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BETTER POLICIES FOR BETTER LIVES

CSTI Science Technology Innovation Policy

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The Babbage Industrial Policy Network

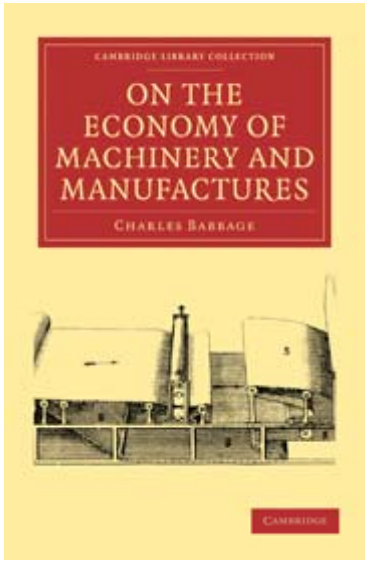
2013 Lecture Series

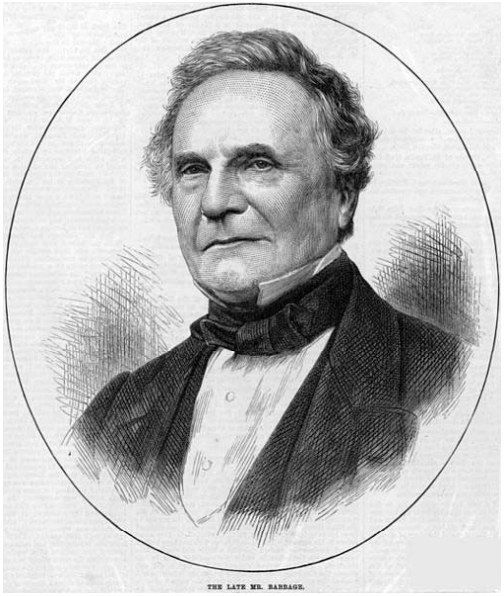
Industrial Policy: Emerging Issues and New Trends

Ken Warwick

25 April 2013

A connection to Babbage





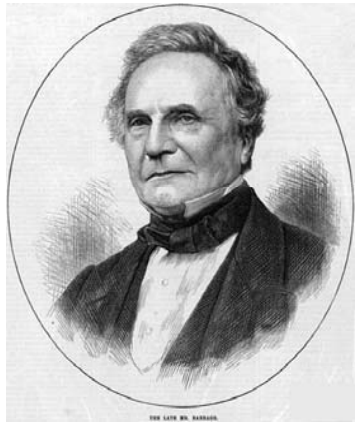
OECD Science, Technology and Industry Policy Papers No. 2

Beyond Industrial Policy

EMERGING ISSUES AND NEW TRENDS

Ken Warwick

Babbage and economics



- Division of labour - unbundling
- Making versus manufacturing – mass production
- Restrictions on trade - deregulation
- Manufacturing and science – technology transfer
- Causes and consequences of technological change
- Evidence and evaluation.....

"Political economists have been reproached with too small a use of facts, and too large an employment of theory. If facts are wanting, let it be remembered that the closet-philosopher is unfortunately too little acquainted with the admirable arrangements of the factory; and that no class of persons can supply so readily..... the data on which all the reasoning of political economists are founded, as the merchants and manufacturer..... Nor let it be feared that erroneous deductions may be made from such recorded facts: the errors which arise from the absence of facts are far more numerous and more durable...

Renewed interest in industrial policy worldwide

IfM MANAGEMENT TECHNOLOGY POLICY

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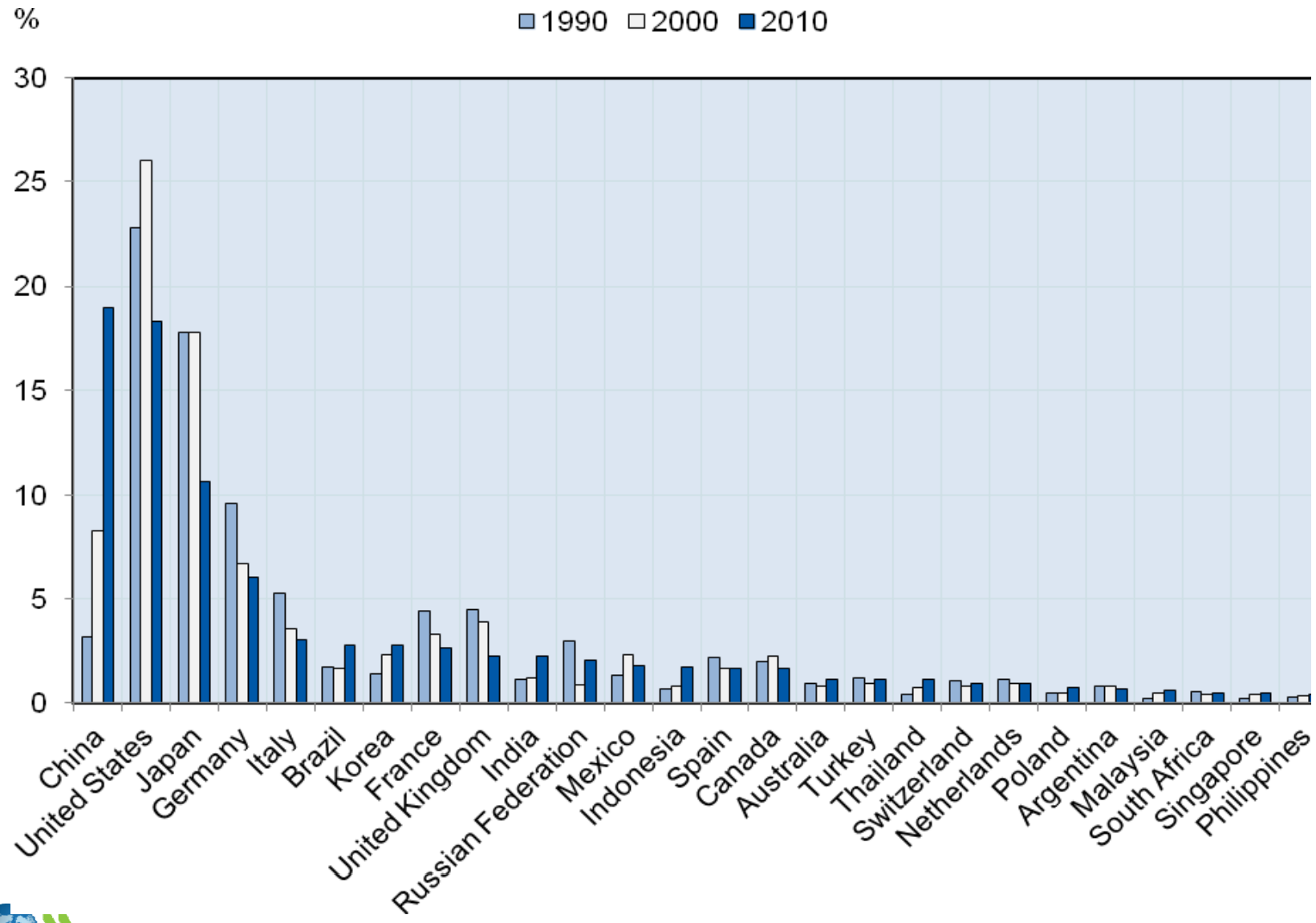
Why the resurgence of interest?

