



# Promoting Innovation-based entrepreneurial opportunities in periods of crises

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# Outline

- Policy responses in Europe (see also Salvatore Zecchini)
- European opportunities:
  - Institutional opportunities for EU knowledge policies
  - Long term challenge of ageing and of a continent of small countries plus Russia
  - Climate change and research needs
- Global challenges: towards a new, emerging innovation paradigm?
- Comments on UNECE paper: some personal reflections on innovation research



# 1. Policy responses

- On the supply side: national structural policy reforms in research:
  - Broadening of existing R&D support schemes for the private sector:
  - Complementary policies within broader trend of increased specialisation of private R&D within large firms with growing trend towards “outsourcing” in direction of small firms.
  - Use opportunities for increased “outsourcing” of a number of specific R&D-activities in the direction of public sector (universities and other public research institutions); potential new role, with partly public (local) funding support for some of the large private R&D labs as “open” systemic innovation infrastructure;
  - Arguments similar to the support for systemic banks but with one major difference: not aimed at stabilisation but at enhancing growth dynamics. Example of dismantling of Bell Labs in the 80’s and impact on private R&D in US of many of those underutilized R&D managers.
- All nationally based...



# Policy responses (ctd)

## ■ On the demand side focus on sustainability:

- Fasten the development of various possible “**lead markets**” using technology procurement following the historical US examples of DARPA, NASA, NIH, etc.;
- Involve the private sector more actively in technology development and innovation in societal innovation programmes (health, education, mobility and logistics, security);
- Use the local growth and employment opportunities associated with the application and diffusion of green technologies to the full. E.g. “green” construction represents a long term productive investment both for the public and private sector, including house owners;
- Focus the recognition of “grand challenges” on sustainable development. Use this new “mission” focus so as to bring about a brake in the current lack of trust with private investors and starters in future risk taking;
- Make investments in sustainable investment shares and bonds fiscally more attractive.

## ■ All nationally based...



# First conclusion: a less flat ERA after the crisis?

- Historically there have been continuous shifts in public versus private funding of research and innovation, sometimes in favour of public funding (2<sup>nd</sup> World War and post-war period), sometimes in favour of private funding (80s and 90s).
  - Today given the risk aversiveness on the financial side, there is a need for stronger role of public funding;
  - Public funding a sign of policy commitment: new 3% target (public R&D and HE)
- In the long term these different policy responses might signal a further growing divide between the OECD countries with the group of technologically leading countries which have the policy room for investing more public resources in knowledge taking a further lead and a group of falling behind countries adjusting their specialisation towards less technologically advanced goods and services.



## 2a. New opportunities/solutions

- Crisis opens up opportunities, particularly in EU to reflect on an ***ideal European policy “if-world”***; even if its political feasibility remains today non-existent...
  - Unfortunately first signs of recovery emerge, the debate shifts back into the daily reality of the institutional policy constraints.
- Possibilities for radically increasing European higher education, research and innovation institutional framework. EU framework as the one where to start form but not necessarily: Bologna with respect to HE, or ERA with respect to research.



# National (higher) education...

- It could be argued that higher education remains first and foremost a nationally organized and funded activity even though the curricula, the evaluation and accreditation of an increasing number of study fields are becoming increasingly internationally organised.
- Over the last decades students in Europe and beyond have become partially mobile thanks to the Erasmus programs and the Bologna reforms with growing transparency of the amount of study points allocated to studies abroad . But full student mobility, with the exception of the inflow of foreign students in the UK and Ireland, and cross border flows in studies limited in terms of admissions, has been limited.
- The dominance of national students in higher education is such that national (regional in those federal member states where higher education is governed at the regional level) governments remain both in terms of administering as well as in terms of financing, in control.
- This being said it is clear that higher education in Europe must be subject to substantial structural reforms in the coming years with the establishment of a European higher education area and the proposed minimal national investment target of 2% of GDP.



# European Research

- Research excellence is heavily dependent on **scale**: the European scale is the logical scale for most publicly funded research activities, for reducing costs in selecting and evaluating research proposals and for enabling high quality research specialization.
- The normative claim which can be made is that European research policy should ultimately evolve into a **Common Research Policy**.
- The current existence of a EU ERC **next** to 27 individual member countries research councils is unsustainable: **joint programming** as way out: a “soft” but rather ineffective European policy tool?
- Inter-governmental initiatives (Eureka?) will flourish. Need for revision of EU’s FPs in terms of content and governance with as ultimate target **better** performance than any national programme. Along the lines of the EIT?
- Along the lines of the European energy alliance and the SET Plan? Involving public procurement funding?



