

KETs: A Competitive Advantage for Europe

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Message 1

KETs are crucial to sustainable European economic growth

Message 2

Europe is failing in efforts to turn “science” into product, global market share and employment

Message 3

“Refocus” and “Rebalancing” of Commission Research and Innovation Budget necessary

Message 4

Leverage “Deployment of KETs” to ensure significant synergies between Innovation & Structural Funds



KETs are essential to develop and manufacture advanced products

Definition of Key Enabling Technologies

- Knowledge-intensive
- High R&D intensity
- Rapid innovation cycles
- High capital expenditure
- High

6 Key

MULTIKETS BOX

Nano-technologies

Micro and nanoelectronics

Photonics

Advanced materials

Advanced manufacturing systems



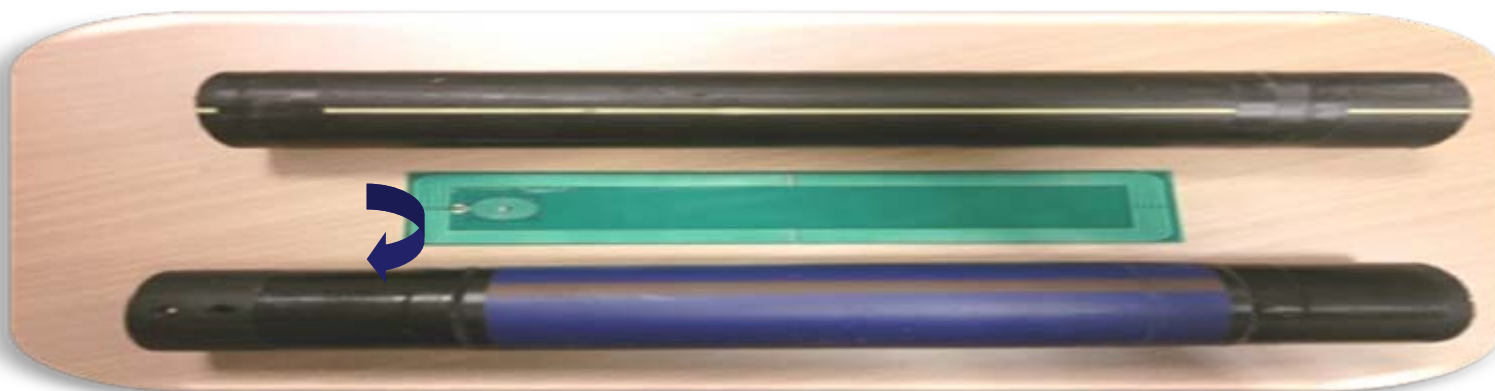
KETs can revolutionize traditional products



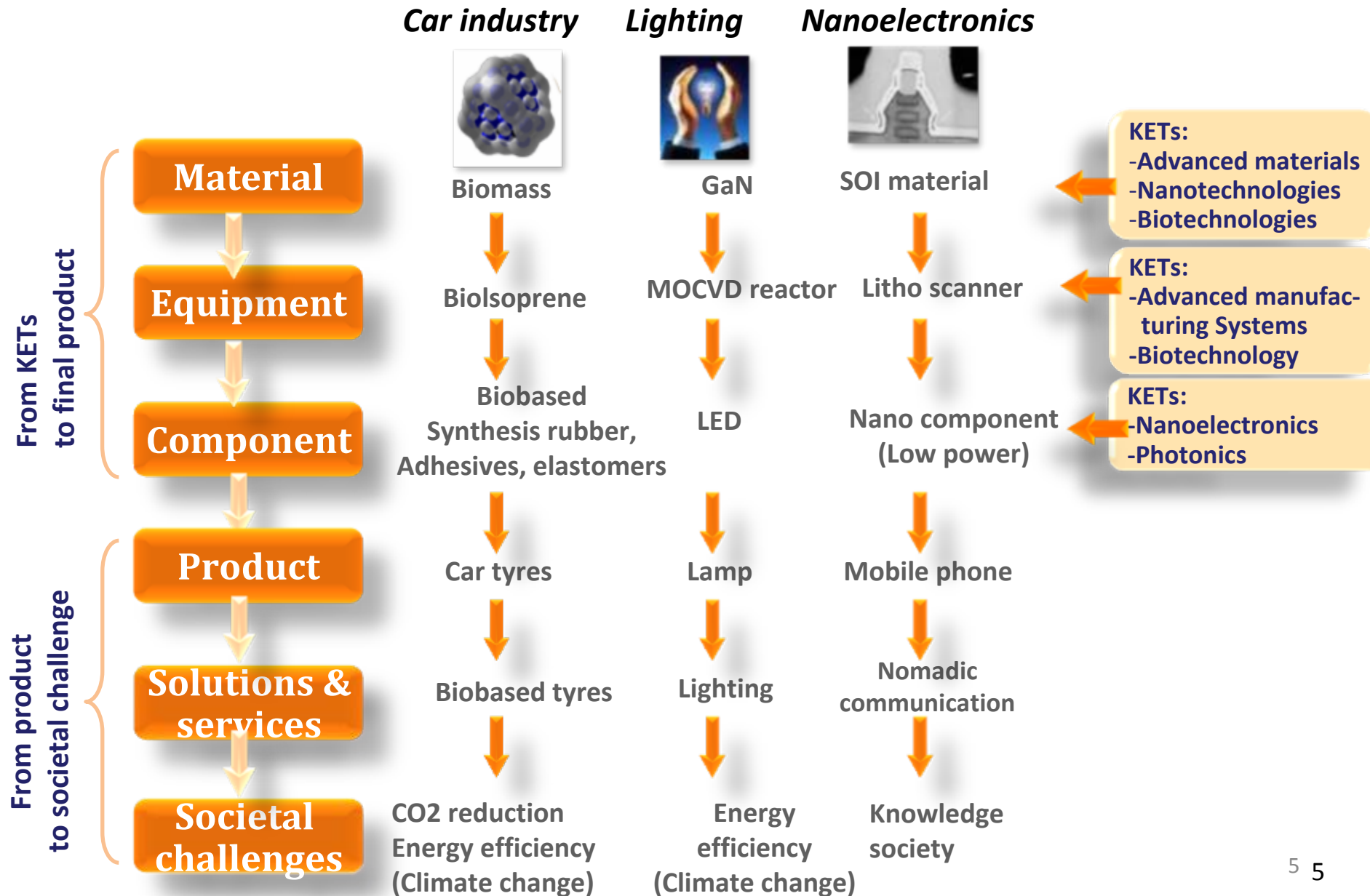
World first !

