

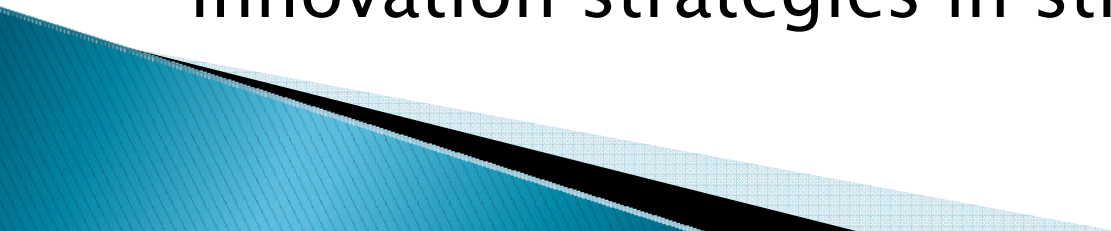
# Great Expectations: Innovation for Economic Recovery

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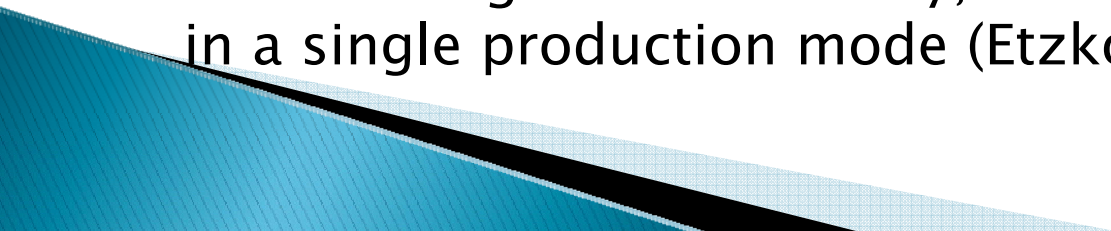
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# Outline

- ▶ How is the current economic crisis different from previous ones?
  - ▶ Different nature, different response
  - ▶ Innovation measures in stimulus packages of OECD/EU countries
  - ▶ Conditions for successful implementation of innovation strategies in stimulus packages
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# How is the current economic crisis different from previous ones?

- ▶ Worst since the Great Depression of the 1930s
  - ▶ Caused by huge crash of consumer debt
  - ▶ Much faster rate of decline than in the 1930s
  - ▶ Synchronized by global integration of markets → longer, slower recovery
  - ▶ Symptom of a deeper systemic crisis of capitalism itself (Samir Amin), market saturation (J.B Foster), unaddressed corporate management problems (J.C. Bogle)
  - ▶ Current crisis as a fault line in the transition from industrial to knowledge-based society, different dynamics than crises in a single production mode (Etzkowitz & Ranga, 2009)
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# Different nature, different response

- ▶ Industrial mode of production running out of steam, urgency for generation of knowledge-based growth firms, products, technologies, services, innovation culture
- ▶ Need for new productive capacities and new forms of work to make up for job losses in shrinking industries → putting people to work no longer an end in itself, Keynesianism no longer sufficient
- ▶ Policy-making dilemma of putting resources into saving the old economy or building the new one
- ▶ Policies for a durable and sustainable recovery, preserving drivers of long-term growth, accelerating structural shifts towards a stronger economy

# Changing views on government intervention

- ▶ Decline of the free-market fundamentalism and neo-liberal policies (“Washington consensus”) in the 1990s
- ▶ National initiatives to identify and exploit opportunities for economic growth (e.g. UK’s Technology Foresight Programme)
- ▶ Renewed focus on “industrial champions” in the EU in 2003 in reaction to concerns about deindustrialization, commercial and industrial successes of Airbus, Europe’s weak performance in other high-technology sectors.
- ▶ Large-scale government interventions since end 2007 to forestall depression and rescue the financial system → market self-regulation myth shattered, new light on government role
- ▶ November 2008 G-20 summit → globally coordinated response, for international financial regulation, economic support and anti-protectionism measures
- ▶ OECD’s strategic response to the crisis on (i) finance, competition and governance; (ii) restoring long-term growth.