# Regional innovation

- Technology transfer, the use and re-use of technology from elsewhere as well as innovation and entrepreneurship have a strong regional and local focus and governance need.
- One of the core problems of the “locational tournament” tendencies amongst competing regions in innovation policy is their lack of local anchorage. What Foray describes as the “innovate here, benefit elsewhere” pattern characteristic of poorly locally integrated regional innovation policies.
- Do regions have the capacities to design “smart” innovation policies? Can Europe help?
  - Regional “best practice” expertise from other European regions that have been successful in designing “smart” innovation policies.
  - There are in Europe numerous cross-border, so-called Euregions confronted in a more direct way with the lack of integration of national research and innovation policies.
- A comment though on the smart specialisation concept: I would propose in the year of Darwin the notion of a strengthening of European **smart speciation** bringing to the forefront the way Europe, characterized by diversity, must have a long tail of “*untapped innovative potential*”.



## b) Europe in 2025

Population growth in 2025 up to 8 billion worldwide:

- 23% increase in world population
- 61% of world population in Asia, EU: 6,5%
- 35% of the European population will be more than 60

Geopolitical economic power

- Doubling of production (98%), but not in Europe...
- 30% of GDP produced by Asia, EU: 20%
- Asia will be the first world exporter (EU 32%, Asia 35%)
- Asia on par with US & Europe in the field of R&D

