MANAGING KNOWLEDGE FOR GROWTH

Public research programmes for business and academia

CASE STUDIES
1. I’M WATCH - Fabrizio Gardiol

2. NOONIC – Nicola Possagnolo

3. INNOVATION IN AGEING EU – Marco
2. INNOVATION IN AN AGEING & RISK AVERSE EUROPEAN UNION

2.1 POSSIBLE SUSTAINABLE MODELS
EU VALUES AND HABITS: CONSTRAINT AND OPPORTUNITY

- Geographical constraints have shaped economies.
- China was the first knowledge economy, but it closed up in 1500.
- Europe was the first open knowledge economy: print, commerce (and war? and religion?) – Change is positive.
- US took advantage of space and opportunity, tolerance…
- Japan had little space, little skills, little energy, little materials.
- Micro-Electronics require little space, energy, sand & skills.
- Europe can build on its values: tolerance (diversity), talent and technology (Michel Rocard – 2006).
- Stable employment, quest for quality (sustainable), ageing.
A EUROPE SCARED OF RISK

Europe was the 1st progressive continent
- Renaissance & Enlightenment: change brings progress
- Progress makes most people better
- Challenge established values (King, Church, Power…)
- Science and Reason triumph over doctrine

Science does not equal progress anymore (not in US or Japan)
- Nazism and Communism claimed to be science based
- Seveso, Tchernobyl, Mad Cow, Contaminated blood… affected EU citizen’s faith in science and technological progress

Business establishment does not promote risk (not in US)
- Banks do not understand immaterial investment
- Hard to find Venture Capital
- Businessmen must succeed moderately

Innovating is risky. Not innovating is riskier!!
Nokia: only a mobile phone company (S.Elop)?

Apple: from computer to lifestyle

Google: from search engine to global system

Facebook: selling social networks

Amazon: selling goods

TOWARDS COMPETING ECO-SYSTEMS?

INNOVATE IN COLLECTIVE GOODS
EUROPEAN INNOVATION PARTNERSHIPS (EIP)
EU’S FLAGSHIP INITIATIVE (PART of EUROPE 2020)
INTEGRATING RESEARCH and INNOVATION

Governance Level
- World
- Europe
- State
- Region
- Province
- City

KNOWLEDGE GENERATION
e.g. Joint Programming Initiatives
- Alzheimer
- Agriculture & CC
- Diet & Health
- Cultural Heritage
- ...
EIPs timetable

Active & Healthy Ageing
Agricultural Productivity & Sustainability
Water
Raw Materials
Smart Cities & Communities

SIP = Strategic Implementation Plan

April 2013 - 8
SUSTAINABLE GROWTH

THE 6th TECHNOLOGICAL WAVE?

Can EU lead the “Great Transition”?

No time to lose: the relative size of the EU 2010 - 2050

World GDP (constant USD), Source: Global Europe 2050
2. INNOVATION IN AN AGEING & RISK AVERSE EUROPEAN UNION

2.1 POSSIBLE SUSTAINABLE MODELS
SOCIAL REALITIES – 1.1
Taux d'emploi des États membres, 1998 et 2003

70% = objectif de taux d'emploi de Lisbonne (2010)

% de la population d'âge actif

Source: Eurostat, QLFD. Note data for MT refers to 2002 only, CY 2003 only and LU to 1998 and 2002
SOCIAL REALITIES – 1.3
Taux d'emploi des femmes dans les États membres, 1998 et 2003

>60% = objectif de Lisbonne pour le taux d'emploi des femmes (2010)

Source: Eurostat, QLFD. Note data for MT refers to 2002 only, CY 2003 only and LU to 1998 and 2002
SOCIAL REALITIES – 1.4
Taux d'emploi des travailleurs âgés dans l’UE25, 1998 et 2003

% de la population des 55-64 ans

Source: Eurostat, QLFD. Note data for MT refers to 2002 only, CY 2003 only and LU to 1998 and 2002
SOCIAL REALITIES – 2.1
AN AGE OF LONGEVITY

Gains in life expectancy between 1960 and 2002, EU-25

Source: Eurostat NewCronos. 1960 data for Cyprus not available, and for Germany excluding ex-GDR.
STRONG DECLINE IN FERTILITY RATES

Total fertility rate, 2003 and change between 1960* and 2003

Source: Eurostat; * Except Estonia and Latvia 1970

Level needed for the replacement of generations
TOTAL POPULATION GROWTH RATE 2002

Relative contribution of natural increase and net migration

**Major changes 2004-2006**

**Will not change for 20 years**

Source: Eurostat- Statistics in focus – Theme 3 -25/2002

April 2012 - 17
Year at which (working) population is expected to stop growing/start declining

