



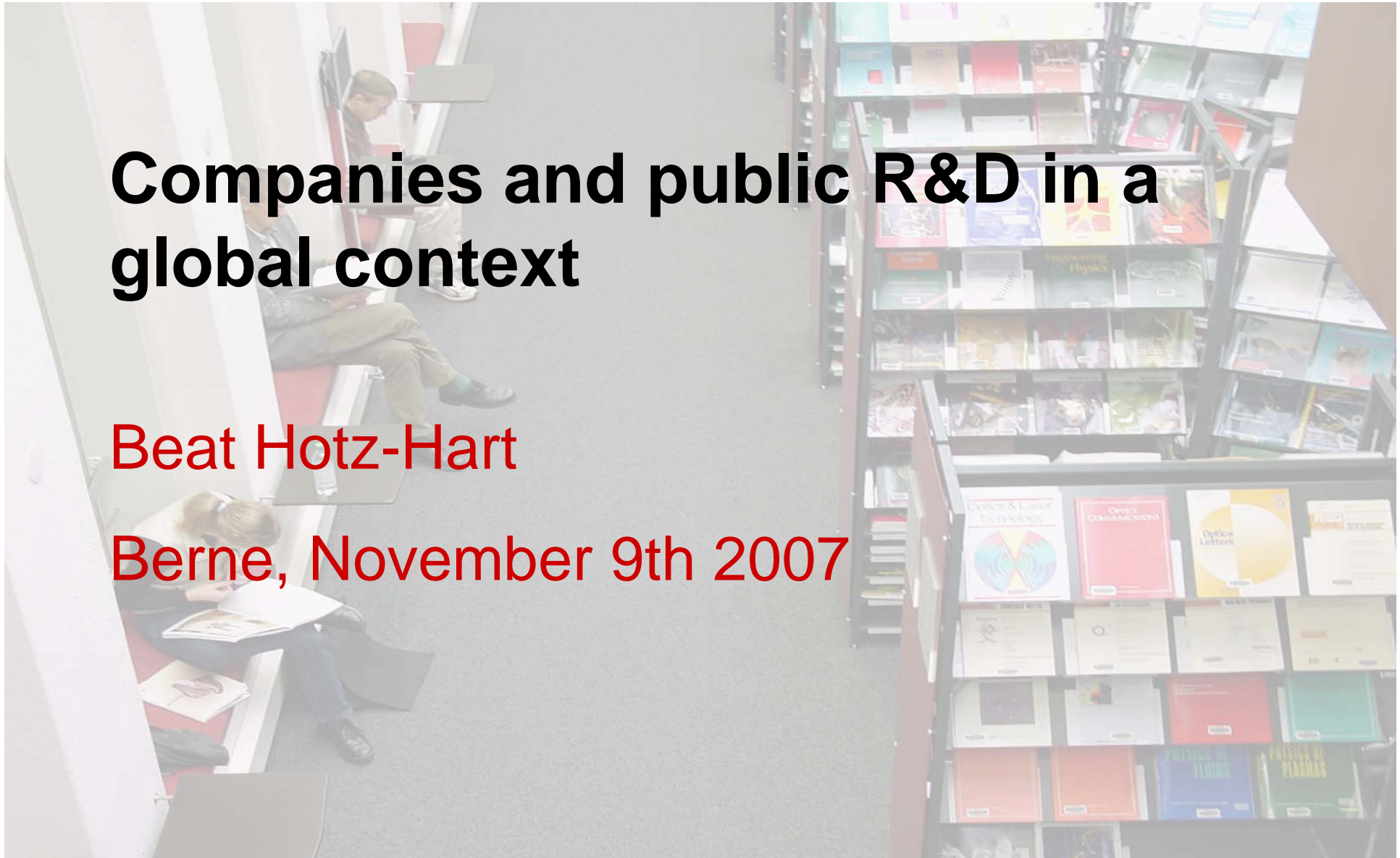
Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Eidgenössisches Volkswirtschaftsdepartement EVD
Bundesamt für Berufsbildung und Technologie BBT

