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A European vision of the current state of Research



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Agenda

1. The end of an era and an uncertain future
2. “We are sailing stormy waters”: Changes will not be painless
3. Room for hope? Yes, starting from rediscovering the value of higher education and research

1. THE END OF AN ERA AND AN UNCERTAIN FUTURE

From growing to declining population – Western world

	Population (mln)		Var. %	Birth rate in the world		Life expectancy at birth (years)		Var. %
	1960	2010		1960	2010	1960	2010	
Italy	50	59	18%	2,37	1,41	69,1	82,3	13,2
France	47	65	39%	2,85	2,03	69,9	81,7	11,8
Germany	73	82	12%	2,37	1,39	69,3	80	10,7
Spain	31	47	54%	2,86	1,37	69,1	81,6	12,5
Great Britain	52	63	20%	2,69	1,92	71,1	80,4	9,3
Total	253	316	25%					
USA	181	309	71%	3,65	1,93	69,8	78,5	8,7
Japan	93	128	38%	2,00	1,39	67,7	82,8	15,1
Total	273	437	60%					

Source: World Bank

From growing to declining population – Developing countries

	Population (mln)		Var. %	Birth rate in the world		Life expectancy at birth (years)		Var. %
	1960	2010		1960	2010	1960	2010	
Turkey	28	75	170%	6,30	2,10	45,4	74,2	28,8
Russia	120	142	19%	2,52	1,57	66,6	68,9	2,3
China	667	1.338	101%	5,76	1,65	43,5	74,9	31,4
India	450	1.206	168%	5,87	2,56	41,4	65,7	24,3
Mexico	39	118	205%	6,78	2,28	57,1	76,7	19,6
Brazil	73	195	168%	6,21	1,84	54,7	73,1	18,4
Total	1.348	3.000	122%					
Nigeria	45	160	253%	6,35	6,02	37,2	51,3	14,1
Egypt	28	78	179%	6,63	2,88	48,0	70,5	22,5
Ethiopia	22	87	292%	6,88	4,90	38,4	61,5	23,1
Total	95	325	240%					
TOTAL	1,997	4,152	108%					
% of the world population	67%	60%						
World population	3,000	6,930	131%					