# Conceptual framework for the crisis

- ▶ Neo-classical economics Keynesianism widely embraced in the current crisis as the best-known schools of thought offering a justification for and an example of government intervention in the economy.
- ▶ Neo-classical economics: “market failure”, but “government failure” also possible → complicated choice between imperfect market outcomes and government interventions.
- ▶
- ▶ Keynesianism: mixed economy – predominantly private sector, but with large pro-active role of government and public sector in exploiting un-used industrial capacity to stabilize the business cycle (Great Depression of the 1930s, ideological base after WWII, post-war Golden Age of Capitalism 1945–1970).
- ▶ *“The switch from decades of supply-side politics all the way to a crass Keynesianism is breathtaking...A Great Rescue Plan...doesn't exist. Dealing with an unprecedented crisis is a puzzle, a trial-and-error”* (German Finance Minister Peer Steinbrück, December 2008).

# But what else was there?

- ▶ **Evolutionary economics:** no specific criteria for government intervention, just a theoretical context for a broad institutional framework for market development (“evolutionary targeting” – sustaining market-led evolutionary emergence of Multi-agent Structures (industries, clusters, markets, etc.) through discrete policy interventions in varying areas of system/market failure (Avnimelech and Teubal, 2008).
- ▶ Both neo-classical and evolutionary economics focused on firm-based processes, take into account incremental change, but not discontinuous innovation effects of a large-scale economic crisis
- ▶
- ▶ **The Triple Helix model of university–industry–government interactions** goes beyond firm- and market boundaries → knowledge-based linkages between innovation actors that are much more relevant in the current economic crisis

# Economic stimulus packages\*

- ▶ Most common policy tool introduced in virtually all OECD countries after rescue plans to avoid a collapse of the financial systems and limit the economic effects of the credit crunch
- ▶ Size between 0.1–5% of 2008 GDP (~ 3.5% of area-wide 2008 GDP over 2008–10)
- ▶ Large variation across countries, reflecting the severity of the crisis, fiscal position before the crisis
- ▶ Largest packages: US, AUS, CAN, RoK, NZ (5.5% US, the rest >4% of 2008 GDP)
- ▶ Fiscal injection strongest in 2009

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▶ \* Source: OECD (2009), Policy Responses to the Economic Crisis: Investing in Innovation for Long-Term Growth.

# Absolute size of stimulus packages 2008–10 (absolute USD millions)

▶ United States	804 070
▶ Germany	107 789
▶ Japan	99 992
▶ Canada	61 551
▶ Spain	56 754
▶ Australia	45 673
▶ Korea	42 667
▶ United Kingdom	38 003
▶ France	18 568
▶ Netherlands	13 367
▶ Sweden	13 109
▶ Denmark	8 668
▶ Finland	8 575
▶ Belgium	8 016
▶ Czech Republic	6 500
▶ New Zealand	5 404
▶ Poland	5 145
▶ Austria	4 600
▶ Switzerland	2 486

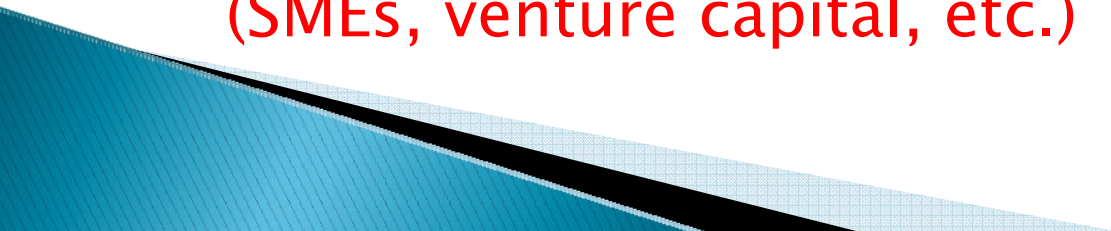
# Government investment in stimulus packages over 2008–2010, % of 2008 GDP