Companies and public R&D in a global context

Beat Hotz-Hart

Berne, November 9th 2007



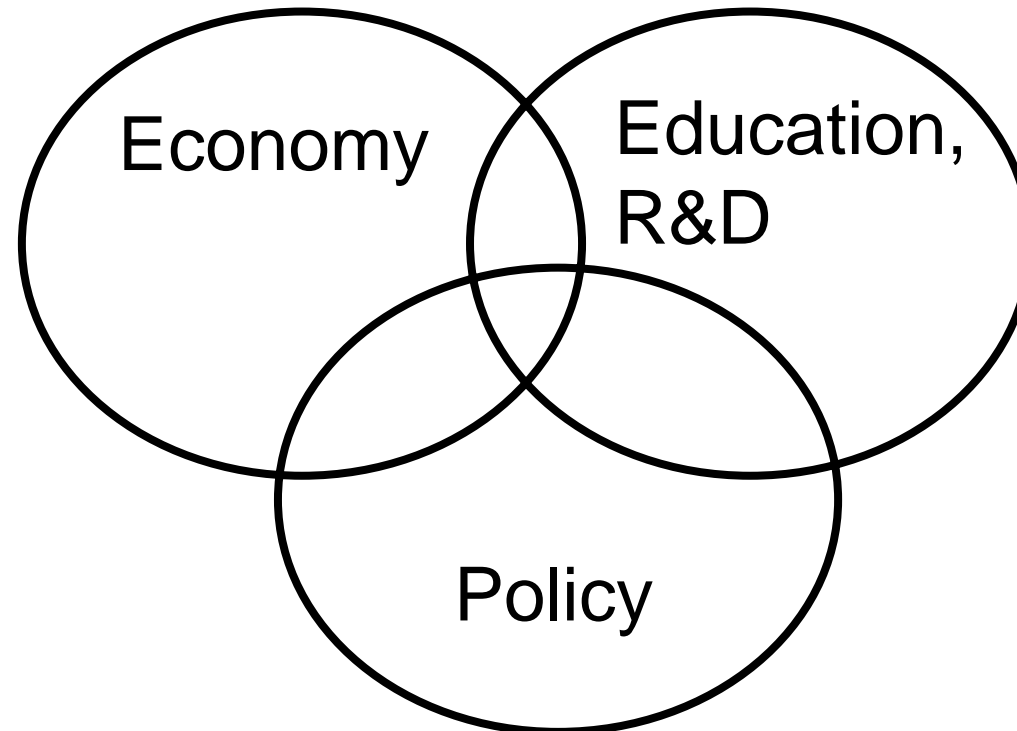


Goal for Switzerland: competitiveness and success through innovation



National Innovation System

Success of Switzerland depends on performance and interplay of ...



... in the process of internationalisation

1. The Economy: Competitiveness in innovation

Needed: Companies in key sectors located in Switzerland

- Generate and exploit innovation in international markets better and faster than competitors
- Perform on world market and within trans-national value-chains with success



The Economy: growing international interlocking

- Growing share of exports and imports on GDP
- New forms of international cooperation
 - Foreign direct investments
 - Joint ventures
 - Strategic alliances