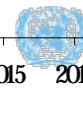
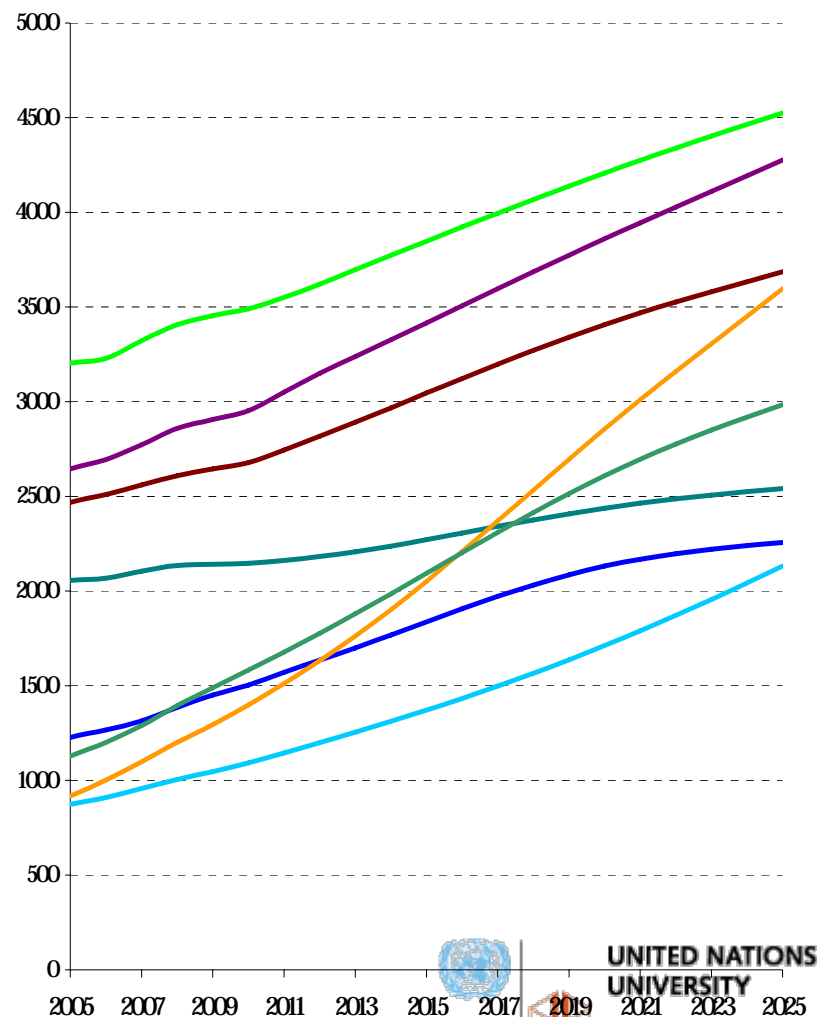
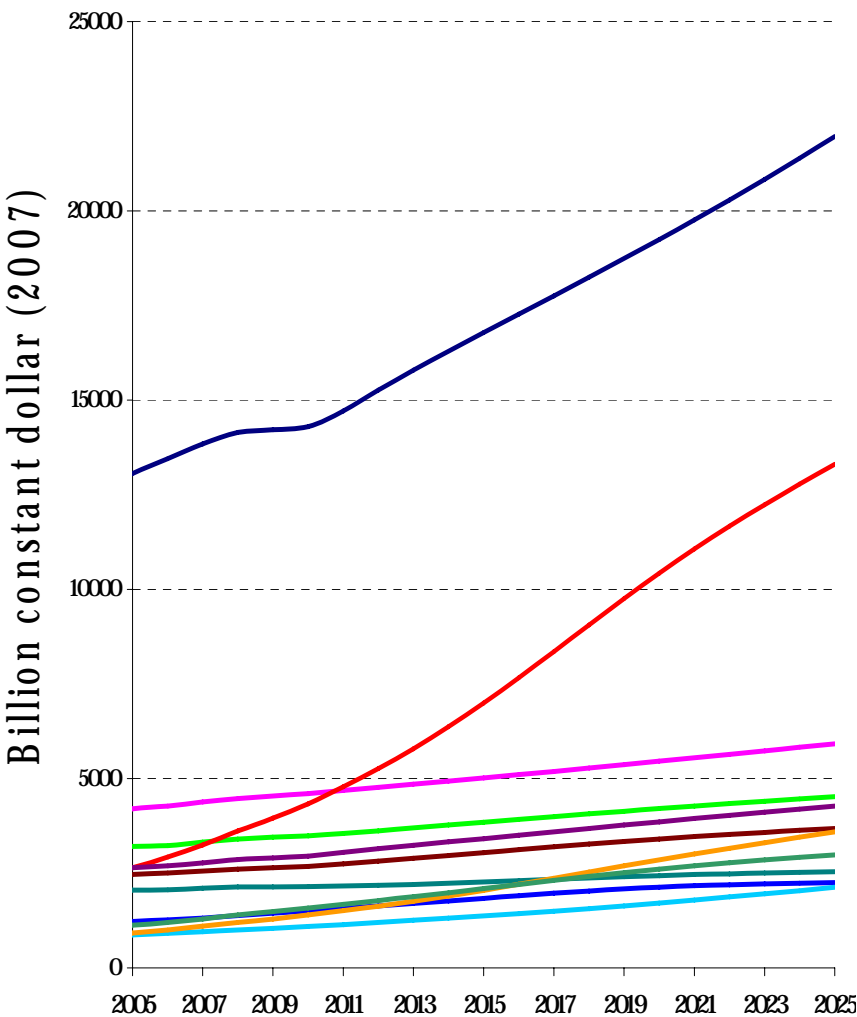


# Largest countries by 2025 (100 million or over)

- China (1453)
- India (1431)
- EU-27 (517)
- USA (358)
- Indonesia (263)
- Pakistan (246)
- Brazil (214)
- Nigeria (210)
- Bangladesh (195)
- Russia (132)
- Mexico (123)
- Japan (120)
- Ethiopia (119)
- Philippines (117)
- Egypt (105)
- Apart from Russia not a single European country



# Economic size: GDPs



# Conclusions: opportunities linked to coordination in policies

- Remains surprising how current economic crisis is being discussed primarily in national terms...
- Research and knowledge investments are a priority area for rethinking the governance level of national, European and regional knowledge policies and addressing specific European issues:
  - **Ageing** and innovation growth potential associated with this trend: other countries such as China) will follow
  - **Climate change** and sustainable development: opening up SET plan. Global and local environmentally sustainable growth crucially dependent on access and fast diffusion/use to research and eco-innovations.
- New central challenge to technology and innovation policy: move away from the old obsession with technological competitiveness to a global view in which access, diffusion and effective use become central elements... Citizens in Europe are ultimately dependent on the speed and effective use of (green) knowledge diffusion in **both** their countries as well as those in the rest of the world.





