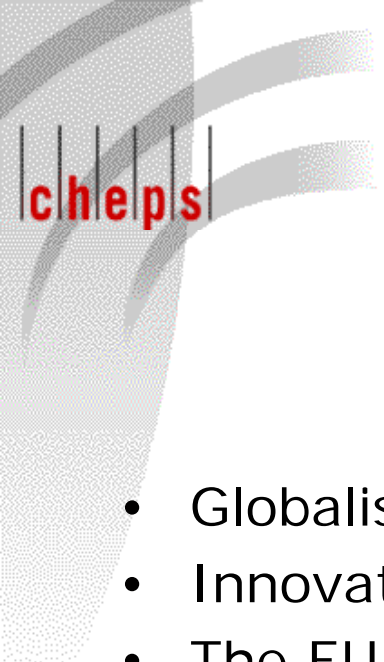


# The University in the Europe of Knowledge

**EU-policies on innovation, research and higher education**

**CHEPS 25th Anniversary Conference  
Enschede, 11 March 2011**

**Frans van Vught**

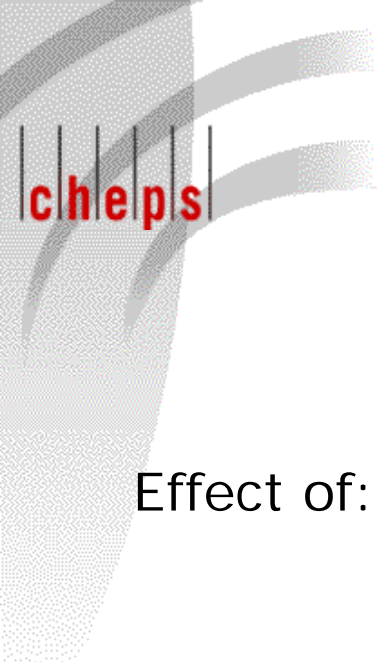


# Overview

- Globalisation
- Innovation and Innovation Policies
- The EU 'Lisbon Agenda' (2010)
- Ambitions and Realities
- The 'Europe 2020 Strategy' (2020)
- Issues and Actions
- Challenges for European Universities
- Higher Education Policy Studies

# European Higher Education in a Globalising World

- Economic: process of increasing economic openness, growing economic interdependence and deepening economic integration in the world economy
- Political: process of institutionalisation of international consultation and decision-making, and of relative reduction of the power of national governments
- Socio-cultural: process of global cultural exchange and integration and of potential weakening of traditional social norms and institutions



# Globalisation

Effect of:

- Decreasing costs of communication and transportation
- Leveling barriers for cross-border activities

# Globalisation and 'Geo-Regionalisation'

	1990		1995		2000		2005		2008		2009	
	Total	% internal	Total	% internal	Total	% internal	Total	% internal	Total	% internal	Total	% internal
ECOWAS	23	7	21	9	36	8	65	8	106	9	73	10
SADC	35	3	39	11	51	9	98	8	191	10	135	9
MERCOSUR	46	9	70	20	85	21	164	13	279	15	218	15
NAFTA	562	40	853	46	1.225	55	1.480	56	2.045	50	1.602	48
ASEAN	145	19	324	25	432	23	653	25	1.003	29	812	25
ASEAN+3	560	27	1.048	35	1.333	35	2.294	35	3.640	32	2.955	32
EU27	1.547	67	2.098	66	2.454	67	4.071	67	5.881	75	4.553	67

# Globalisation and Innovation

- Globalisation triggers national innovation policies
- National innovation policies focus increasingly on stimulating the creation, transfer and application of knowledge
- National innovation policies are influenced by the “National Innovation System” (NIS) perspective

# The perspective of National Innovation Systems (NIS)

- Emerged during 1980s as a new approach to the economics of innovation
- Emphasizes interactions between scientific knowledge and new products and services
- Takes an explicit policy orientation
- Identifies academic institutions as playing a critical role
- Distinguishes two crucial outputs of these institutions:
  - research outputs (publications, patents)
  - highly skilled human capital
- Focuses on linkages between actors in innovation processes:
  - hard linkages (science parks, incubators)
  - soft linkages (internships, conferences)
- Addresses institutional framework conditions of innovation processes (regulations, incentives)