ELIOT® , the first plastic pipe that communicates and is detectable

ryb



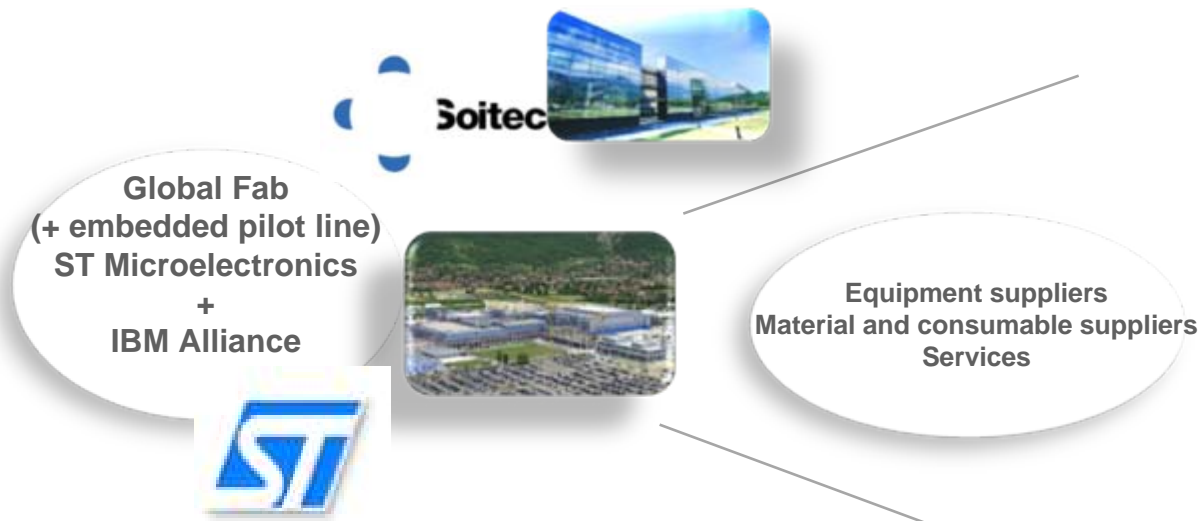
(Multi) KETs are strategic all along EU value chains



'Triggering a virtuous cycle from manufacturing'

IMPACT on TECHNOLOGICAL INNOVATION

b) Impact on the local ecosystem including SME's



'Triggering a virtuous cycle from manufacturing'