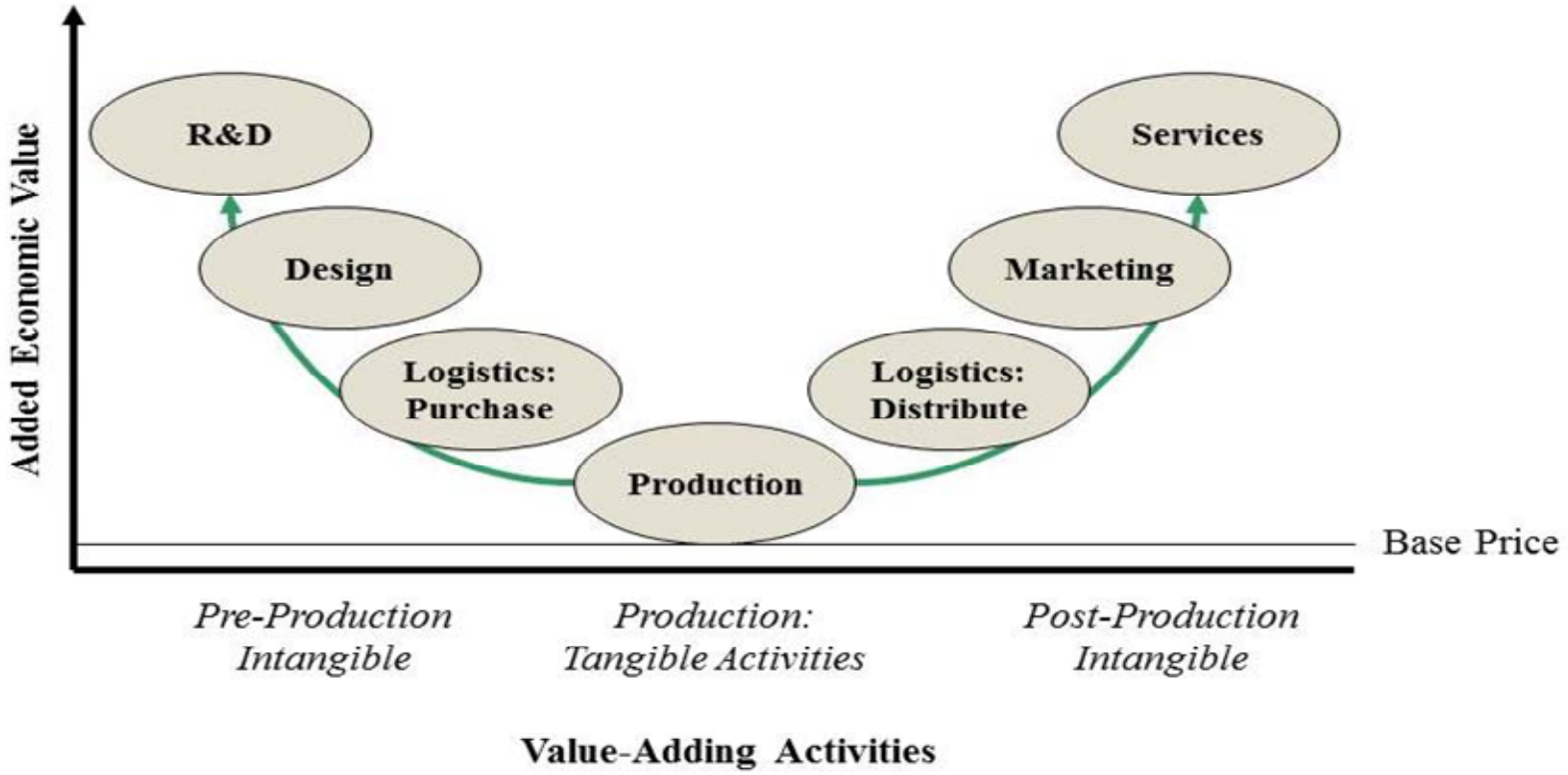
- Need to stimulate growth and employment in response to the crisis
- Concerns over structural imbalances
- Prevalence of market failure
- Political economy of bail-out finance
- Success of emerging market economies