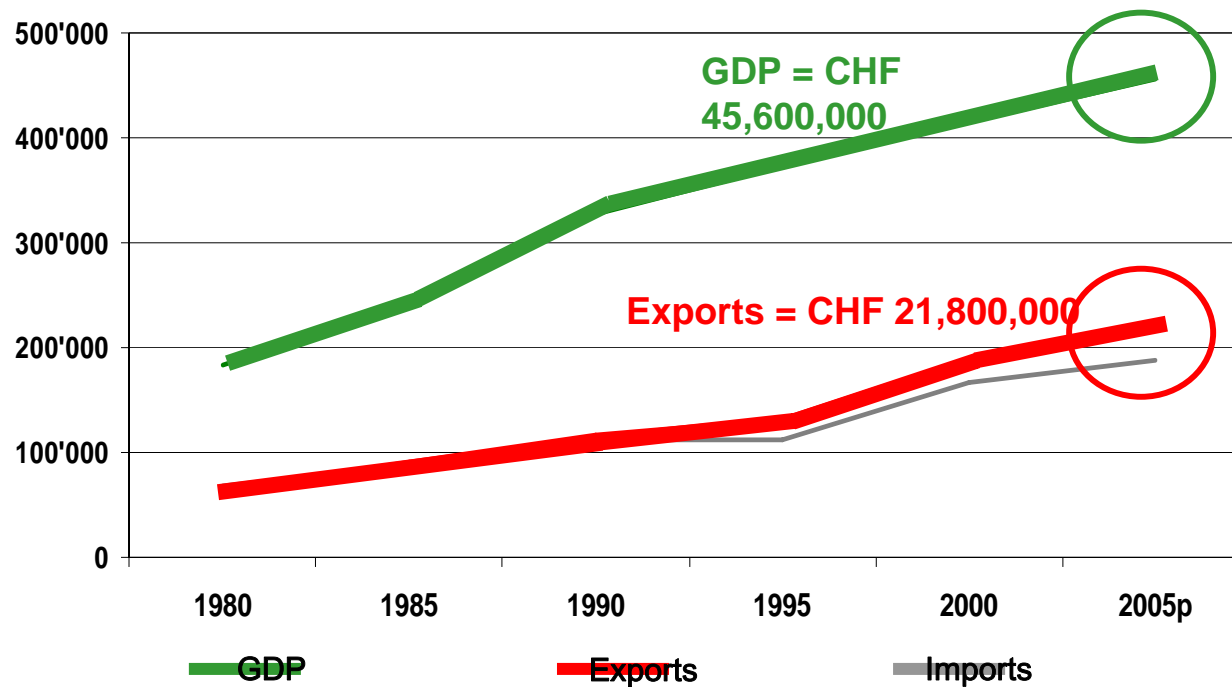


Growing share of exports and imports on GDP

Own calculations, BFS 2006

Export volume 2005 close to 50% of GDP (CHF 218bn of 456bn)