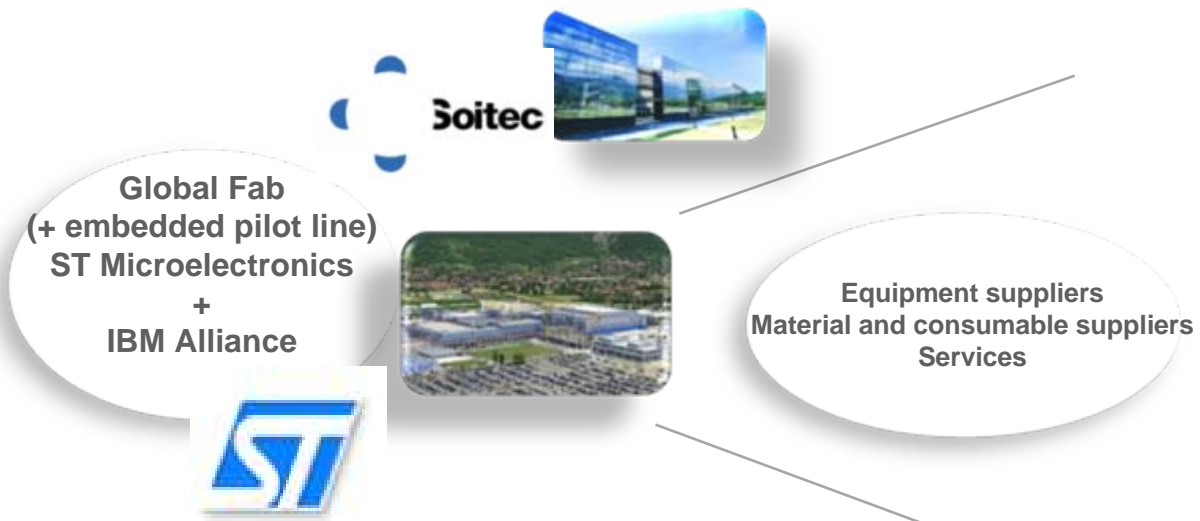
IMPACT on TECHNOLOGICAL INNOVATION

b) Impact on the local ecosystem including SME's

Innovation ecosystem

+ 30
spin-off
And start-ups

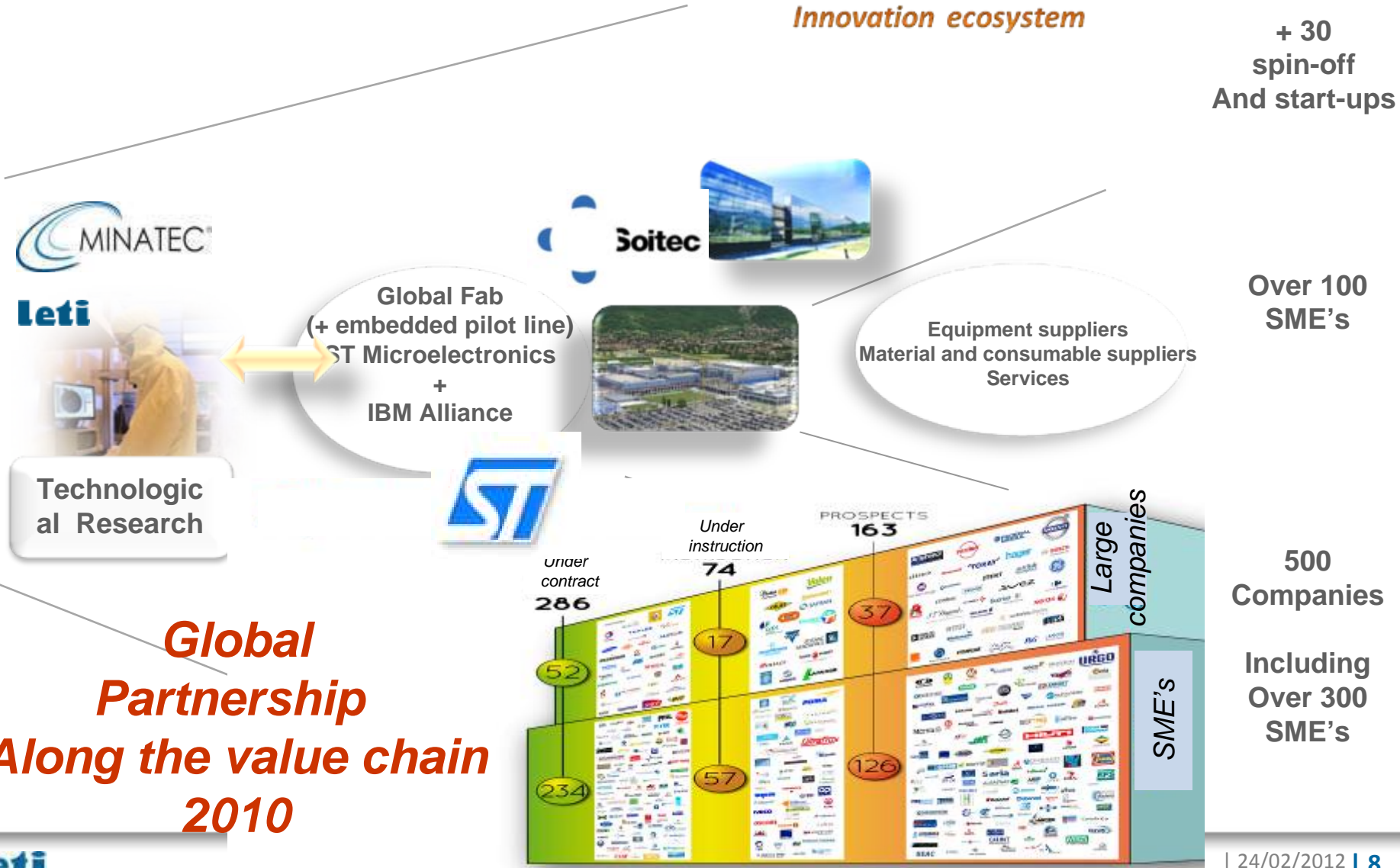
Over 100
SME's



'Triggering a virtuous cycle from manufacturing'

IMPACT on TECHNOLOGICAL INNOVATION

a) Impact on public research



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Disconnection between patents share and manufacturing share

Case Study: Li-ion battery production

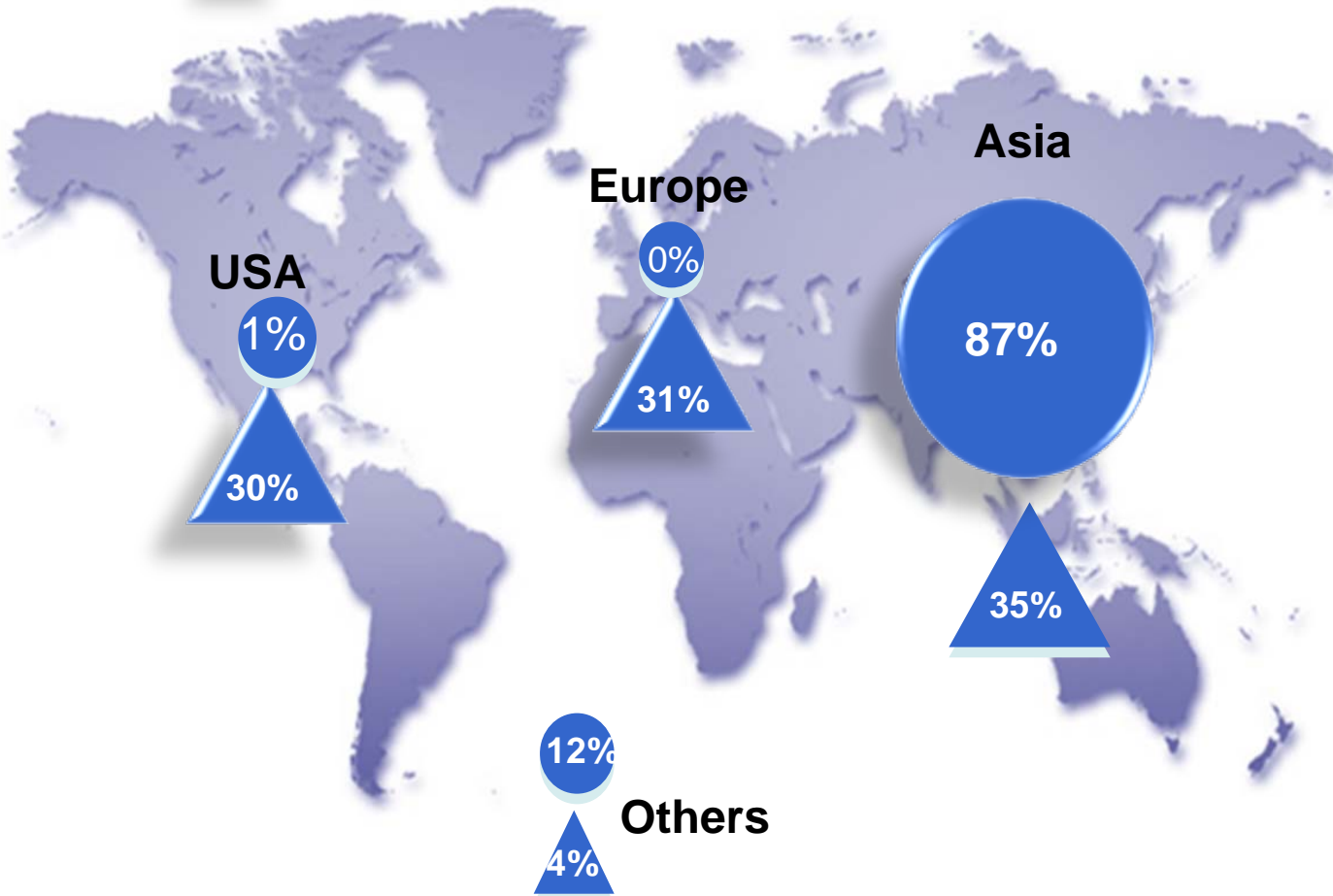


%

Li-ion battery cell production share in 2008

%

Advanced Material Patent Share





Aggressive US federal and regional (state) action to attract foreign firms

2005 BASF invests significantly in lithium-ion cathode materials research and development

2010 BASF breaks ground for North America's most advanced production facility for Lithium-Ion battery materials in OHIO



2006 SAFT forms a joint venture with Johnson Controls

2009 SAFT America to Build New Advanced Battery Plant in Jacksonville, Florida
 The new plant will manufacture **lithium-ion cells**, modules and battery packs for military, industrial, and agricultural vehicles