Share of global manufacturing value added



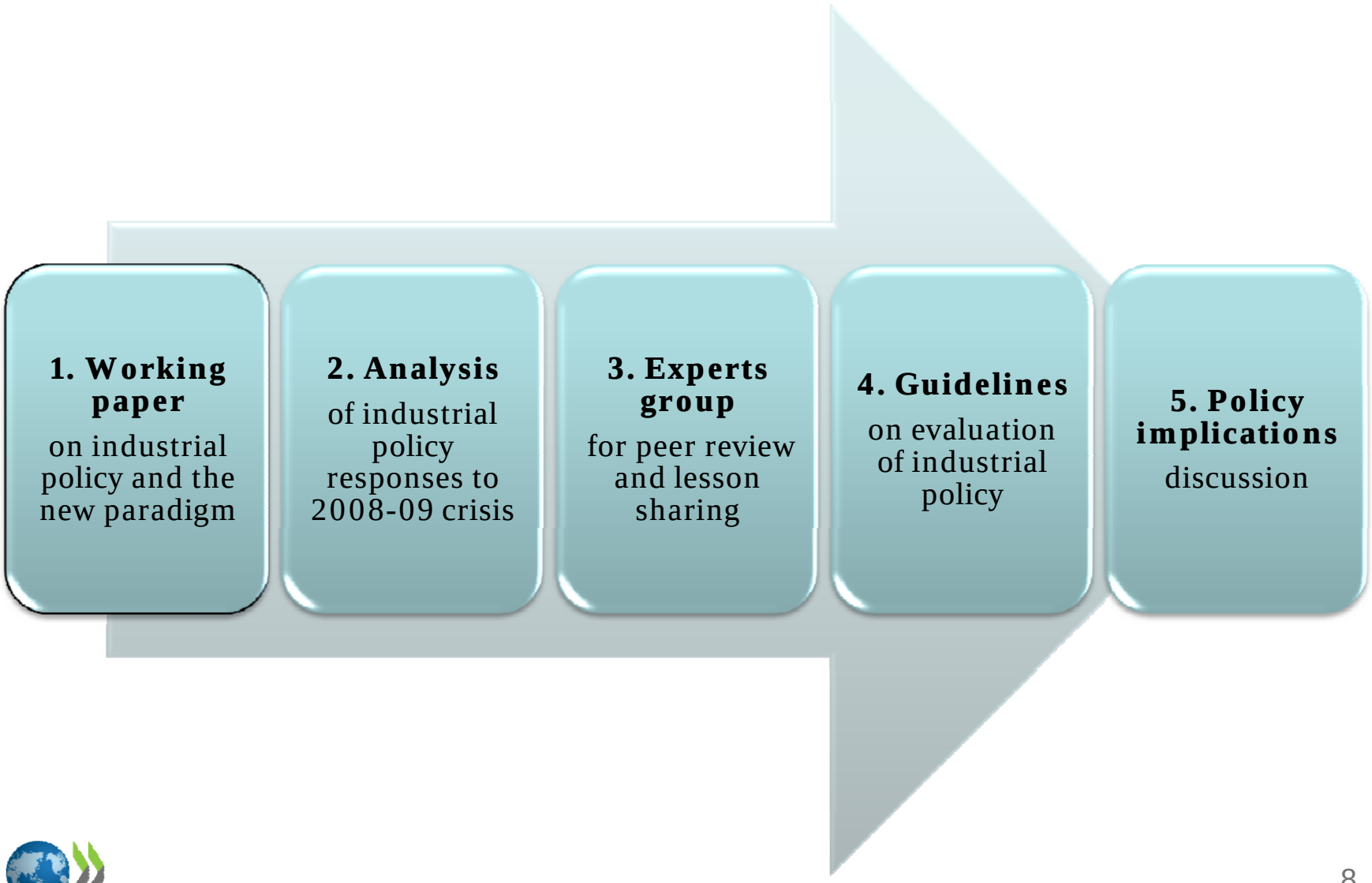
Source: OECD estimates, based on UNSD

Location of value added in the value chain



Source: Gary Gereffi, presentation at OECD workshop, September 2010.

OECD programme of work on industrial policy



Definition of Industrial Policy

any type of selective intervention or government policy that attempts to alter the structure of production toward sectors that are expected to offer better prospects for economic growth than would occur in the absence of such intervention, i.e., in the market equilibrium

(Pack and Saggi, 2006)

"Industrial Policy is *any type of intervention* or government policy that attempts *to improve the business environment* or to alter the structure of *economic activity* toward sectors, *technologies or tasks* that are expected to offer better prospects for economic growth *or societal welfare* than would occur in the absence of such intervention."

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Dimensions of industrial policy

- ***Aim***: Industrialisation, productivity, sector growth, employment, social welfare, distribution.
- ***Target group***: Sector (or technology, input, or stage of the value chain), firms or clusters?
- ***Rationale***: Underlying philosophy that justifies active industrial policy (market failures, capacity building etc).
- ***Orientation***: Is policy horizontal/functional or vertical/selective? Is targeting strategic or in response to market pressures? Is intervention time-limited or longer-term? Conditional or unconditional? Does policy work with existing comparative advantage or explore new areas?
- ***Policy domain***: Product or factor markets – labour, capital, land and technology. Role for policies to develop entrepreneurship or facilitate coordination or the creation of new networks?