- International comparative study of national innovation policies
- Australia, Canada, Europe (EU and several Member States), Japan, US (Federal and several States)
- David D. Dill & Frans A. van Vught (eds). *“National Innovation and the Academic Research Enterprise: Public Policy in Global Perspective”*, Baltimore, Johns Hopkins University Press, 2010

# National Innovation Policy Strategies

- Clearly influenced by the NIS perspective
- Relate policy instruments to policy objectives regarding innovation
- Consist of some combination of the basic notions of market coordination and central planning
- Two large categories:
  - prioritisation strategies
  - competition strategies

# Prioritisation Strategies

- Reflects notions of central planning
- Characteristics like: foresight analyses, priority allocation, concentration of resources, quality assessment of outputs
- Examples:
  - Australia's research priority setting
  - Canada's centres of excellence
  - Finland's TEKES agency
  - UK's foresight assessments and RAEs
  - Netherlands' innovation priority areas

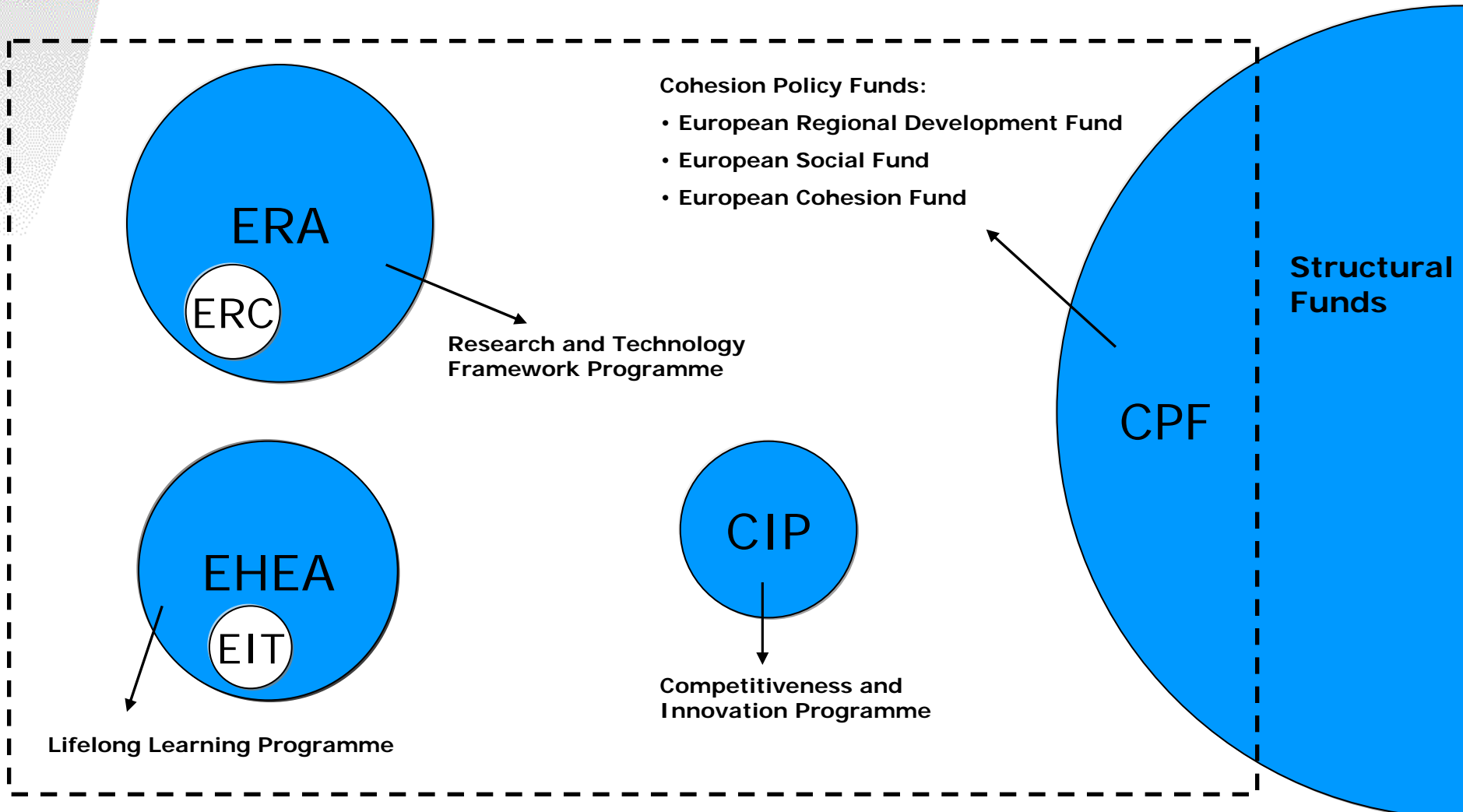
# Competition Strategies

- Reflects notion of market coordination
- Characteristics like: competitive allocation of resources, encouraging entrepreneurial academic behaviour, deregulation, diversifying funding base
- Examples:
  - US federal science policy
  - Japan's competitive grants scheme for doctoral training
  - Canada's competitive research matching funding
  - Germany's excellence policy
  - UK's competitive 'third sector' funding

# EU Innovation Strategy

- Example of prioritisation strategy
- But with elements of competition strategy
- 20 Years of EU innovation policies:
  - The 'Lisbon Agenda' (2000 – 2010)
  - The 'Europe 2020 Strategy' (2010 – 2020)

# The Lisbon Agenda on Innovation



# EU Innovation Strategy: Research

- Fully developed since 1980's
- Framework Programmes: medium term planning instrument
- But only 5% of the total EU research investments
- European Research Area (ERA):
  - Launched in 2000
  - Barcelona target: 3% GDP
  - FP7: Technology Platforms; Joint Technology Initiatives; European Research Council; joint programming.
- Six ERA Features:
  - Adequate flow of mobile researchers
  - World-class research infrastructures
  - Excellent research institutions
  - Effective knowledge-sharing
  - Well-coordinated research programmes
  - Opening up to the world

# EU Innovation Strategy: Knowledge Exchange

- Only addressed since late 1990's