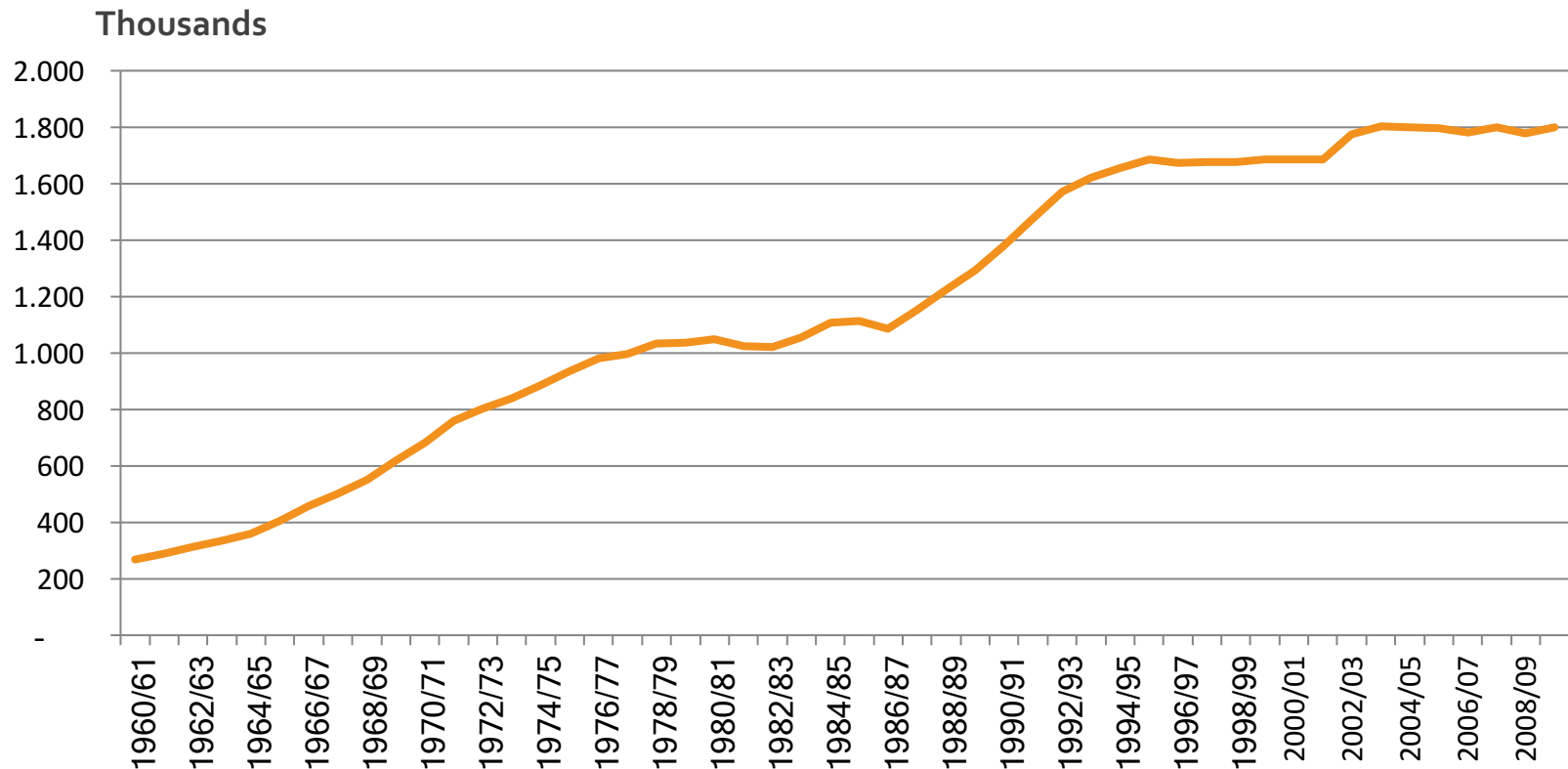
Source: World Bank

GDP growth (CAGR %): from stable growth to “secular stagnation”

Country	1970-1980	1980-1990	1990-2000	2000-2010	2010-2015
Europe					
France	3,6%	2,5%	2,1%	1,2%	0,9%
Germany	2,9%	2,3%	2,0%	0,9%	1,6%
Italy	3,8%	2,4%	1,7%	0,3%	-0,6%
Portugal	4,7%	3,3%	2,9%	0,7%	-0,9%
Spain	3,6%	2,9%	2,8%	2,2%	-0,2%
United Kingdom	2,1%	2,9%	2,4%	1,6%	2,0%
United States	3,2%	3,3%	3,4%	1,6%	2,1%

Source: Reprocessing Data from OECD Statistics

From a poorly- to a highly-educated population: Italian students from the '60 to today



Source: ISTAT

From poorly to higher educated population: tertiary education (25-34 years old)

25-34 Years old	2000	2015
Europe		
France	31,4	44,7*
Germany	22,3	29,6
Italy	10,4	25,2
Portugal	13,0	33,1
Spain	34,1	41,0
United Kingdom	28,9	49,2
United States	38,1	46,5
OECD - Average	26,3	42,1

* Year of reference: 2014

Source: Reprocessing Data from OECD Statistics

What about the future? Highlights

- Population:
 - Ageing population and decrease in fertility rate
 - Increasing relevance of migrating phenomena, with social and economical impact
- GDP:
 - The age of secular stagnation, or a limited growth at best
- Education:
 - At a global level, university students will hugely increase by 2030
 - This is why education will be a necessary, rather than a sufficient, condition for high quality life style