Total Population

Working age population

Source: Eurostat 2004 Demogr. Projection (Baseline scenario); For Croatia (HR) and Turkey (TR): UN WPP (2002 Rev.)
MANAGING KNOWLEDGE for GROWTH - SMEs

SOCIAL REALITIES – 2.6

EMPLOYED EUROPEANS (if 70% target in 2010)

Source: Eurostat, Commission services calculation, based on Eurostat Populations projections.
ADDRESS DEMOGRAPHY & GLOBALISATION

- Main source of income are pensions:
  - around 12% of GDP for old age and survivors in 2001 *
- The elderly are the main users of health and long-term care:
  - around 7.5% of GDP (for the entire population) *
- Share of total consumption of the elderly could be slightly higher than their share in the population
  - around 16.5% *

* Data for EU15 – based on Eurostat, ESSPROS and demographic statistics 2004

- Economic Policy Committee of the EU: foresees increase of public spending on pensions, health and long-term care:

<table>
<thead>
<tr>
<th>in % GDP</th>
<th>2000</th>
<th>2050</th>
<th>Increase ’00 → ’50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pensions</td>
<td>10.4%</td>
<td>13.3%</td>
<td>+ 2.9%</td>
</tr>
<tr>
<td>Health &amp; long-term care</td>
<td>6.6%</td>
<td>8.8 to 9.5%</td>
<td>+ 2.2 to 2.7 %</td>
</tr>
</tbody>
</table>
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2. INNOVATION IN AN AGEING & RISK AVERSE EUROPEAN UNION

2.2 INVEST IN PEOPLE
BUILD ON STABLE EMPLOYMENT & HIGH EDUCATION

◆ Invest in People (the least mobile factor)

◆ Invest in services to people
  – Employment is based on services to people, Knowledge intensive business services: leisure, ageing, health… (P.Laredo – 2007)

◆ Develop high quality manufacturing sector (structural investment, less mobile)
INVEST IN PEOPLE - 2

GO FOR HIGH ADDED VALUE SEGMENTS

“The BRIC” attack

Traditional Products

Medium-High Technology Products

Designer Clothes

Designer Shoes

Consumer Goods

USA

J

UE

Mobile Phones

Digital Video Cameras

Digital Photo Cameras

Investment Goods (Components)

Investment Goods (Machinery and System)

Computers

Cars

White Goods

Consumer Goods

Designer Shoes

Designer Clothes

USA

J

UE

“EURO/Kg”

“EURO/Kg”
**Pyramid Power**

**Solvable (high-end) consumers in Western world**
- Increasingly saturated, sustainability of the model?

**Solvable consumers in emerging economies**
- More dynamic, open to change
- Same model, same products & services

**Poor consumers in emerging economies**
- Different model, products & services
- Small margin on very large volume (Unilever soaps), franchise (Philips scanners)...
- Scojo vision: 3$ glasses to 10 M Indians

“Attack the BRIC”
NEW MODELS – FRUGAL INNOVATION

- **New mobile services**: Beeping, Mobile money to 250 m in Asia (A Little bird) & Africa (M-Pesa), Mobile drug certification & delivery, Crowdvoicing...

- **Reverse Innovation for new products (cheap and solid)**: GE’s 4 buttons ECG, Tata’s rice husk water filter, Tata’s Nano, Nokia’s GSM + flashlight

- **New production processes & business models (jugaad)**:
  - Bharti Airtel (Ind) outsources network to Ericsson, business to IBM and shares towers with other suppliers
  - Tata uses GSM to connect TVs to the Web, using remote controls to surf
  - Service mass produced: 1000 Beds hospital in Bangalore (Dr. Shetty)

- **New “guerilla” products (shanzai)**: from counterfeit to new devices (watch-phones, solar charging phones, money reading phones….
Introduzione di tecnologie per alte prestazioni

nuovo impatto tecnologico dei Sistemi di Produzione sul Valore Aggiunto

Mini fabbrica pilota
PRODUZIONE A VALORE AGGIUNTO
CNR-ITIA

IMPRESA (Piacenza) DEL NUOVO made in Italy Calzatura personalizzata

IMPRESA (Montebelluna) DEL NUOVO made in Italy Scarpa per la salute

IMPRESE DEL made in Italy Produzione Calzature

Valore Aggiunto 50% componentistica High Tech

VA: Innovazione rapida di prodotto (può realizzare 100 prodotti NUOVI al giorno, disegnati da 100 stilisti diversi)

Mutazione Industriale research based

April 2012 - 27

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THE QUEST FOR QUALITY
(Metzler scales, Austria 1990-1995)