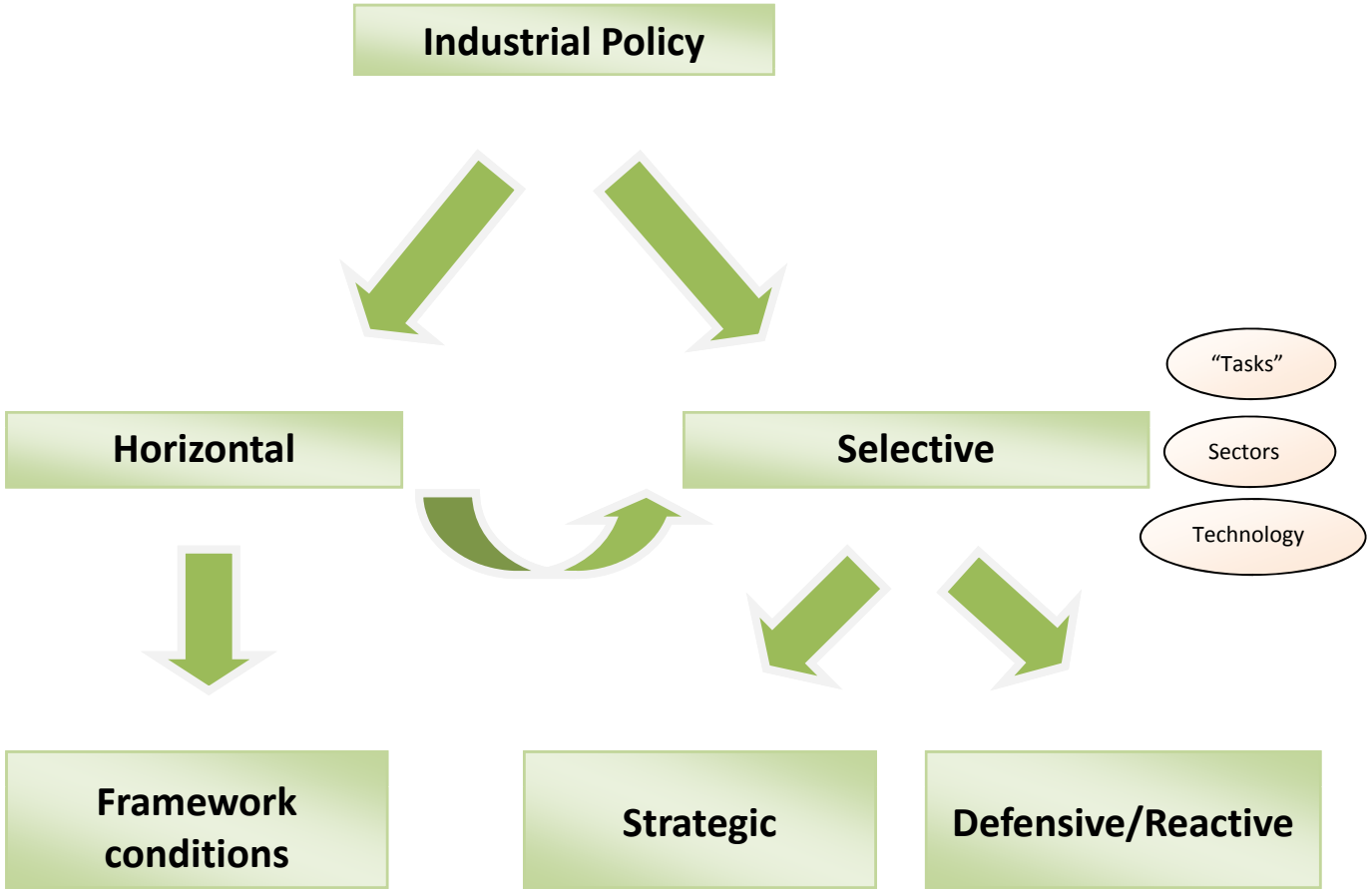
The evolving rationale for industrial policies

- Laissez faire
- Traditional, state-aids, ownership-based
- Neoclassical, market-failure correcting
- New growth, technological capabilities
- Institutionalist, neo-Schumpeterian, evolutionist, systems-based