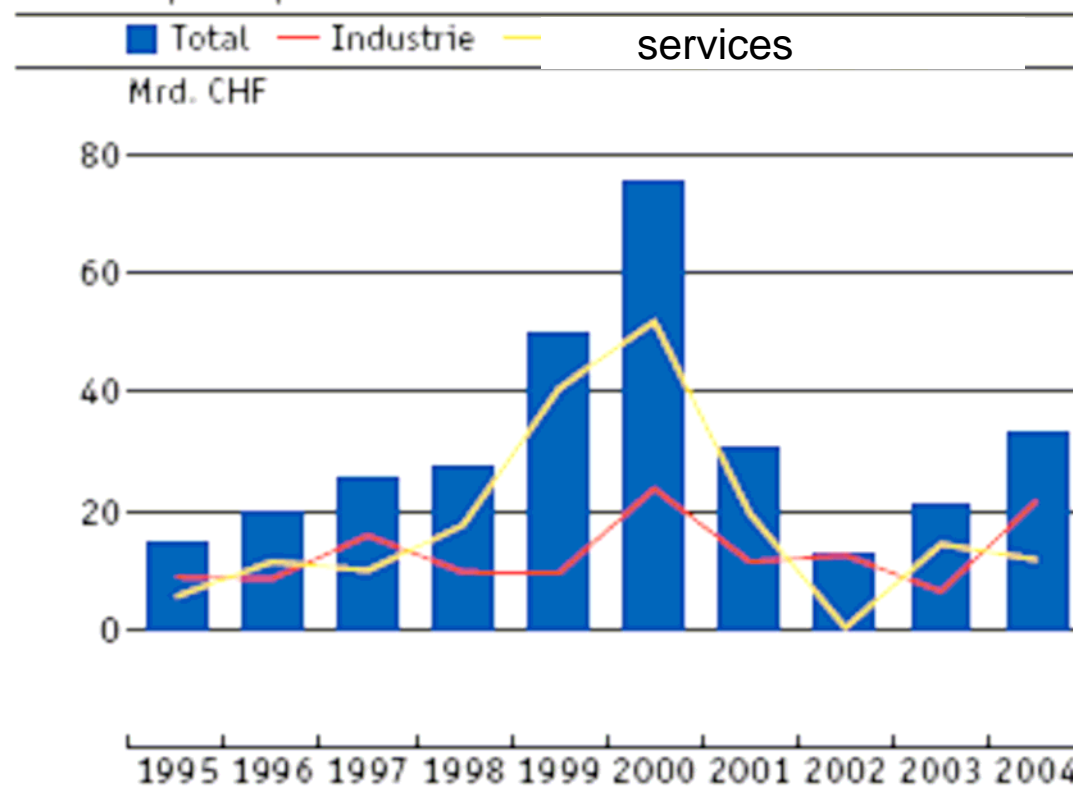
CHF bn



- higher innovation share in exports
- CH with BeNeLux-countries + Denmark strongest worldwide



Foreign direct investment, FDI of Switzerland, CHF 20 – 40 bn p.a.