- Focus on decreasing barriers:
  - cultural differences between academic and business communities
  - legal barriers
  - fragmented markets
  - lack of incentives
- Facilitate creation and marketing of new products and services (the 'lead markets')
- Competitiveness and Innovation Programme (CIP, 2007-2013)
- Several measures:
  - Workforce of skilled knowledge transfer staff
  - Entrepreneurial mindset in universities
  - Staff exchanges between research organisations and industry
  - Voluntary guidelines to improve intellectual property management
  - Innovation Relay Centers, Network of Innovating Regions. IPR helpdesk, on –line information SMEs

# EU Innovation Strategy: Higher Education

Taboo until 2000

- First programmes: Erasmus (mobility), Socrates I&II (cooperation)
- Alignment with Bologna Process (1999)
- Lifelong Learning programme (2007-2013)
- Hampton court target: 2% GDP
- Major Bottlenecks:
  - Tendency to uniformity and egalitarianism
  - Too much emphasis on traditional monodisciplinarity
  - Too little world-class excellence
  - Too much emphasis on traditional learning and learners
  - Too little transparency
  - Too much fragmentation
  - Too insulated from industry
  - Over-regulated; state dependent; underfunded
- Modernisation agenda (since 2005)
  - Mobility
  - Governance
  - (Regional) innovation
  - Internationalisation (Erasmus Mundus)
  - Higher education – Business fora
  - European Institute of Technology (EIT) and Knowledge & Innovation Communities (KICS)

## The Lisbon Agenda: ambitions and realities

	R&D Intensity	R & D Financed by business	R&D Financed by government
EU	1.83	1.00	0.63
US	2.61	1.69	0.76
Japan	3.39	2.62	0.55
S. Korea	3.23	2.43	0.74
China	1.42	0.98	0.35

## The Lisbon Agenda: ambitions and realities

Expenditure on higher education

	Total expenditure	Public Expenditure	Private expenditure
EU	1.2	1.13	0.07
US	2.9	1.5	1.4
Japan	1.5	0.6	0.9

## The Lisbon Agenda: ambitions and realities

	FTE Research per thousand labour force
EU	5.6
US	9.3
Japan	10.7

	% researchers in business sector
EU	49%
US	79%
Japan	68%

## The Lisbon Agenda: ambitions and realities

	Number of research publications per million population
EU	639
US	809
Japan	569

	% universities world leader in at least one discipline
EU	26%
US	81%
Japan	18%

# Shanghai University Ranking

	ARWU, 2010	
	Top 500	Top 100
EU	198	28
US	155	55
Japan	25	5
China	27	2
Denmark	4	2
Germany	39	5
Finland	6	1
France	22	3
Netherlands	12	2
Sweden	11	3
UK	38	11