Disconnection between patents share and manufacturing share

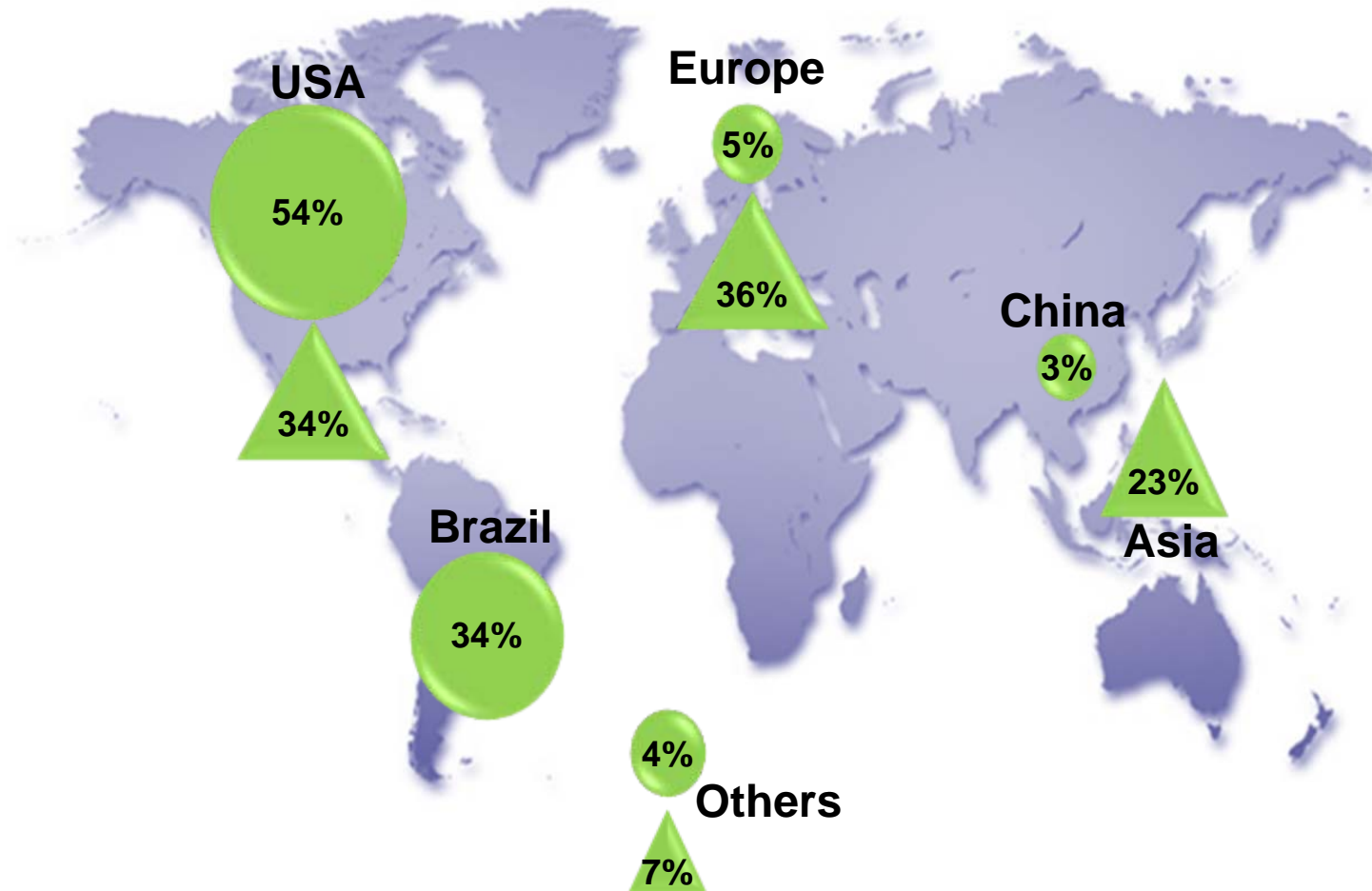
Case Study: Bioethanol production



Bioethanol production share in 2009



Industrial Biotechnologies Patent Share



US attracts our early KET champions (financing 50% of Pilot Lines, and giving loans for the rest)

Latest News



UK INEOS Bio builds a plant in the US with
>95% subsidies and loans guarantees



\$130 million production facility to produce advanced biofuels from waste

\$50 million Grant from the U.S. Department of Energy

\$75 million loan guarantee from the U.S. Department of Agriculture

Latest News

Solar Trade War? Accusations of China's Illegal Solar Subsidies Stirring Debate in the Solar Industry

By Stephen Lacey on Oct 19, 2011 at 4:59 pm

Concerns about China's support of domestic solar companies have been brewing for years. But they have finally come to a boiling point — and it's causing some in the solar industry to feel burned.

The German solar manufacturer SolarWorld, along with six other unnamed companies, [filed a petition](#) to the U.S. Department of Commerce and the International Trade Commission today, calling for America to challenge China's "illegal" subsidies to solar companies and develop tariffs for Chinese products:

With a large number of subsidies and preferential treatments, the Chinese government and its state authorities have enabled its solar industry to make price cuts well beyond their own efficiency and to massively expand the export of its goods. Many documented cases of violations of social, quality and environmental standards that regulate production sites in the U.S. and Germany have also been discovered.



'Worst violator of global trade laws': CASM reacts strongly to China's Commerce Ministry statement



The statement provided in response to the comments outlines the CASM's sentiments in regard to China's trade practices. Image: Worldwide Connect

The Coalition for American Solar Manufacturing (CASM) has issued a statement in response to China's Ministry of Commerce's comments regarding allegations of unfair trading practices on the part of Chinese cell and module manufacturers. Although an 'official' statement remained elusive, Chinese national news site Sohu ([Chinese-language site](#)) quoted "an unnamed official" as having commented on the CASM petition, saying that global economic recovery could be greatly hampered by the allegations. Reuters's translation of the unnamed official's comments are [available here](#).