2. “WE ARE SAILING STORMY WATERS”: CHANGES WILL NOT BE PAINLESS

“We are sailing stormy waters”

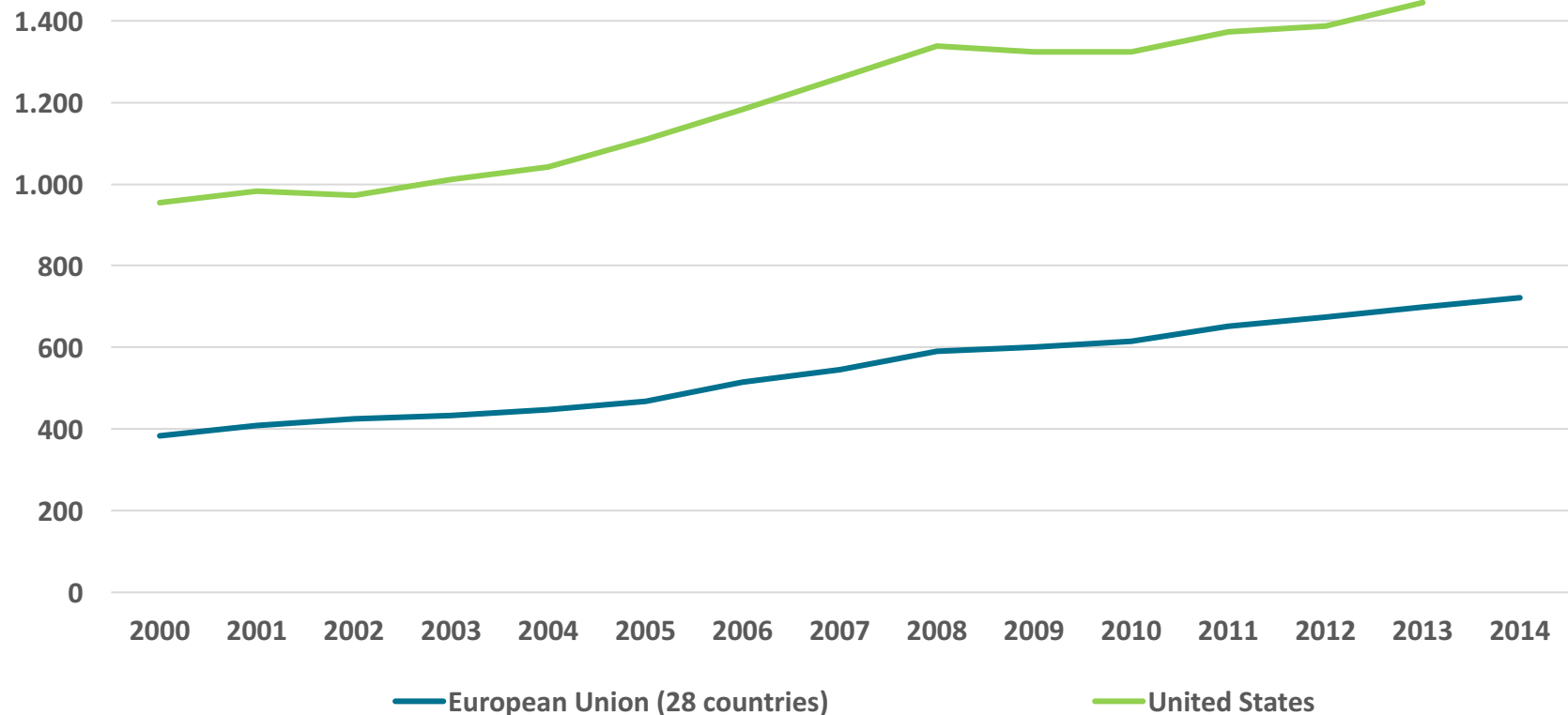
- Some recent events shocked the world in the last few months:
 - Refugee crisis and radical terrorism
 - Brexit
 - Turkey instability
 - The election of an “outsider” as a US President