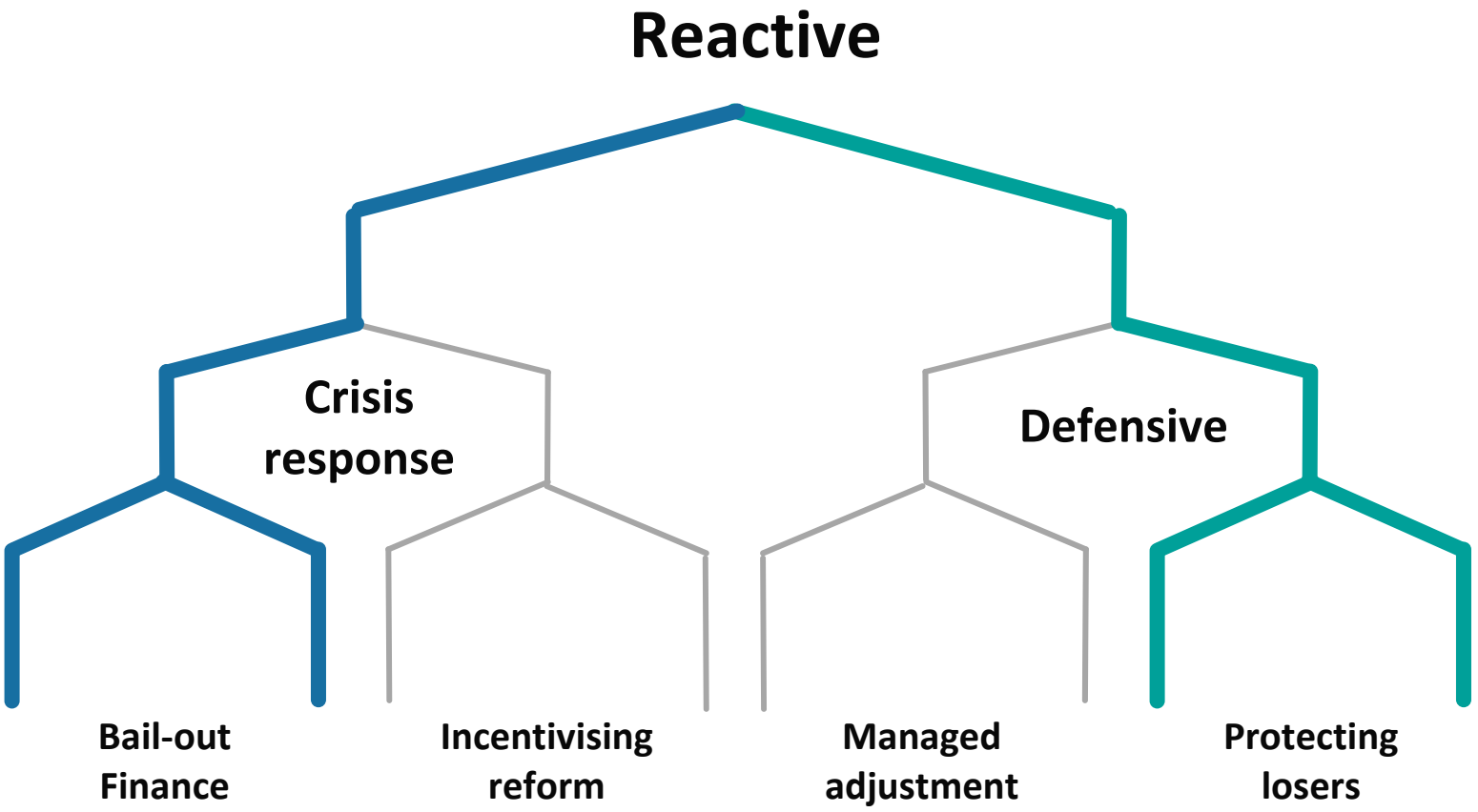
Typology of instruments by policy domain

Domain	Horizontal Policies	Selective Policies
Product markets	Competition and anti-trust Indirect tax Product market regulation Exchange rate policy	National Champions Nationalisation/privatisation Output subsidies/state aids Export promotion Price regulation (*e.g.* pharma) Public procurement Trade policy Car scrappage
Labour and skills	Skills and education policies Training subsidies Wage subsidies Income and employment tax Management advisory services Labour market regulation	Targeted skills policies Apprenticeship policies Sector-specific advisory services
Capital markets	Loan guarantees Corporate tax/capital allowances Macro/financial stability Financial market regulation	Strategic Investment Fund Emergency Loans State Investment Bank Inward investment promotion
Land	Planning regulation Land use planning	Enterprise zones Place-based clusters policy Infrastructure
Technology	R&D tax credit Science Budget IPR regime	Green technology Lead Markets Public procurement for innovation Patent Box Selective technology funding Centres of expertise
Systems/Institutions	Entrepreneurship policy Scenario planning Distribution of information Overall competitiveness strategy	Indicative planning Foresight initiatives Identifying strategic sectors Sectoral competitiveness strategy Clusters policy