The CASM is led by SolarWorld Industries America and comprises seven US-based crystalline silicon solar cell manufacturers; the identities of the six remaining members of the CASM have not been disclosed.

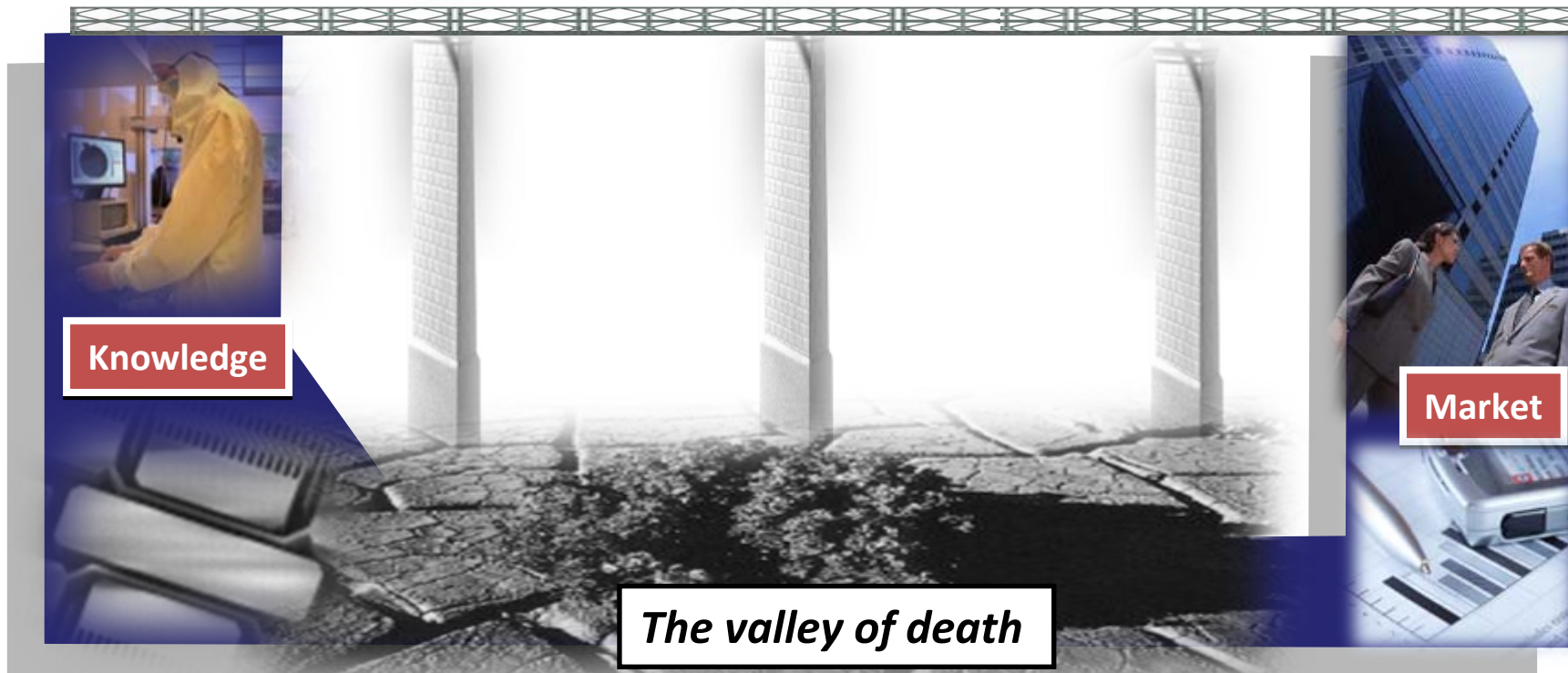
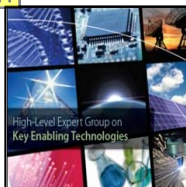
The statement provided in response to the comments outlines the CASM's sentiments in regard to China's trade practices, and was authorized by coalition spokesman Gordon Brinser, president of SolarWorld. Below is the full statement issued by the CASM:



The Coalition for American Solar Manufacturing (CASM) has issued a statement in response to China's Ministry of Commerce.

"The Chinese government's claims that our actions are improper and protectionist, and that its illegal subsidies and massive dumping of solar product are helping the global economy and the environment, are absurd. China is one of the biggest trade protectionists in the world. In the solar industry, China is gutting manufacturing and jobs here in America and abroad while China's solar industry pollutes its own people. The accusations have no basis in fact.

The European “ valley of death ”