# 3. Globalisation and the crisis: a historical return to normal?

- What remains striking from a historical perspective is how the two largest countries in the world: China and India, saw their share of world population and their share of world GDP more or less continuously fall over the period 1820 till 1973. Actually, I would hypothesize that in 1973, the imbalance between the world's concentration of GDP and the world's concentration of population was the highest the industrialized world ever witnessed.
- However, the recent rapid industrialisation of China and India appear non-sustainable. It will ultimately lead to global financial imbalances but also other resource constraints.
- At the same time, fast economic growth in India and China appears a social necessity because of the need to shift hundred of millions of people from farms to industry. In the Indian case there is an additional compulsion of providing jobs for a labour force which is growing at 2% per annum.
- The advent of the ICT revolution in the 90's has radically challenged the national-territorial bias in research and policy making. The cluster of ICT represents from a global perspective a historically unique process of technological, organisational and above all social transformation in terms of speed and world-wide impact. A level playing field in **aspirations**: in consumption, income and quality of life.



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# G-5 share of population and GDP

## Percentage share of world population

Year	China	India	Brazil	South Africa	Mexico	Total
1820	36.6	19.9	0.4	0.1	0.6	57.6
1870	28.1	17.0	0.8	0.2	0.7	46.8
1913	24.4	14.2	1.3	0.3	0.8	41.0
1950	21.7	14.8	2.1	0.5	1.1	40.2
1973	22.5	14.8	2.6	0.6	1.5	42.0
2001	20.7	16.5	2.9	0.7	1.7	42.5
2006	20.2	16.9	2.9	0.7	1.7	42.3

## Percentage share of world income

Year	China	India	Brazil	South Africa	Mexico	Total
1820	32.9	16.0	0.4	0.1	0.7	50.1
1870	17.1	12.1	0.6	0.2	0.6	30.6
1913	8.8	7.5	0.7	0.4	0.9	18.3
1950	4.5	4.2	1.7	0.6	1.3	12.3
1973	4.6	3.1	2.5	0.6	1.7	12.5
2001	12.3	5.4	2.7	0.5	1.9	22.8
2006	16.8	6.1	2.4	0.5	1.8	27.4

Source: Deepak Nayar (2008) based on data from Maddison (2003); Maddison(forthcoming)



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# A new emerging innovation development paradigm?

- Traditionally product innovation has been driven by **professional use** demand directed towards the tip of the income pyramid: the long tail of product quality,
- In a global setting, this has offered growth expansion opportunities to global firms thanks to rising income inequality in developed and emerging economies.
- The present crisis is indirectly also the illustration of the unsustainable growth nature of this innovation process: the sudden and lasting “fall out” of (high income) demand appears also an illustration of the conspicuous nature of much of this consumer demand;
- Search on the part of the business community in the absence of Keynesian global redistribution policies for “long tails” growth elsewhere... remember Ford’s T-model:
  - Growth at middle income levels, youngsters, elderly, green consumers, etc.
  - Growth at low income levels: bottom of the income pyramid innovations (Prahalad), local grassroots innovations (Anil Gupta).