▶ Australia	2.6
▶ Poland	1.3
▶ Canada	1.3
▶ Mexico	1.1
▶ Korea	0.9
▶ Denmark	0.8
▶ Germany	0.8
▶ Spain	0.7
▶ Luxembourg	0.7
▶ New Zealand	0.6
▶ Portugal	0.4
▶ Finland	0.3
▶ USA	0.3
▶ Japan	0.3
▶ Sweden	0.3
▶ Norway	0.3
▶ Czech Republic	0.2
▶ France	0.2
▶ UK	0.1
▶ Austria	0.1
▶ Belgium	0.1
▶ Switzerland	0.0
▶ Slovak Republic	0.0

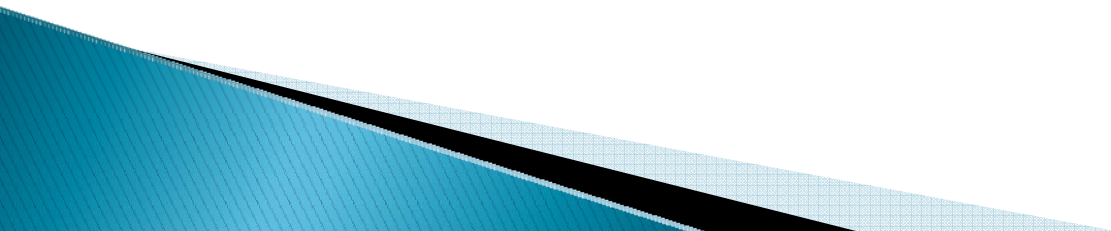
# Main measures of stimulus packages

1. Measures aimed at saving banks, the financial system
2. Measures aimed at supporting businesses (tax and VAT cuts, short-term credit guarantees, non-wage labour costs cuts, stimuli for retaining or hiring staff)
3. Measures aimed at particular industrial sectors (notably the automobile and construction sectors)
4. Measures to support household consumption and reduce exposure to crisis (tax cuts, cash payouts to households, unemployment benefits, support to low earners, healthcare costs cuts, home owners' grants)
5. **Measures on innovation and long-term growth**

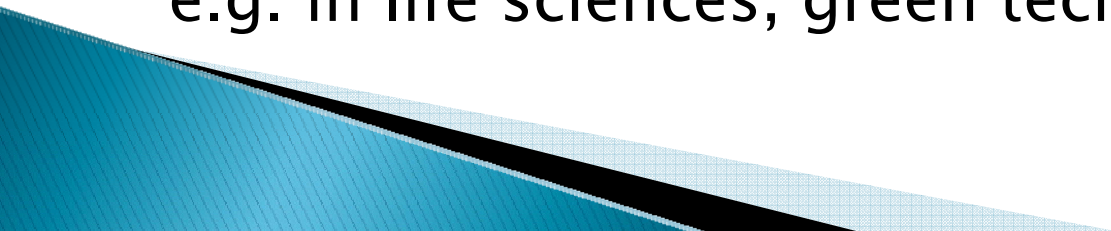
# Measures on innovation and long-term growth

1. Improving the infrastructure (e.g. roads, mass transit, ICT)
  2. Support for science, R&D and innovation
  3. Investment in human capital, education/training (including schools, teachers).
  4. Promoting the investment in and uptake of green technologies and innovations to foster energy-efficiency and sustainable economic growth.
  5. Support for innovation and entrepreneurship (SMEs, venture capital, etc.)
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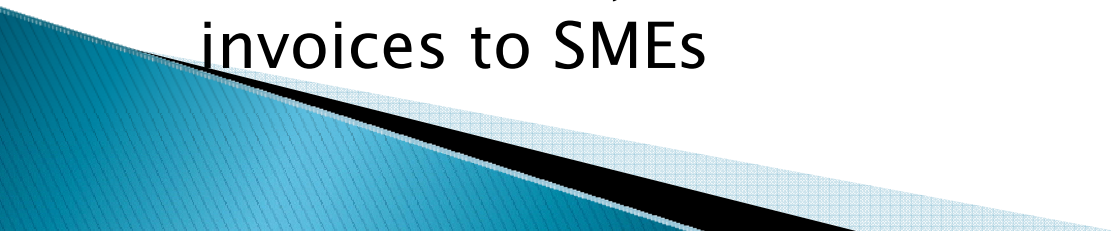
# Financial weight of innovation measures