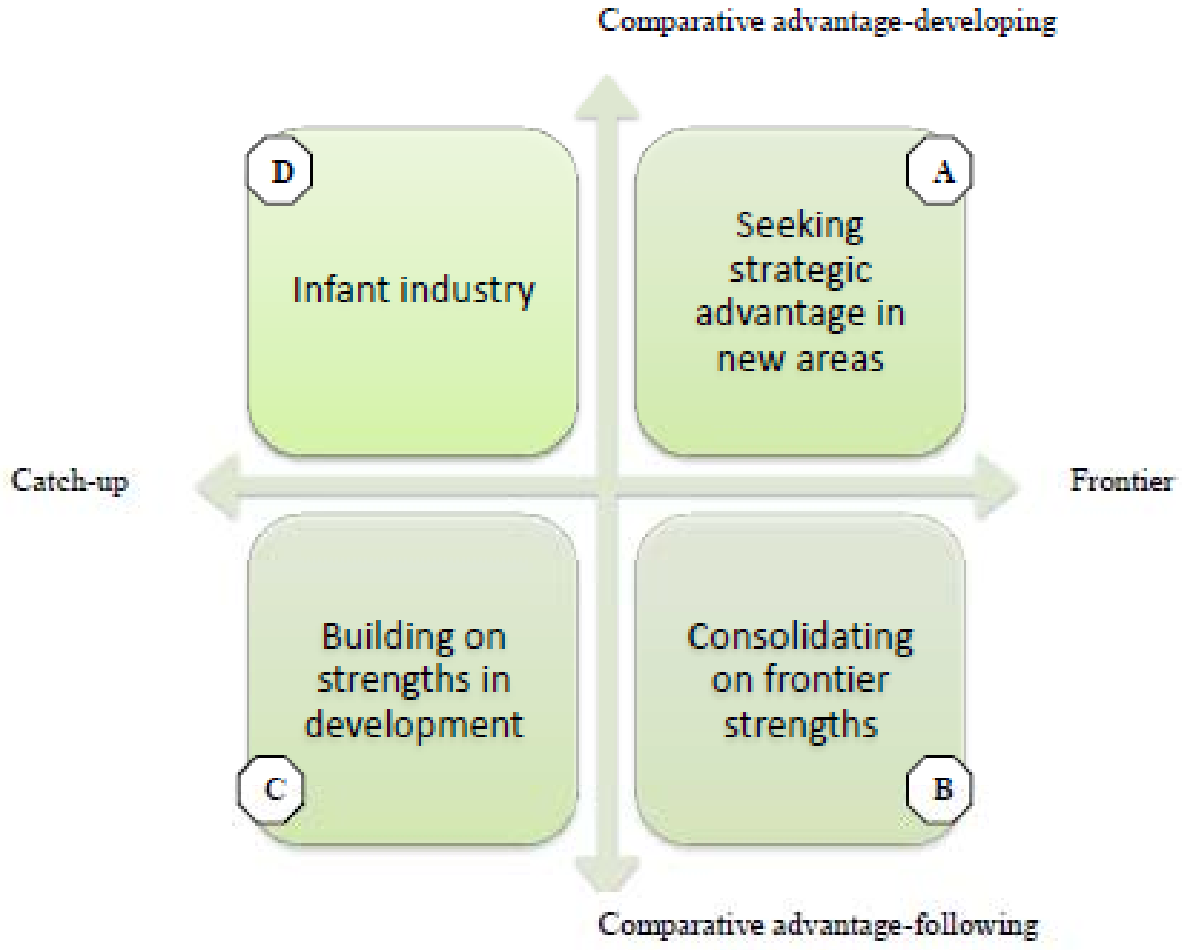
Typology by policy orientation



Typology by orientation – reactive/defensive policy



Two-way classification of strategic industrial policy



Stages of industry lifecycle

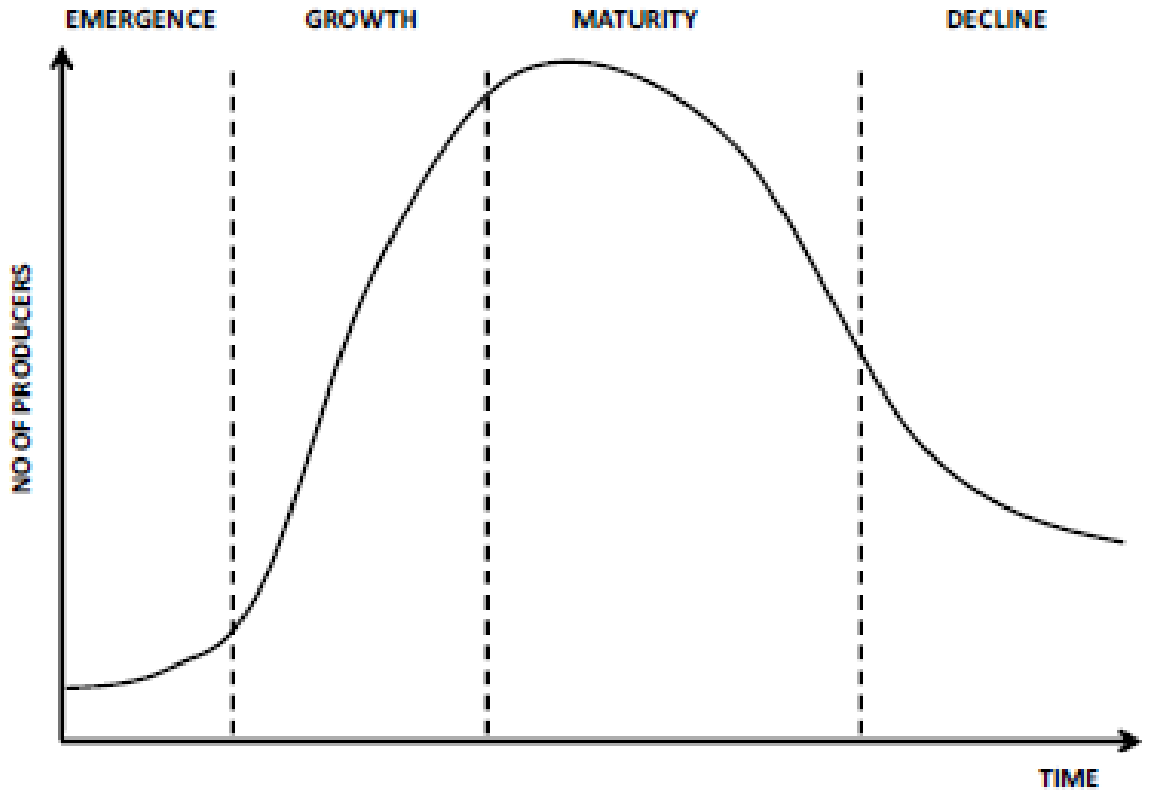
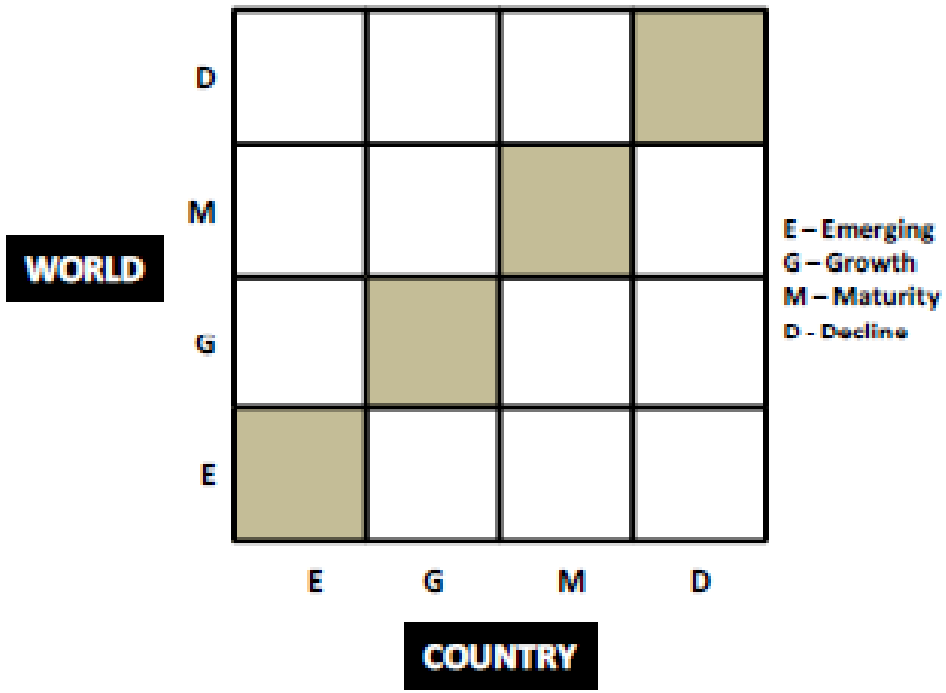