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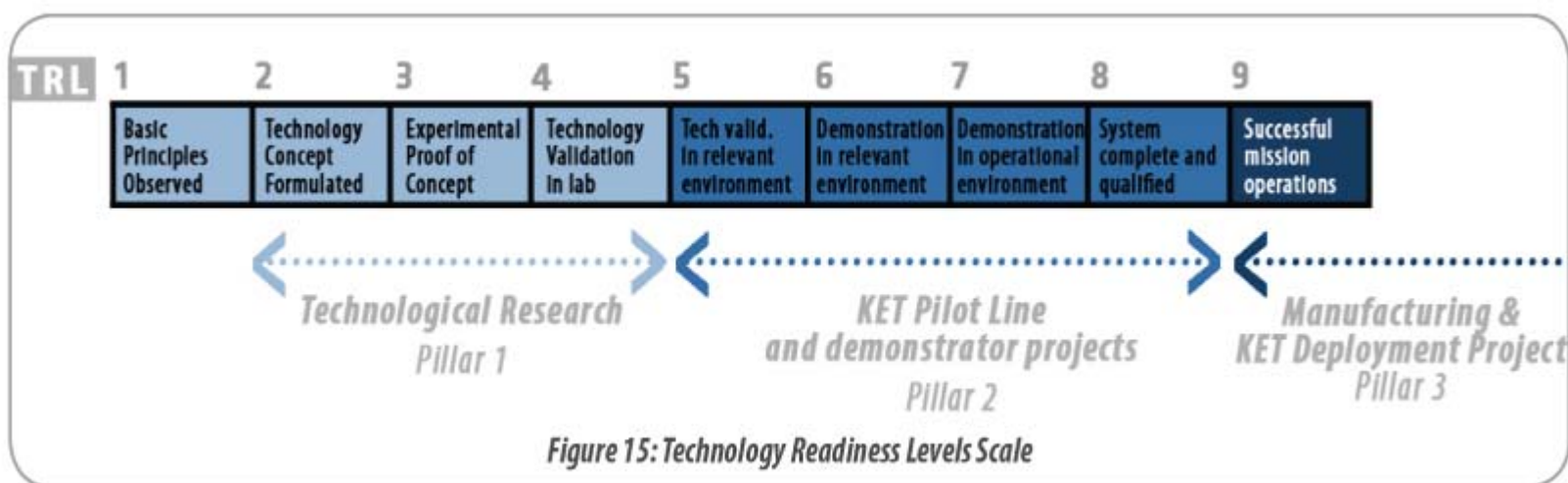
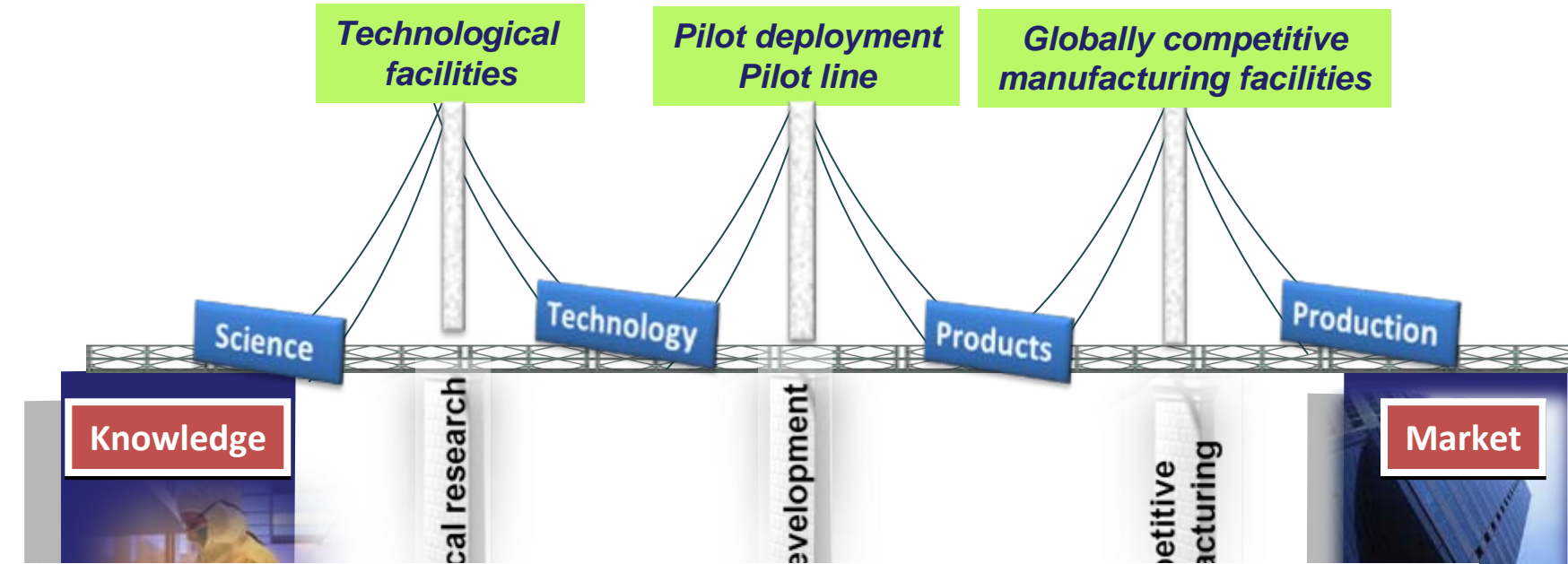
“Refocus” and “Rebalancing” of Commission Research and Innovation Budget necessary



Message 4

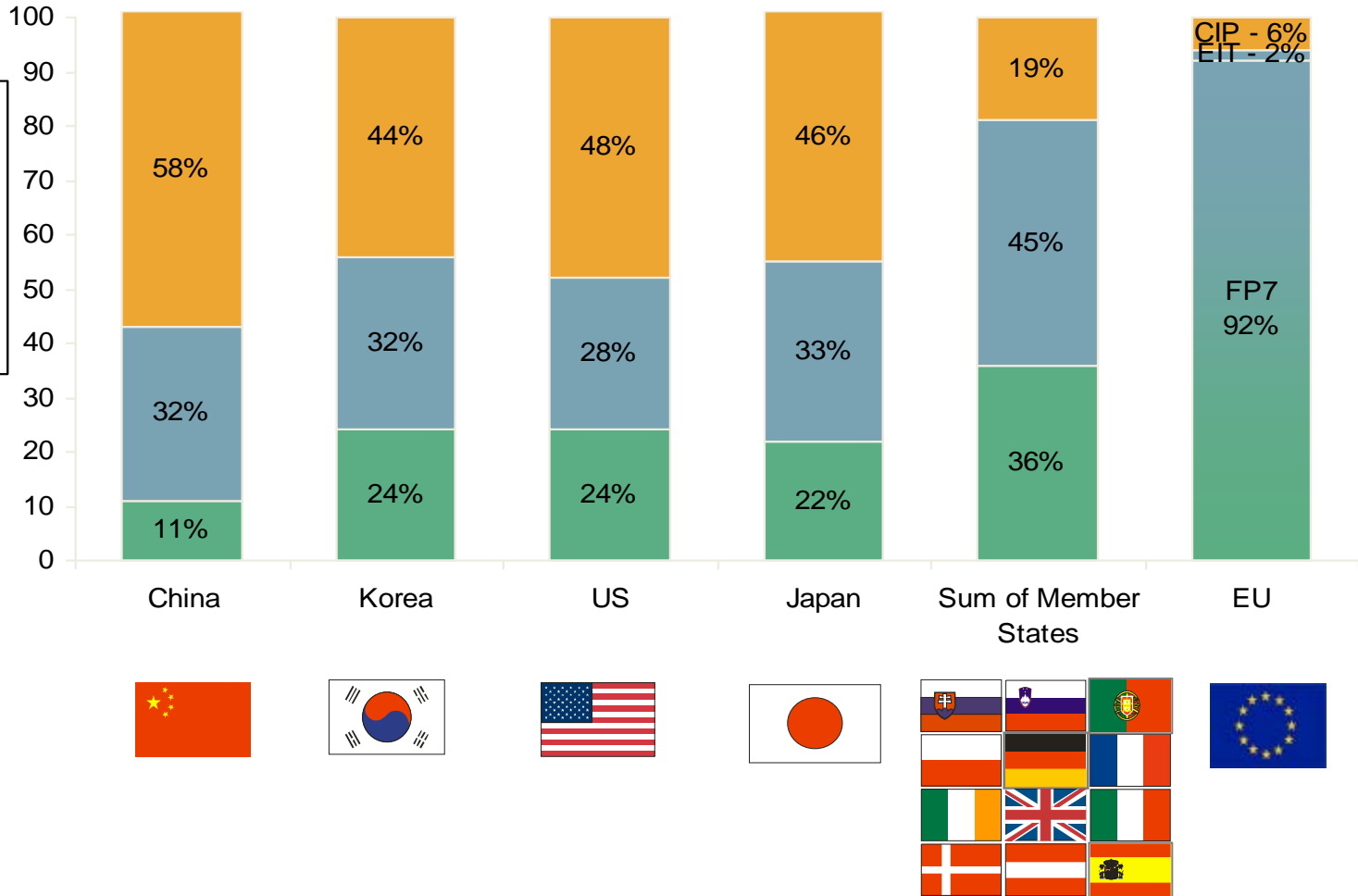
Leverage “Deployment of KETs” to ensure significant synergies between Innovation & Structural Funds