◆ A co-ordinated attack from south-east economy:
  ◆ 40% cut price competition with varying quality.
◆ Support from the EU Knowledge infrastructure (education, research, innovation): Fractal factory concept (one man, one machine)
◆ A modified industrial strategy:
  ◆ Invest in research, vocational training and social dialogue
  ◆ Reduce product range
◆ Reap sustainable rewards:
  ◆ Turnover doubled in the next 5 years
  ◆ Stock replaced by a first in, first out approach
  ◆ Increased job satisfaction and turnover, reduced conflicts

Remark: An industrial model cannot be licensed or pirated
## VOCATIONAL TRAINING in DISTRICTS
(Automobile suppliers, US & Piedmont ‘95-’00)

<table>
<thead>
<tr>
<th>DISTRICT</th>
<th>DETROIT</th>
<th>PIEDMONT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Centralised model</td>
<td>Distributed engineering</td>
</tr>
</tbody>
</table>
| Purchasing | - 6 monthly procurement  
|           | - bids to the 4th decimal                    | -Long term relationship  
|           |                                              | -Flexible pricing  
|           |                                              | -No exclusivity                            |
| IPR      | Leasing of proprietary machines              | Design                                     |
| Workforce | - Mobile ($\mu = 6$ month)  
|           | - Illiterate (30% "can't read")             | - Stable ($\mu = 15+$ years)  
|           |                                              | - Educated                                 |
| Equipment | Mandelli NCC machine                         | Mandelli NCC machine                       |
| Vocational training | Unions                                     | Torino Polytechnic                        |
| Knowledge absorption | Little                                     | Knowledge Production                      |
2. INNOVATION IN AN AGEING & RISK AVERSE EUROPEAN UNION

2.3 EXPLOIT DEMOGRAPHIC TRENDS
EXPLOIT DEMOGRAPHIC TRENDS
BUILD ON DEMOGRAPHIC TRANSITION

◆ Constraints:
  – Less openness to innovation, less dynamism, less public and private investment in innovation, more social costs…

◆ Opportunities: internationally tradable + future global trend,
  – Require gov investment (infrastructures, market support, standards, best practices, social expenditure…) → employment in services
  – Extension of working life (Life-long learning, Flexible work organisation, Age-neutral processes…)
  – Enhanced activity, mobility & quality of life (Transport & mobility infrastructure, age relevant ICT at work, home or in society…)
  – Health, well-being & support (Understanding & prevention, seamless care & support, distance medicine for decentralised care…)

◆ Joint EU research efforts: Healthy and Active ageing EIP incl. JPI+Art.185 AAL action for ambient assisted living+ERA-NET action ERA-AGE for interdisciplinarity
2. INNOVATION IN AN AGEING & RISK AVERSE EUROPEAN UNION

2.4 INNOVATE IN COLLECTIVE GOODS
INNOVATE IN COLLECTIVE GOODS
BUILD ON EU STRENGTH IN COLLECTIVE ACTION

◆ EU is good in Collective Innovation (P. Laredo –2007):
  – GSM, Wind technology, TGV, Smart Card require social networks, role of public champions, demonstrators (collective experiments), procurement, standards (collective patents)

◆ Quest for quality, sustainability (Lisbon strategy)

◆ Develop collective effort: Joint technology Initiatives (JTIs)
  – JTIs build on European Technology Platforms (ETPs):
    • in a small number of cases, scale and scope of Strategic Research Agendas of ETPs require implementation through dedicated legal structure
    • normal FP instruments not sufficient
  – Joint technology Initiatives aim to:
    • establish long-term public-private partnerships in research at European level in fields of high industrial and policy relevance
    • co-ordinate research efforts and respond to industry needs
    • lead to flagship projects for European competitiveness
Legal Basis:
- Joint Undertakings set up under Article 187 of the Treaty

“The Community may set up joint undertakings or any other structure necessary for the efficient execution of Community research, technological development and demonstration programmes.”

Identification Criteria:
- Added value of European-level intervention
- Degree and clarity of definition of objective
- Strength of commitment from industry
- Scale of impact on industrial competitiveness and growth
- Importance of contribution to broader policy objectives
- Capacity to attract additional national support and leverage industry funding
- Inability of existing instruments to achieve objective
Joint Technology Initiatives

- Hydrogen and Fuel Cells
- Innovative Medicines
- Aeronautics and Air Transport
- Embedded Computing Systems
- Global Monitoring for Environment and Security (to ESA)
- Nanoelectronics

*Other possible themes to be identified later*  
*(Bioeconomy?)*
3. Brainstorming

"Necessity is the mother of invention, it is true, but its father is creativity, and knowledge is the midwife."
- Jonathan Schattke, XXIst Century scientist

Nano-info bio vs. The great Transition, a Museum Europe or Europe as a Muse for a new Renaissance?