Figure 2 – stages of industry lifecycle

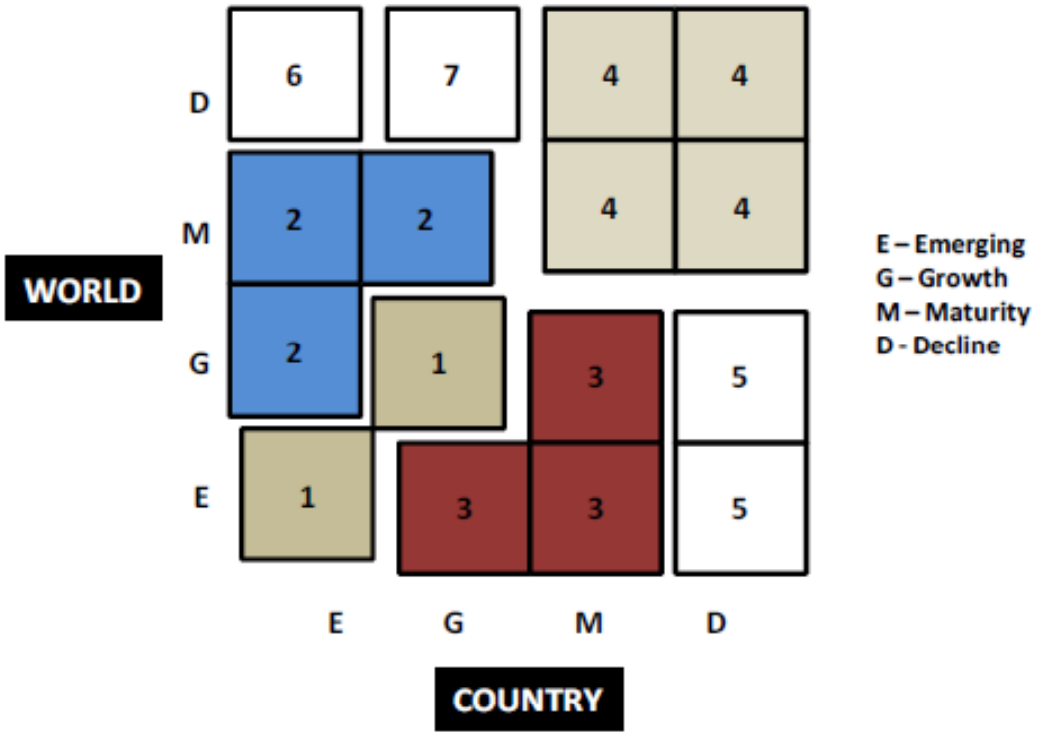
Source: Livesey (2012)

Comparative industry maturity grid



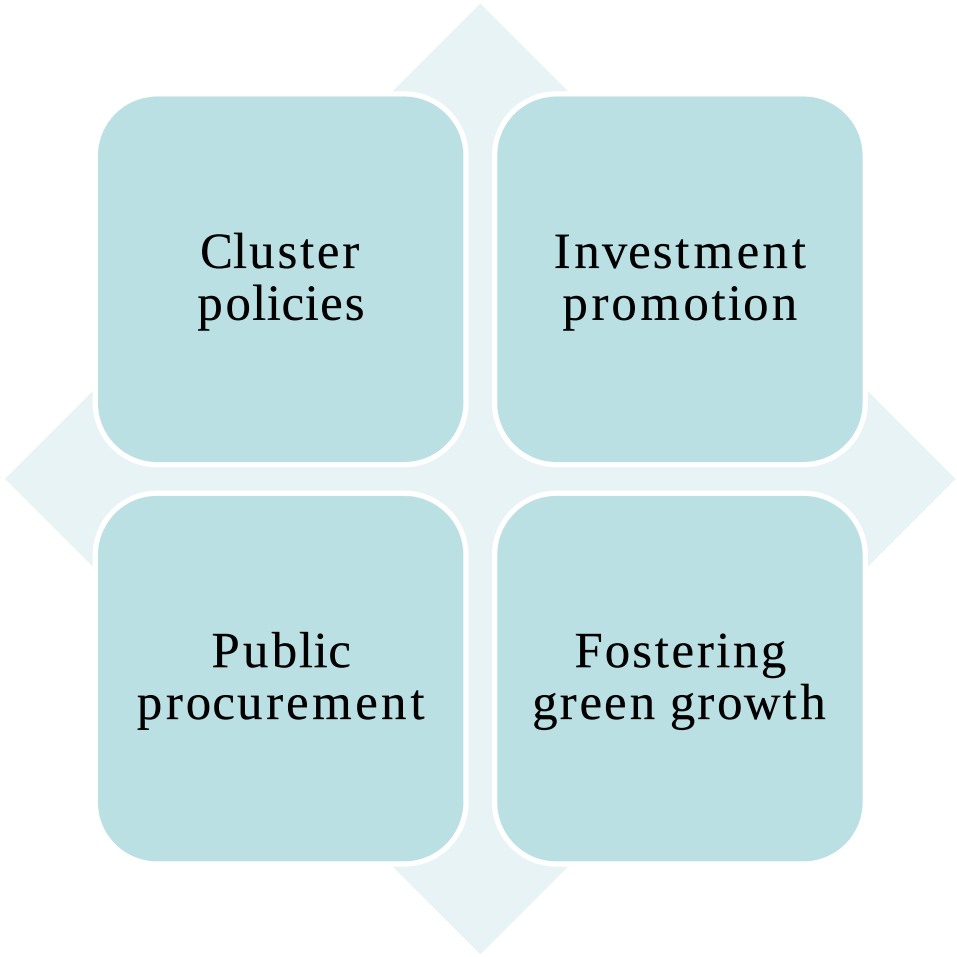
Source: Livesey (2012)

