
 Working force: 4,84 Mio. (99)
 GDP/capital: 53.610 DM (99)
 GDP/worker: 115.971 DM (99)
 Patents: 11.884 (01)

Regional Innovation Scoreboard 2001 - Results for North-Rhine Westphalia, Bavaria and Baden-Wuerttemberg (FRG=100)



HUMAN RESOURCES

KNOWLEDGE CREATION

TRANSMISSION OF KNOWLEDGE
INNOVATION FINANCE

5) Regional Strength and weaknesses

Strength and weaknesses compared to European average

	Indicator	Germany	BY	BW	NRW
Human resources	S&T graduates	-	-	+/-	--
	University degree	+	+	+	+/- z
	Employed in med/hightech manufacturing	++	++	++	+
	Employed in hightech services	-	+	+	-
Knowledge creation	Public R&D expenditures	+	+/- z	+	+/- z
	Business R&D expenditures	++	++	++	+/- z
	Patent application at EPO	++	++ z	++ z	+ z
	HT-patent application at EPO	++	++ z	++ z	+/- z
Knowledge transmission and application	Participation in EC-projects 1984-1993		++	++	+
	Participation in EC-project 1993-2002		++ z	++ z	+ z
Innovation finance	new capital raised	--	++	++	+
	home internet access	+/- z	+	+	+

-- = strong negative deviation from EU-average

- = negative deviation from EU-average

+/- = no deviation

++ = strong positive deviation from EU-average

+ = positive deviation from EU-average

~~z~~ = trend

6) Conclusions

Conclusions for NRW:

- high regional diversity in the innovation capacity of regions
- NRW is lagging behind, compared to BY and BW:
 - > major weaknesses in med/hightech employment production und services
 - > pure investment in R&D (public and business) with decreasing trend over time!
 - > bad patent performance, especially in the HT-sector
 - > relatively low participation in EC-projects

7) Recommendations 1

Recommendations for NRW:

- 1) structural reforms of the university sector
 - a) Improve efficiency and scientific outcome:
 - b) Implement a system that rewards economically important outcome (patent before scientific publication!)
 - to attract more high potentials
 - to improve patent outcome
 - to attract more technology based firms
- 2) Increase public R&D expenditures:
 - ✍ concentration of scarce resources (cluster) but: guarantee a budget to cofinance risky innovation project (from all fields)!
 - ✍ strengthen networking between players in competence fields through technology (transfer) scouts

7) Recommendations 2

Recommendations for NRW:

- 3) Improving the Know how transfer from science to business as well as business to business!
- 4) Promotion of networking of experts from politics, economics, science and culture
- 5) Creating an innovative climate on regional level (innovation culture)
- 6) Launching an initiative about the importance of inhouse R&D
- 7) Offensive promotion of the location NRW - Talk about it!
- 8) Get established technology oriented firms
- 9) Promotion of innovative start ups (together with MSWF) fields through technology (transfer) scouts

Thank you

very much

for your

attention!

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