European “three pillars bridge” to pass across the “valley of death”



Rebalancing of EU RDI funding programmes

Asia and US federal R&D funds mainly go to applied “Development” whereas Europe has the highest share of Basic Research Funding

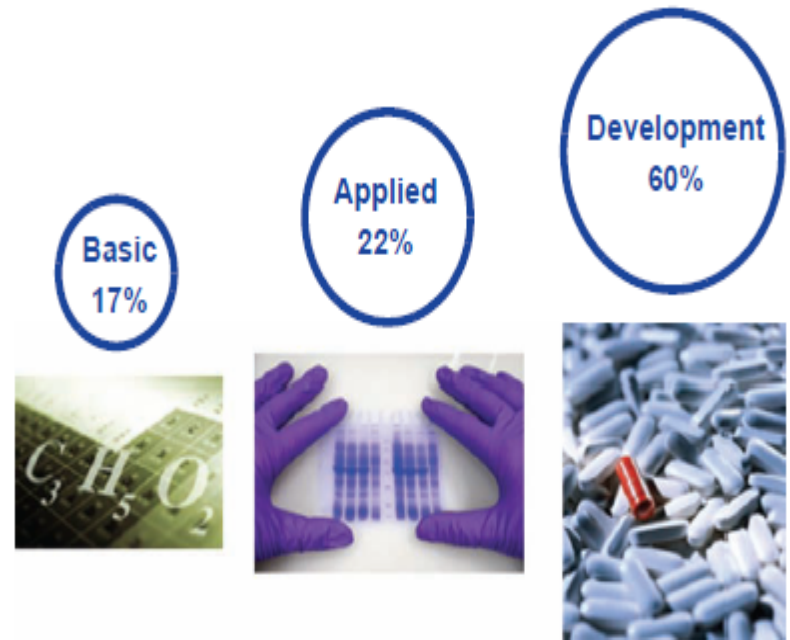
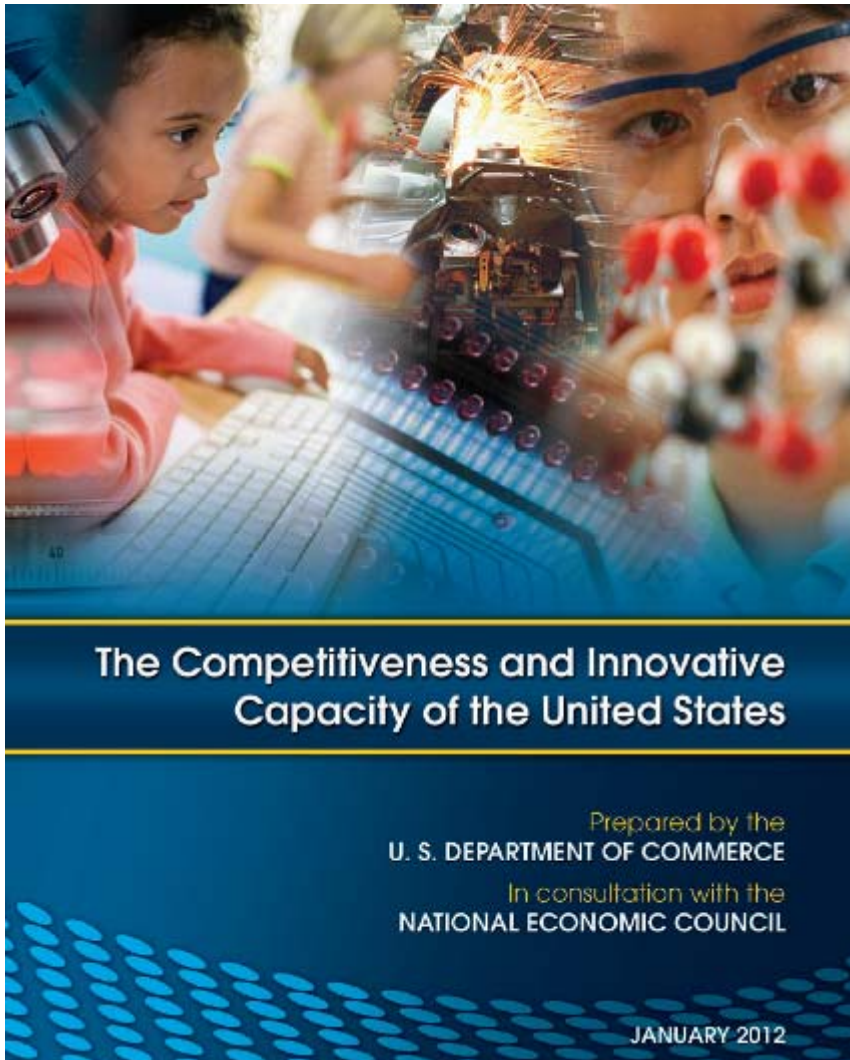


Note : The selection of the 12 member states has been done dependant on the size and the availability of data. The result should not differ much when the other 15 countries are added since the biggest R&D budgets are taken into account.

Note : For all countries are displayed the latest figures available.