Industrial policy orientation based on comparative maturity



Source: Livesey (2012)

New industrial policy in practice



What have we learned?

(Rodrik, 2008)

"The emerging consensus is that the risks associated with selective-strategic industrial policy can be minimised through a 'soft' form of industrial policy, based on a more facilitative, coordinating role for government, consistent with the systems approach.....

"The goal of 'soft' industrial policy is to develop ways for government and industry to work together to set strategic priorities, deal with coordination problems, allow for experimentation, avoid capture by vested interests and improve productivity."

Industrial strategy in the UK

Vince Cable 7 March 2013

"...my chief political project last year was to establish a firm case for an industrial strategy – words previously banished from Whitehall. That case has been won – and I think is now broadly accepted on Right and Left. Work is now well underway with industry to develop long-range strategies for 10 important sectors by this summer. As they emerge, it will become clear that they are not all about extra money, but rest on a structure of cooperation with industry: in procurement, regulation, export and trade policy – indeed, every area where government interfaces with business. But, as with science, the spending element is still important."

Industrial strategy in the UK

Vince Cable 7 March 2013

"In the coming weeks, I'm confident that the government will demonstrate its commitment to long-term industrial investment – investment which pulls in a private sector commitment many times larger; which supports essential areas of industry; which proves to business and to investors that our strategy is no flash in the pan and that Britain intends to deliver on its promise to rebalance its economy."

Industrial strategy - key sector documents

Industrial strategy: UK sector analysis

Analyses evidence on which sectors could contribute to UK future economic growth and employment.

Lifting Off: Implementing the Strategic Vision for UK Aerospace

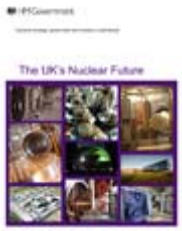
An industrial strategy for aerospace, implementing a shared government and industry vision for the sector.

Strategy for UK life sciences

The government's strategy for the UK life sciences industry. Focuses on applying biology in healthcare applications.

UK Oil and Gas: Business and Government Action Plan

Government and industry strategy for the future of the UK upstream oil and gas sector.



Nuclear Industrial Strategy: The UK's Nuclear Future

Government and industry strategy for the future of the nuclear sector in the UK.

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Developing strategic partnerships with industry

The government is developing long-term strategic partnerships with industry sectors where we can have the most impact on growth

Advanced manufacturing
- Aerospace
- Automotive
- Life sciences
- Agri-tech

Enabling sectors
- Energy: nuclear
- Energy: oil and gas
- Energy: offshore wind
- Construction

Knowledge services
- Education
- Information economy
- Professional business services

Partnership strategies will:
- be long term
- be created with industry, committing business and government to specific actions
- involve the whole of government
- identify actions to benefit all businesses

‘Eight great technologies’

• **Big data**: transforming scientific enquiry and many industries - the UK can lead in this and in the energy-efficient computing revolution.
• **Satellites**: building satellites and analysing and using the data from satellites.
• **Robots and other autonomous systems**: applications range from assisted living for disabled people to nuclear decommissioning.
• **Synthetic biology**: engineering genes to help heal, feed and fuel the UK.
• **Regenerative medicine**: new medical techniques for repairing and replacing damaged human tissue.
• **Agricultural technologies**: to put the UK at the forefront of the next green revolution.
• **Advanced materials**: with targeted properties enabling technological advances in sectors like aerospace and construction.
• **Energy storage**: technologies for storing energy when it is produced so that it can be used when it is needed.

Conclusions

- Definition and new typology by orientation proposed.
- Approach varies with maturity of country and 'sector'.

- Typology by policy domain based on growth accounting.
- Echoes evolving rationale.

- Theoretical rationale versus risk of Government failure.
- Role for 'soft' industrial policy.

- Need for better monitoring and evaluation.
- Focus on selective policy, and industrial strategy.

Closing reflections on Industrial Policy

- “One size doesn’t fit all”.
- Both flexibility and tenacity needed.
- Some (e.g. Korea) moving to more horizontal policy; while others moving to more selective.
- “Choosing races and placing bets”.
- Convergence in thinking on “fourth generation” industrial policy with emphasis on systems, networks, institutions and capabilities.
- Challenges for evaluation, especially of strategy and policy programmes.

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