Changes will not be painless

- No better time to reconsider what we have and what we need to fight for
- Nothing can be taken for granted
- Changes are necessary and require us to identify what are the fundamental values (R&D, attractiveness and equity in fund allocation) and what we need to change

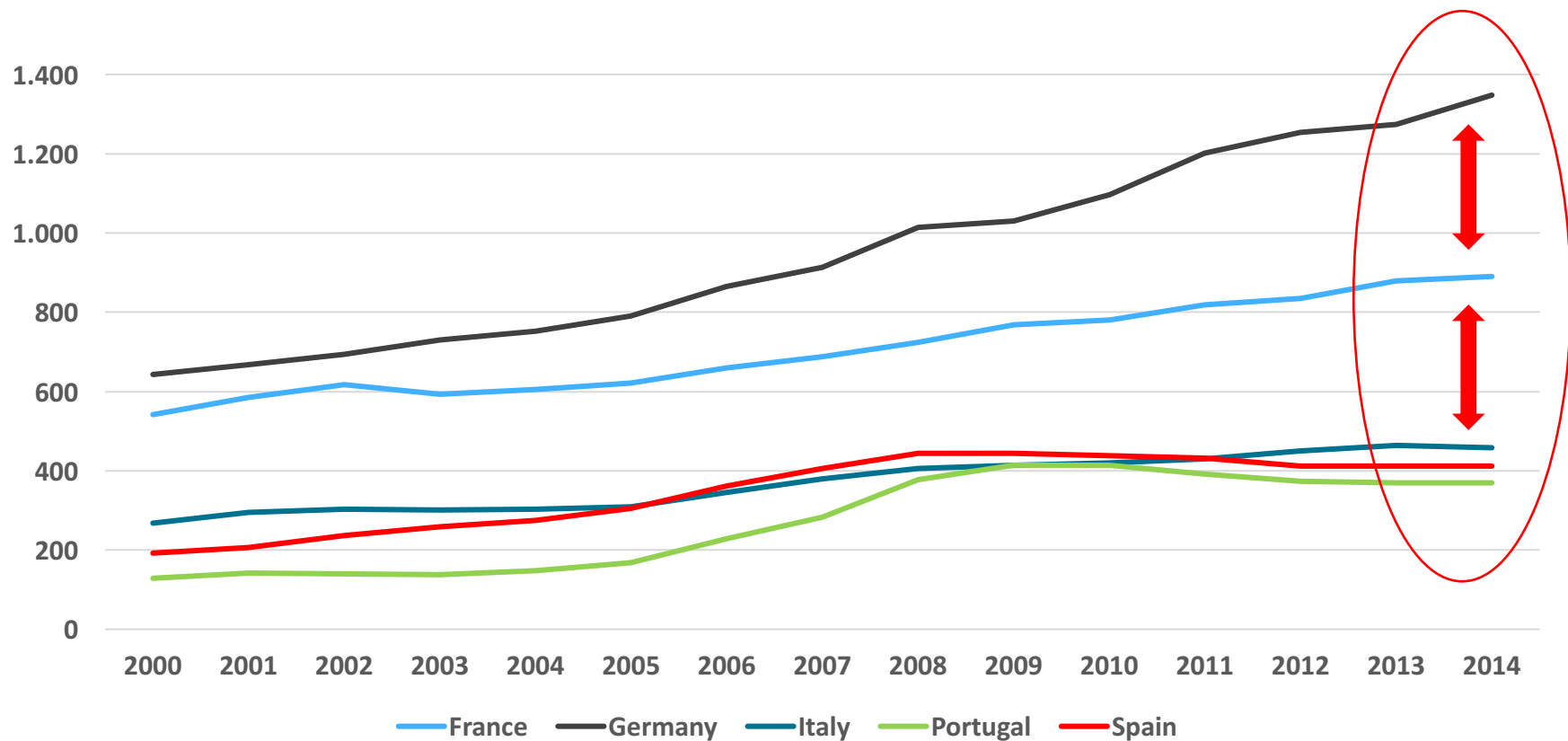
The investment gap in R&D

GERD per capita – US vs Europe



Source: Reprocessing Data from OECD Statistics

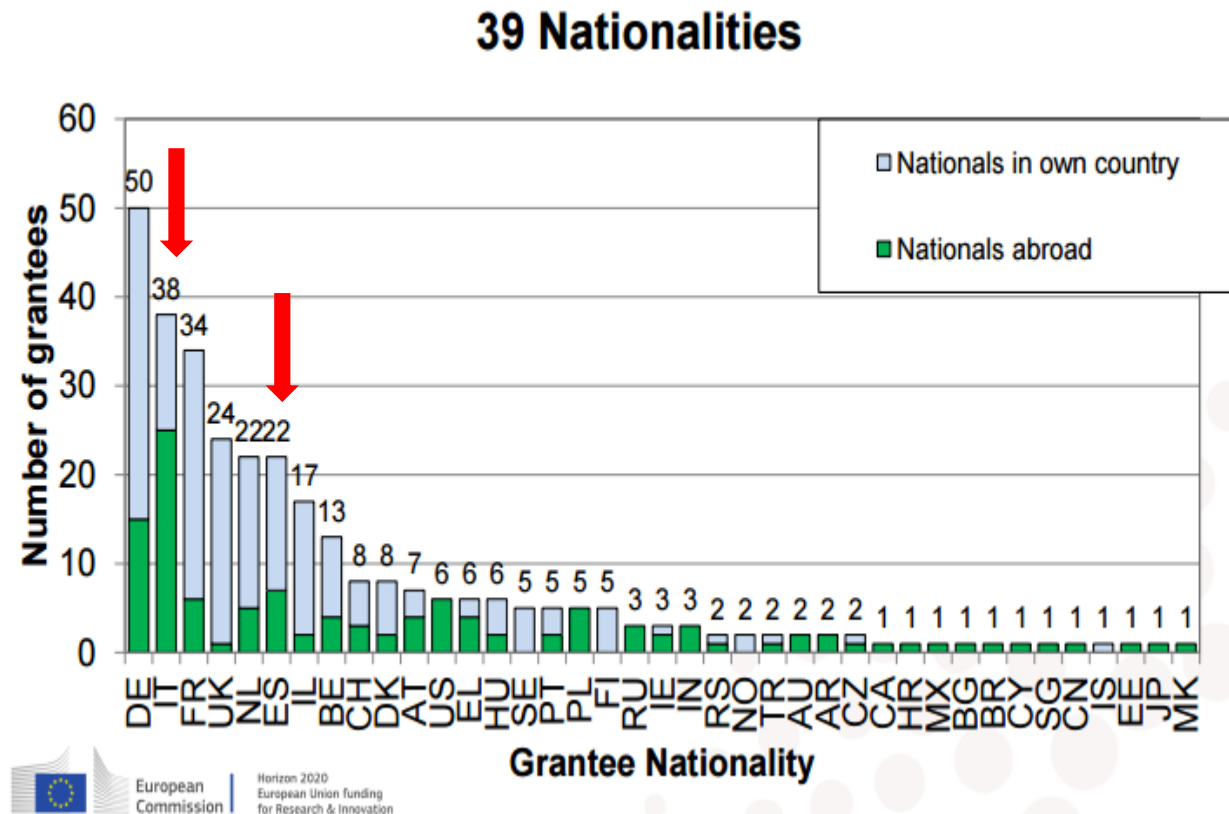
The “3 Europes” in R&D GERD per capita



Source: Reprocessing Data from OECD Statistics

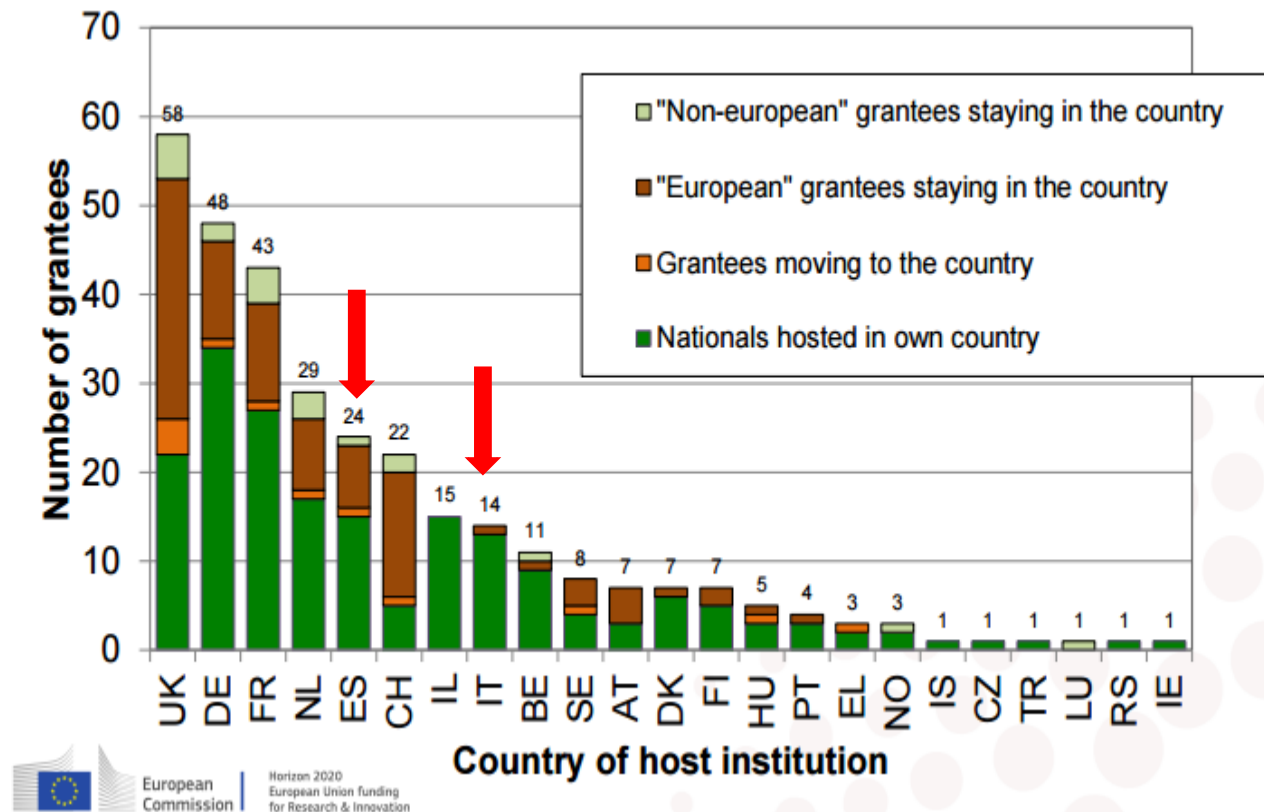
Brain drain - ERC consolidator grants 2016 (ranking by talents)

Italy and **Spain** are in the first positions in terms of total ERC consolidator grants (38 and 22 respectively out of 314), just behind big countries



Brain drain - ERC consolidator grants 2016 (ranking by country)

However, while only few researchers choose to stay in **Italy**, and the majority of them are Italians staying in their home country, **more researchers choose Spain as host country** (and many are not Spanish)



Source: European Commission 2016

3. ROOM FOR HOPE?

YES, STARTING FROM REDISCOVERING THE VALUE OF
HIGHER EDUCATION AND RESEARCH

Our values

- Educating for tolerance
 - Curiosity for diversity
- Educating to the “value of the unknown” often discovered by working in extreme conditions
 - Reducing the fear of the unknown ultimately leads to the birth of new industries and new products
- Educating for fair competition
 - Aiming at the best while respecting the rules and other competitors (competition in the “sport” sense)
- Coexistence of excellence and average good quality
 - As far as Italy is concerned, in Rome there is a concentration of masterpieces... but this does not imply that the rest of the country is lacking beauty!