2. Education and R&D: cooperation and networking

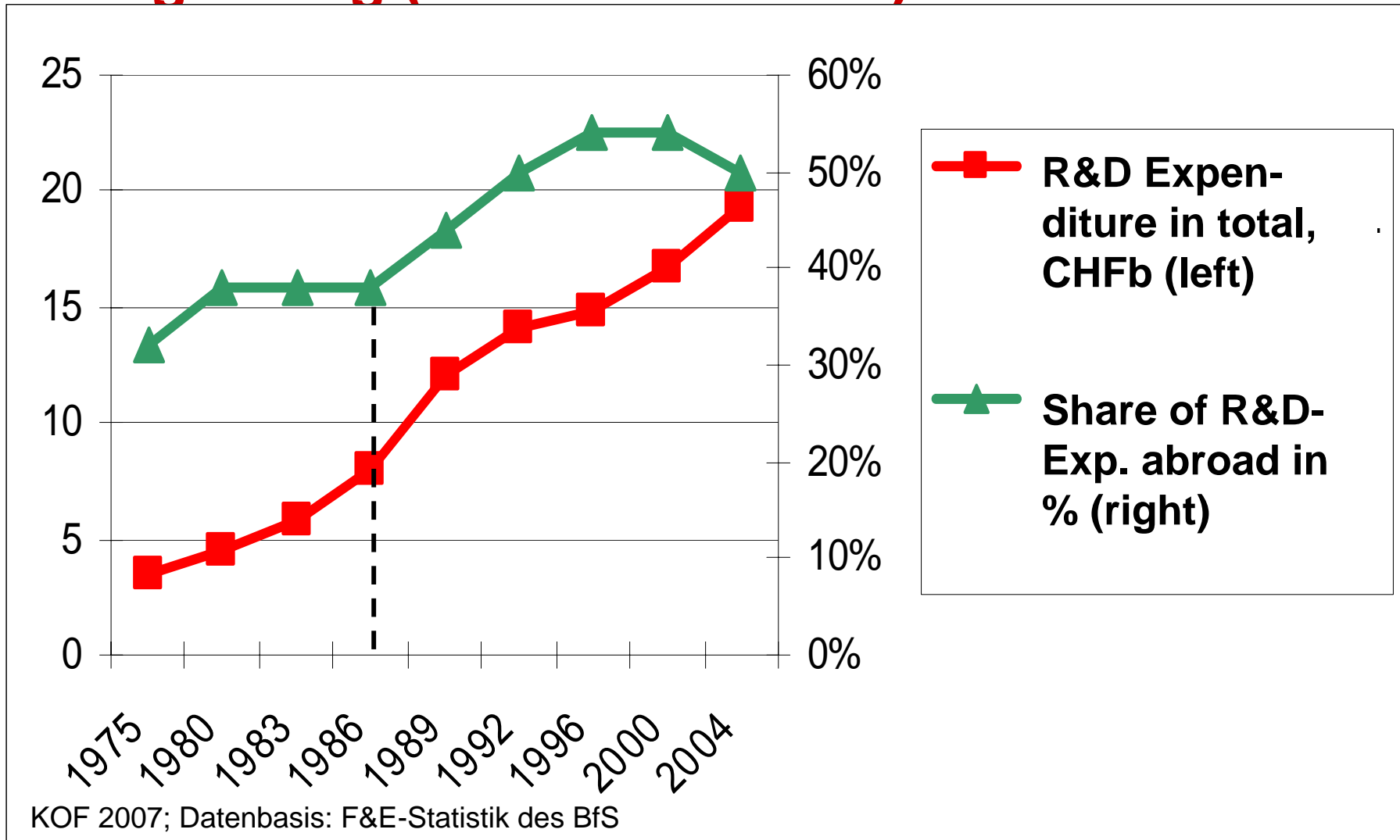
- International participation university faculty
- R&D expenditure of economy growing:
abroad faster than at home