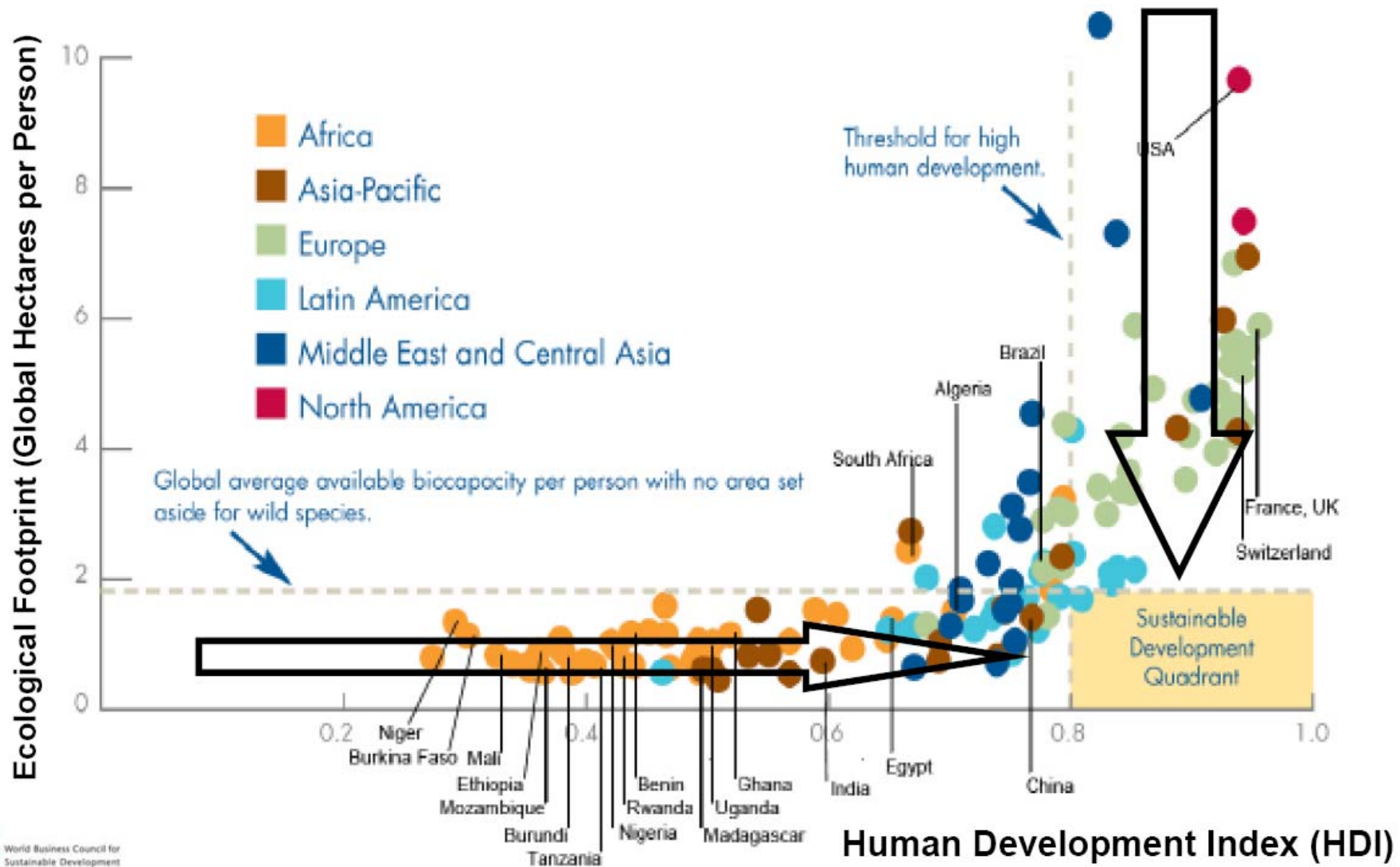


# Research insights from the South

- **Developing markets appear to raise some of the most motivating research/innovation challenges**
  - Autonomy, unwired to high quality infrastructure (energy, water, roads, terrestrial communication);
  - Low education hence necessity of simplicity in use;
  - Less maintenance/repair facilities, so an intrinsic need for long term sustainability;
  - Extreme income inequalities with strong needs in urban slums and poor rural villages, but little current purchasing power and high living risks, hence low willingness to invest or borrow money in the long term.
- **All these features appear also and increasingly of particular value to consumers in developed countries:**
  - Autonomy of high quality infrastructure as “freedom of movement”;
  - Shift in the democratization of innovation: from the needs of sophisticated, beta users to the needs of (digital) illiterates;
  - Need for zero maintenance and ecological sustainable: cradle to cradle
  - Relevance of new financial products such as micro-credit and micro-insurance in poor urban areas



# The global knowledge challenge



# 4. Comments on UNECE paper

## ■ Problem of No Exit in Europe?

- No exit for investors and in particular venture capital firms and business angels, always a problem for Europe which used before the crisis the US as exit...
- No exit from environmentally unsustainable production trajectories with today ineffective “cap and trade” programs for transferring emissions licenses
- No exit from large incumbent’s R&D laboratories with still today little incentives to exploit underutilized inventions.

## ■ Time for a critique on innovation thinking?

- Industrial innovation applied too readily and too easily to services and in particular network services (finance, distribution, health, education, etc.).
- No attention for the gradually developed regulatory framework within which such service delivery would take place.
- Destructive creation rather than creative destruction