- ▶ Infrastructure investments, education and green technologies: 1<sup>st</sup> and 2<sup>nd</sup> most important
  - ▶ Frequent overlap between components: e.g. Infrastructure and R&D spending (new labs) and education (new schools), green technology and energy-efficient housing (i.e. infrastructure) or R&D (fostering research in renewable energy).
  - ▶ Medium-term impact: e.g. Scientific research and increased R&D budget might later facilitate development of “smarter” infrastructures (e.g. intelligent transport systems), greener technologies.
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# Support to science, R&D and innovation

- ▶ Increases in R&D funding, measures for specific research areas, investments in R&D infrastructure
  - ▶ Stimulate private R&D investments (R&D tax credits, public procurement), measures for SMEs, R&D employment and skills (e.g. avoiding unemployment of young researchers and loss of skills).
  - ▶ Non-regulatory measures to spur certain innovations, e.g. stem cell research, renewable energy
  - ▶ PPPs, knowledge transfer, international co-ordination only in very few stimulus plans and only marginally, e.g. in life sciences, green technologies.
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# Support to SMEs and entrepreneurship

- ▶ Tax breaks for companies to bridge liquidity gaps (e.g. ensure banks keep lending to business, government-backed loan guarantees or loans for small firms, export credit guarantees)
  - ▶ Simplification and speeding up of administrative procedures,
  - ▶ Promotion of start-ups and entrepreneurship
  - ▶ Employment plans that allow SMEs to avoid lay-offs
  - ▶ Directing government procurement to young or smaller firms, while also ensuring rapid payment of invoices to SMEs
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# EU Focus

- ▶ Increasing investments in education and R&D, private sector R&D (fiscal incentives, grants and/or subsidies).
  - ▶ Lisbon Agenda priorities: large research infrastructures, knowledge transfer schemes, joint R&D programmes, mobility of researchers, international co-operation.
  - ▶ Up to 75% cut of patent application and maintenance fees.
  - ▶ Proposal for a European employment support initiative (schemes for the low-skilled, counselling, intensive (re-)training and up-skilling, subsidised employment, apprenticeships, grants for self-employment and business start-ups)
  - ▶ Proposal for the launch of a 'European green cars initiative' (research on technologies and smart energy infrastructures for a breakthrough in renewable and non-polluting energy sources)
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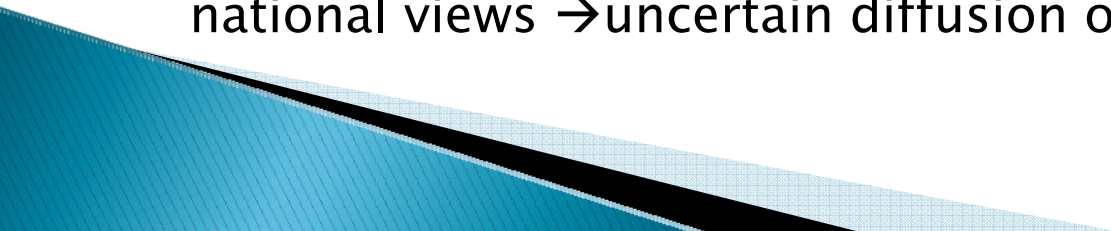
# EU Focus

- ▶ FI: extend R&D expenditures to up to 4% of GDP
- ▶ NO: direct grants for R&D and innovation
- ▶ SE: extra funding for university R&D, public R&D institutions.
- ▶ NO, F, PT, BE: incentives through R&D tax credits
- ▶ DE: R&D in SMEs, hybrid and other clean car technologies.
- ▶ F: R&D tax credits, nanotechnology, ICT networks for HE
- ▶ E: R&D tax credits, public procurement, HR advanced training, technology transfer, R&D consortia, new labs, int. cooperation.
- ▶ EE: increase public R&D spending by 44% in 2009, 25% in 2010
- ▶ SI: new technologies, subsidise business R&D, new research equipment in universities and institutes, increased patenting
- ▶ HU: maintain R&D employment, prevent brain-drain and interim unemployment of skilled R&D personnel, re-employment by SMEs
- ▶ I: income tax incentives to scientific researchers residing abroad who return to Italy