## The Lisbon Agenda: ambitions and realities

World share patent applications (%)

	2000	2005
EU	36.0	30.9
US	39.7	33.1
Japan	10.5	16.3

## The Lisbon Agenda: ambitions and realities

World share patent applications in three fields (%)

	Biotechnology	ICT	Nanotechnology
EU	24.9	24.8	26.6
US	39.7	34.6	42.9
Japan	17.5	18.3	14.1

# The Europe 2020 Strategy

## Context:

- Further globalisation of knowledge production and innovation capacities: declining EU shares.
- Impact of crisis: loss of 6 million jobs and 1000 billion euros annual GDP.
- Major societal challenges: climate change, sustainability, energy security, ageing population, poverty

# The Europe 2020 Strategy

## Issues and Actions in Research:

- Costly fragmentation and overlap between national research systems
- Need for a unified European Research Area where actors move and operate easily
- Simplification of complex funding landscape
- Urgent need for world-class infrastructures
  
- EC proposal for ERA framework (2012) to remove obstacles to mobility and cross-border cooperation in research by 2014
- EU and Member States to complete 60% of priority European research infrastructures by 2015
- International agreements on world-level infrastructures
- Streamlining and simplification of research programmes.

# The Europe 2020 Strategy

## Issues and Actions in Research in Higher Education:

- Universities to diversify and specialise
- Need to create limited number of world-class European universities
- Attract international top talent
- EU needs at least one million more researchers
- More people to enroll in higher education
- Educational training should better match business needs
  
- Percentage 30 – 34 year old with tertiary education to 40% in 2020
- National strategies to boost training and career of researchers
- Mobility to be diversified
- New multidimensional ranking instrument
- Modernisation of governance and management in universities
- More entrepreneurial universities
- University-Business alliances

# The Europe 2020 Strategy

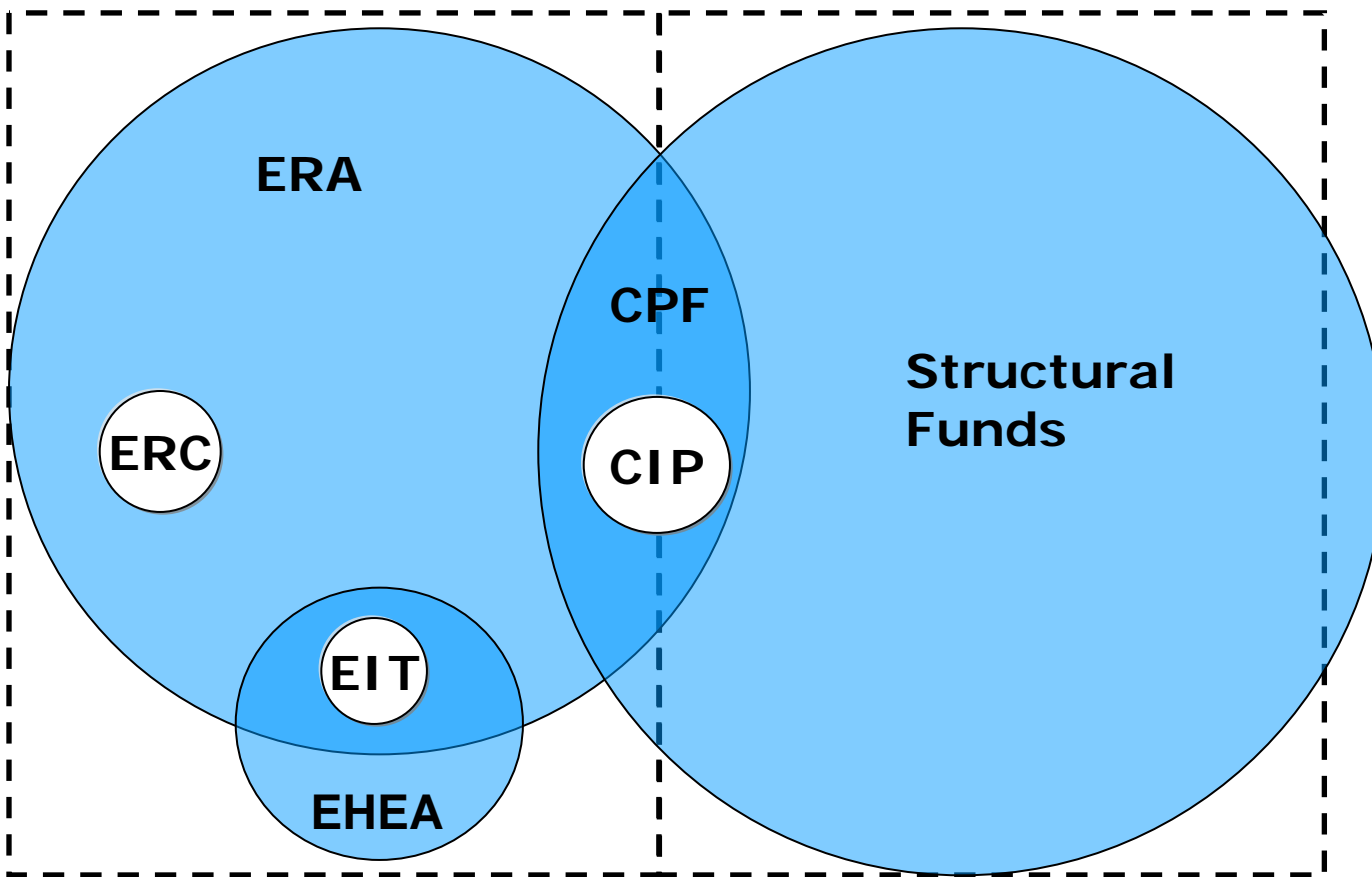
## Issues and Actions in Knowledge Transfer:

- Need to support whole innovation chain, from research to market
- Address lack of finance as major constraint
- Few European SMEs grow into global companies
- Much IPR remains dormant
- EU patent system is costly
- Public procurement hardly used for innovation
  
- Rapid agreement on EU patent needed
- New generation of financial instruments with EIB
- Regime of cross border venture capital funds
- Strategic innovation agenda of EIT
- Member States to use procurement budgets for innovation

# The Europe 2020 Strategy on Innovation

Research and Innovation Policy Framework

Cohesion Policy Framework



# The Europe 2020 Strategy on Innovation

- Two complimentary general policy frameworks
- Synergies between Innovation policies and Cohesion policies
- Further integration of research and innovation policies
- Combining global and regional innovation ambitions (global-local connectedness)
- Multi-excellence approach
- Combining and integrating policies of EU and Member States

# A Changing European Higher Education Landscape

## EU-level:

- Stronger differentiation policies:
  - functional
  - geographical
- Stronger transparency and accountability policies
- Major diversity effects:
  - academic stratification
  - horizontal differentiation

## Member States level:

- Urge to create 'national knowledge triangles'
- Need to build 'focus and mass'
- Wish to stimulate 'institutional profiling'

## Institutional level:

- Increasing competition for funding and reputation
- Search for larger investments capacities
- Move toward networks, partnerships, mergers
- Need to strengthen institutional strategies (focus, mission, profile)

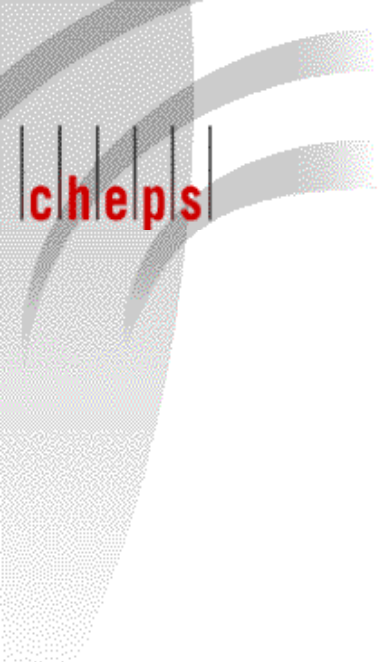
# Higher Education Policy Studies

- The perspective of 'Megapolicies' (Dror, 1971):
  - analysing the assumptions and normative guidelines behind sets of specific policies
  - analysing the relationships between and boundaries of specific policies
- Internal focus      →      contextual focus
- Aspects            →      interrelationships
- Dynamics          →      effects

cheps



Don F. Westermenden 2009



**Happy Birthday!**