Let's start from our field: Research and Higher Education

- There is a need to react to all negative trends, and positively act to rebuild Europe, starting from our fundamental values
- We need more freedom (i.e.: more opportunities) to boost the social development again
 - Erasmus programs: fostered the European cohesion in the last twenty years
 - The low cost carriers in Europe: made mobility more affordable across Europe
- We selected a set of 5 freedoms as a “New Deal” for Higher Education
 - A “New Deal” in terms of approach, not in “quantitative” terms

5 freedoms in HE for a “New Deal”

- These freedoms:
 - Lead to a “better quality” society
 - Reduce disparities across Europe
 - Give more opportunities to all individuals and responsibilities

1 Freedom of choice

2 Freedom of movement

3 Freedom of research and teaching

4 Freedom of management

5 Freedom of human resource empowerment

Freedom of choice for students

- Voucher for enrolment at public universities
 - Promoting policies to increase local competition in EU Member States, *i.e.* vouchers (covering the standard cost) for students enrolling at public universities across Europe



Freedom of movement for students and researchers

- Facilitating mobility for students and highly skilled workers
 - A united Europe is already born in terms of single currency and transportation system, but less in terms of educational structures and policies!
 - Portability of pension plans for researchers in Europe (*first pillar*)
 - Student grants' portability



- Promoting interdisciplinary and creativity
 - Resources for interdisciplinary projects and careers



- Redesigning the educational offer
 - Academic programs accounting for jobs of the future (and of the industry) both at bachelor and at the master level

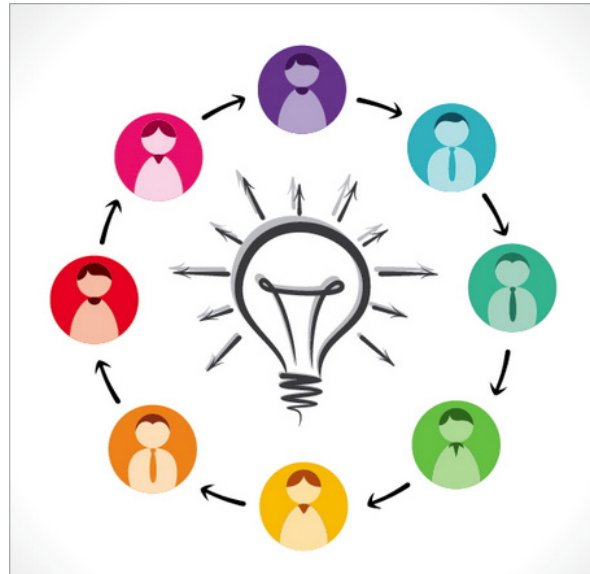
Freedom of management

- Simplicity as the real transparency
- Auditing of university balance sheets at European level as a means for allowing comparison
- Stability of resources in medium run
 - Promoting convergence, rather than divergence, in resource availability



Freedom of human resource empowerment

- Promoting more flexibility in the remuneration while being public employees



Is this a second “New Deal”?

- Education in the past was a “sufficient condition” for a better quality of life. Today Education is only a “necessary condition”
- Presently, we should provide more opportunities, or a better quality of life rather than continuously-growing material wealth
- This implies a new approach: from “quantitative” to “qualitative” growth

In short: Europe needs to turn challenges into opportunities

- When the winds of change blow, some people build walls and others build windmills



LA INVESTIGACIÓN UNIVERSITARIA VISTA DESDE ESPAÑA Y DESDE EUROPA

PRIORIDADES Y ESTRATEGIAS

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