University faculty: international participation in % 2006

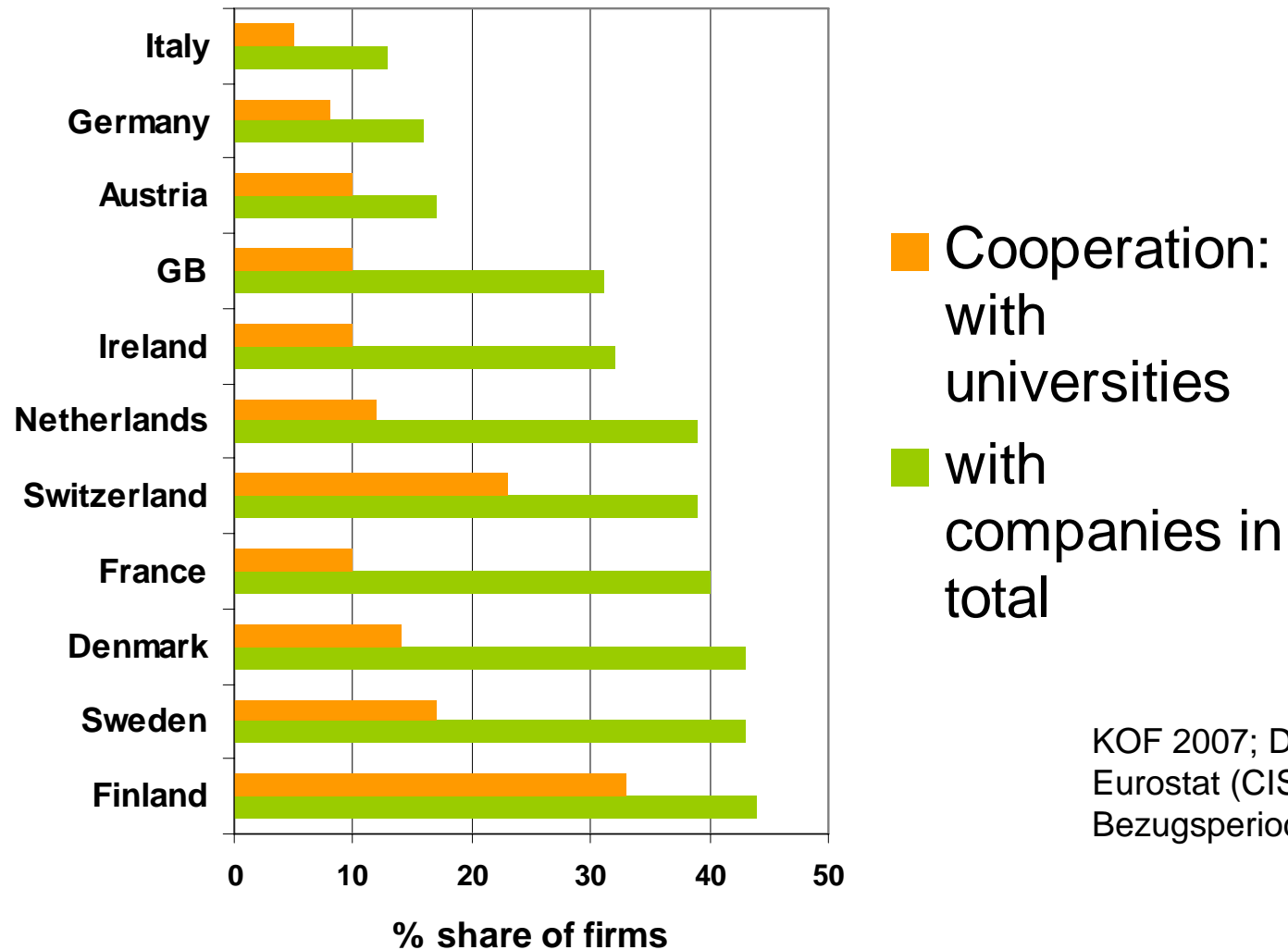
University faculty	EPFL	ETHZ	Total
Professors	54.7	61	44
Other teachers	33.4	29.4	29.1
Fellows	62.9	56.9	51.7
Total	46.2	42.6	37.3