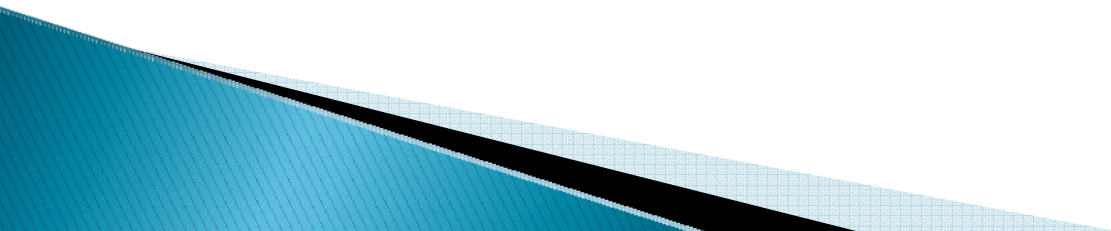
# EU Focus

- ▶ A, FI, F, DE, HU, I, E: additional public funding to banks to help SMEs, and entrepreneurs, targeted loan guarantee programmes for SMEs.
- ▶ F: “Credit Mediator”, working with regional representatives of the Central Bank to assist SMEs in dealings with their banks.
- ▶ E: increased the capital for SME agencies, tax measures, facilitate credit to SMEs and help their development
- ▶ FI, HU: direct measures to increase government venture capital.
- ▶ A, DK, F, DE, LU, E, SE, UK: tax measures to alleviate cash flow problems (tax reductions or delayed payment; accelerated depreciation; faster VAT refunds; tax incentives/grants for R&D)
- ▶ LU: subsidy payments to SMEs, reduce taxes, ease bankruptcies.
- ▶ HU: lending guarantees primarily to SMEs.
- ▶ UK, E: special financing schemes, reduction of non-wage labour costs for SMEs (also to foster job creation in smaller firms).

# Conditions for successful implementation of innovation measures

- ▶ Implementation details (selection, evaluation, coordination) only emerging, precise mechanisms not decided upon yet, with a few exceptions (e.g. US focus on transparency and accountability).
  - ▶ Fund channelling through existing institutions vs. creating new ones
  - ▶ Integration and horizontal/vertical coordination between old and new institutions
  - ▶ Difficulty in identifying short-time projects to boost demand vs. long-term projects with a supply-side effect
  - ▶ Some coordination between EU Member States, but unclear involvement of major EU institutions, e.g. European Institute of Technology, Joint Technological Platforms, especially in large-scale research projects
  - ▶ Little coordination in most other stimulus packages, mostly national views → uncertain diffusion of future spillovers
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# Conditions for successful implementation of innovation measures

- ▶ Careful analysis of strengths and weaknesses of the national, regional and local industrial structure
    - large companies vs. SMEs
    - traditional low- and medium-tech industries vs. new high-tech ones
    - number and potential of international vs. domestic players
    - sectoral specialisation
    - strength of networks and interactions between main innovation stakeholders
    - presence of strong R&D concentrations, e.g. research-intensive clusters, research universities
  - ▶ Incentives for the Triple Helix actors, so that government is not the sole driver
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# Great or Grey Expectations?

- ▶ **Dual effects of the economic crisis:**
  - (i) affected innovation systems both directly, as a result of the economic slump and financial shortages, and indirectly, by aggravating existing systemic weaknesses – “creative destruction”
  - (ii) provides an immense opportunity for correcting such systemic weaknesses, salvage old industries in parallel with creating new ones and boosting innovation systems – “creative reconstruction”
- ▶ Large-scale funding in targeted areas that balance short- and long-term objectives rather than focus on less resource-intensive and non-financial policy measures may make the difference between main opportunities and missed opportunities.