🇨🇭 R&D-Expenditure of Swiss companies is growing (intramuros-R&D)



R&D cooperation universities / firms is increasing

%-share of firms with cooperation 2003-05



KOF 2007; Datenbasis:
Eurostat (CIS-Umfragen);
Bezugsperiode: 2002-04



Outsourcing of R&D Activities of Swiss companies 2000 and 2004

CHFm Source: BfS

	2000 absolute	%	2004 absolute	%	Wa Rate pa
Other companies in CH	430	24	1053	26	24.2
Swiss universities	125	7	259	6.4	18.8
Other org. in CH	40	2	95	2.3	
Patents, licences	50	3	211	5.3	
Abroad	1142	64	2428	60	
Total	1787	100	4046	100	



Summary

- Internationalisation of firms' R&D activities is crucial for success
- Substantial increase during the last decade; including SME
- Universities are important partners, but there are many more → international market for R&D



Main Reasons for globalisation

Input oriented

- Access to know how and human resources in foreign locations → in search of excellence worldwide
- Closeness to subcontractors

Output oriented

- Access to new markets
- Closeness to customers and local preferences

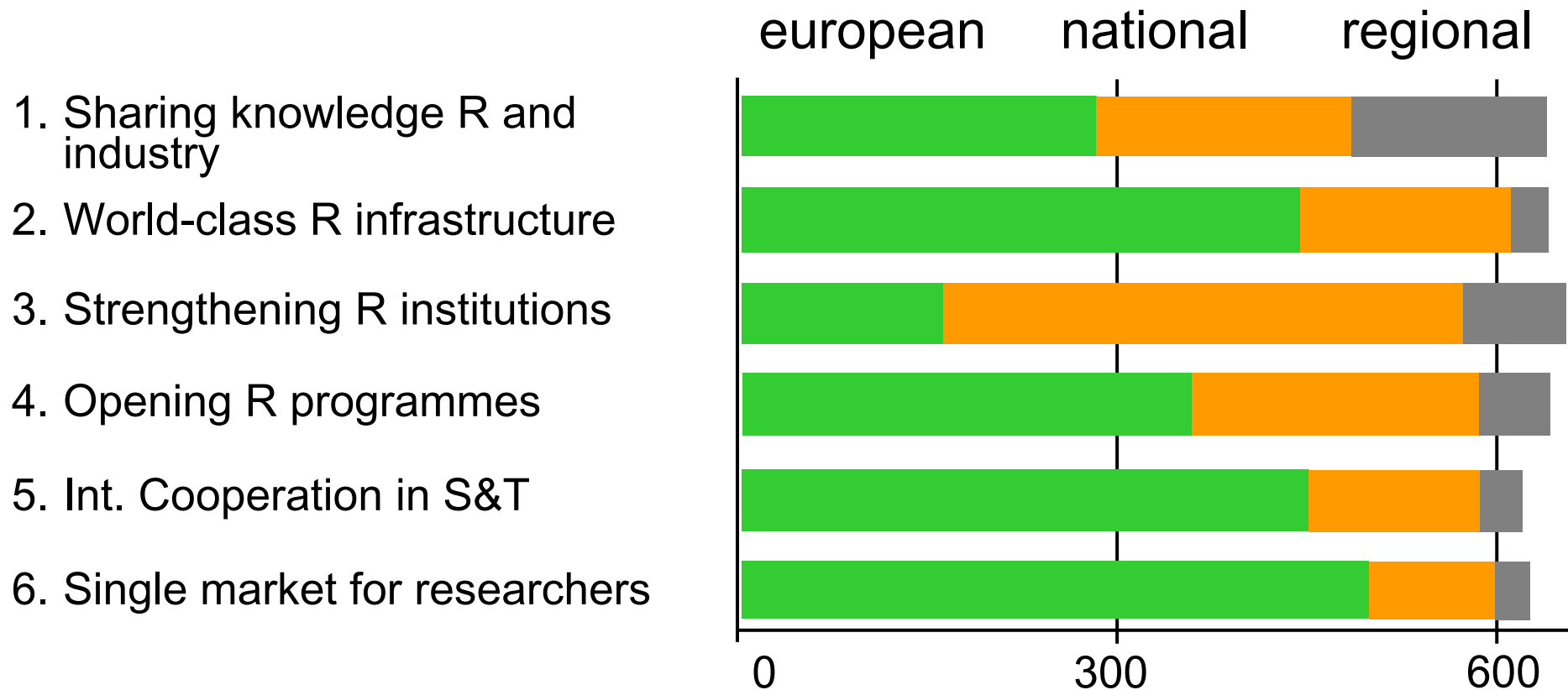


3. Internationalisation of innovation policy: policy governance, e.g. EU

- EU-Framework programme with top down elements
 - ERA-net: bottom-up approach
 - Technology platforms: industry led
 - European Research Council, ERC
- In the struggle for balance between top-down and bottom-up
- Shift of competences between national and supra-national level

🇨🇭 ERA Areas: expected level of action and priorities

Answers to the Green Paper consultation, Sept. 2007





4. Conclusion

“More open global competition makes the home-base more, not less, important”, Porter

→ Attractiveness and positioning of the home-base in the international value chains

- Economy
- Education and R&D
- Policy



Conclusion: Economy

- Conflict between ...
 - Convergence: Adaptation of products and preferences
 - Specialisation: build up of regional strengths and uniqueness
- Differences will be increased
 - After fall-back in R&D and innovation: more difficult to catch up



Conclusion: Education and R&D

- Strengthen competences and high quality human capital and R&D
- Increase attractiveness of location Switzerland
 - High-end inshoring
 - Attractiveness for research(ers)
- Foster strong economic base to provide career opportunities for talents
- Offer optimal framework conditions not only for economy, but also for education and R&D



Conclusion: Policy

- Secure access and openness to world market, to international cooperation and programmes
- Participate in international governance of innovation policy
- Stress complementarities to supra-national level by strengthening national base of education, R&D and economy
- Strengthen uniqueness in competition of locations: Keep Switzerland's own profile!



Thank you for your attention!

www.bbt.admin.ch

www.kti-cti.ch

Beat.Hotz@bbt.admin.ch