Source: Key Science and Engineering Indicators, National Science Board, 2010 Digest, NSF, <http://cordis.europa.eu/erawatch>, OECD “Research and Development Statistics”, Own analysis

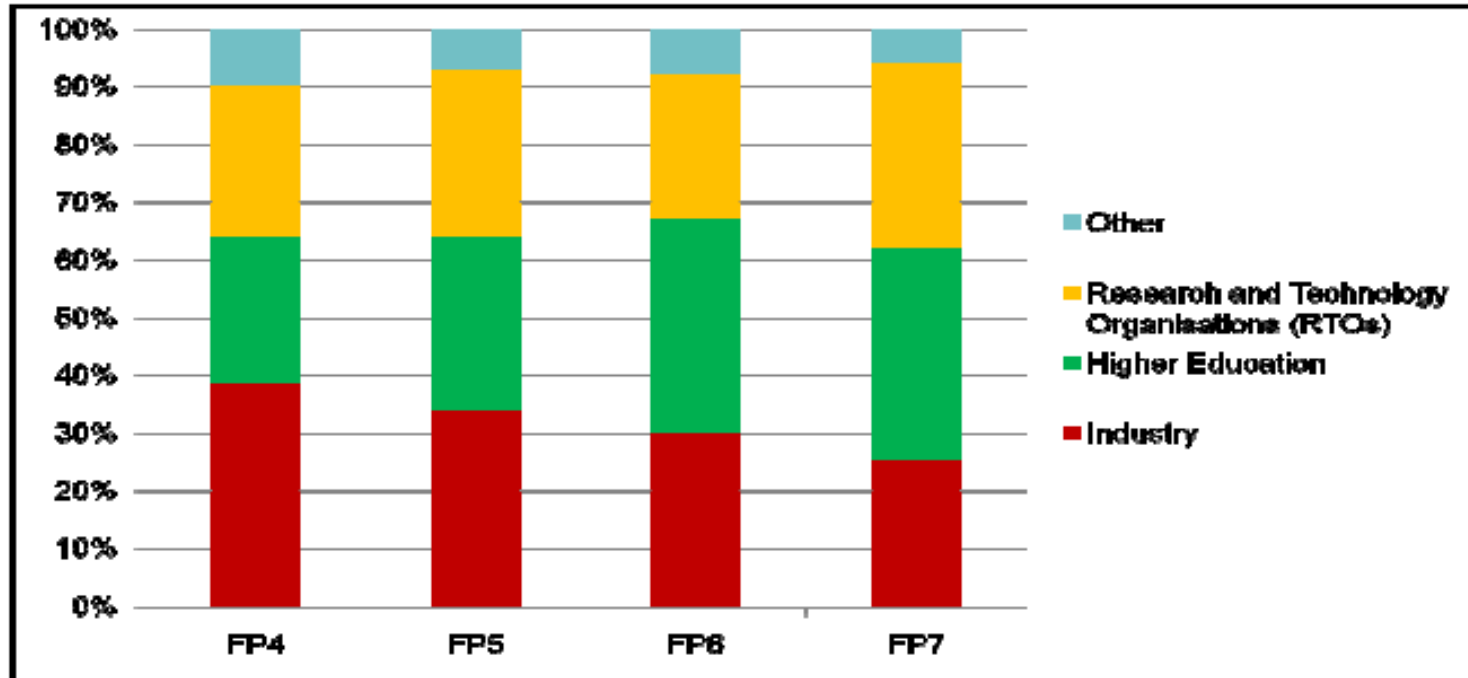
US Accelerating Focus on Industrial Leadership



National Science Foundation, Division of Science Resources Statistics. 2010. National Patterns of R&D Resources: 2008 Data Update. NSF 10-314. Arlington, Va. Available at www.nsf.gov/statistics/nsf10314/.

Participation of Industry in EU Framework Programmes Falling

Figure 7 Participation by stakeholders



Source: European Commission, Second FP7 Monitoring Report, October 2009.

Fact: Industry participation has fallen from 39% in FP4 to 31% in FP6 and currently accounts for only 25% in FP7.

HLG-KET recommendations:



Make KETs a technological priority for Europe

Fully exploit the scope of relevant R&D definitions from basic research to innovation actions such as prototyping, testing, demonstrating, experimental development, piloting and market replication (new rules of procedure of Horizon 2020)

Implement a strategic industry driven and coordinated approach of KETs programmes across EC RDI funding programmes and instruments (CSF, ERDF)



Rebalancing of EU funding programmes towards technological research product development including pilot lines, prototype, first-in-kind equipments and facilities and demonstrator activities

Combined funding mechanism

Competitive IP policy

KETs observatory

Adapted state aid provisions to facilitate KETs research and innovation actions

PCAST¹ proposed actions: **Obama to reindustrialise the US** strong overlap with HLG-KET recommendations observed



Barack H. Obama, State of the Union Speech,

Pillar 3: co-location R&D/Manufacturing

Pillar 2: accelerating the manufacturing process

"investing in the advancement of new technologies with transformative potential, supporting shared infrastructure, and **accelerating the manufacturing process**"

"The Nation's long-term ability to innovate and compete in the global economy greatly benefits from **colocation of manufacturing and manufacturing-related R&D activities in the United States**. The loss of these activities will undermine our capacity to invent, innovate, and compete in global markets."

The future is ours to win. But to get there, we can't just stand still.[...] We know what it takes to compete for the jobs and industries of our time. **We need to out-innovate, out-educate, and out-build**

Pillar 1: technology infrastructure

"Invest in shared facilities and **technology infrastructure** to help small and medium-sized firms compete globally"

these investments -- in innovation, and a better place to do business and

innovation. [...] In America, innovation doesn't just change our lives. It is how we make... **This is our generation's Sputnik**

Valley of death

"Create ways of moving discoveries past the **Valley of Death**"

Pillar 3: overcoming the market failure

"**Invest to overcome market failures**, to ensure new technologies are developed here: Individual companies cannot justify the investment required to fully develop many important new technologies that will have spillover benefits"

Combining the funding

"Private investment must be **complemented by public investment....**"
 "Encourage firms to locate R&D and manufacturing activities in the US through **tax and business policies**"

President's Council of Advisors on Science and Technology

Source: Report to the President: Ensuring American Leadership in Advanced Manufacturing
<http://www.manufacturingnews.com/news/11/0531/ami.html>



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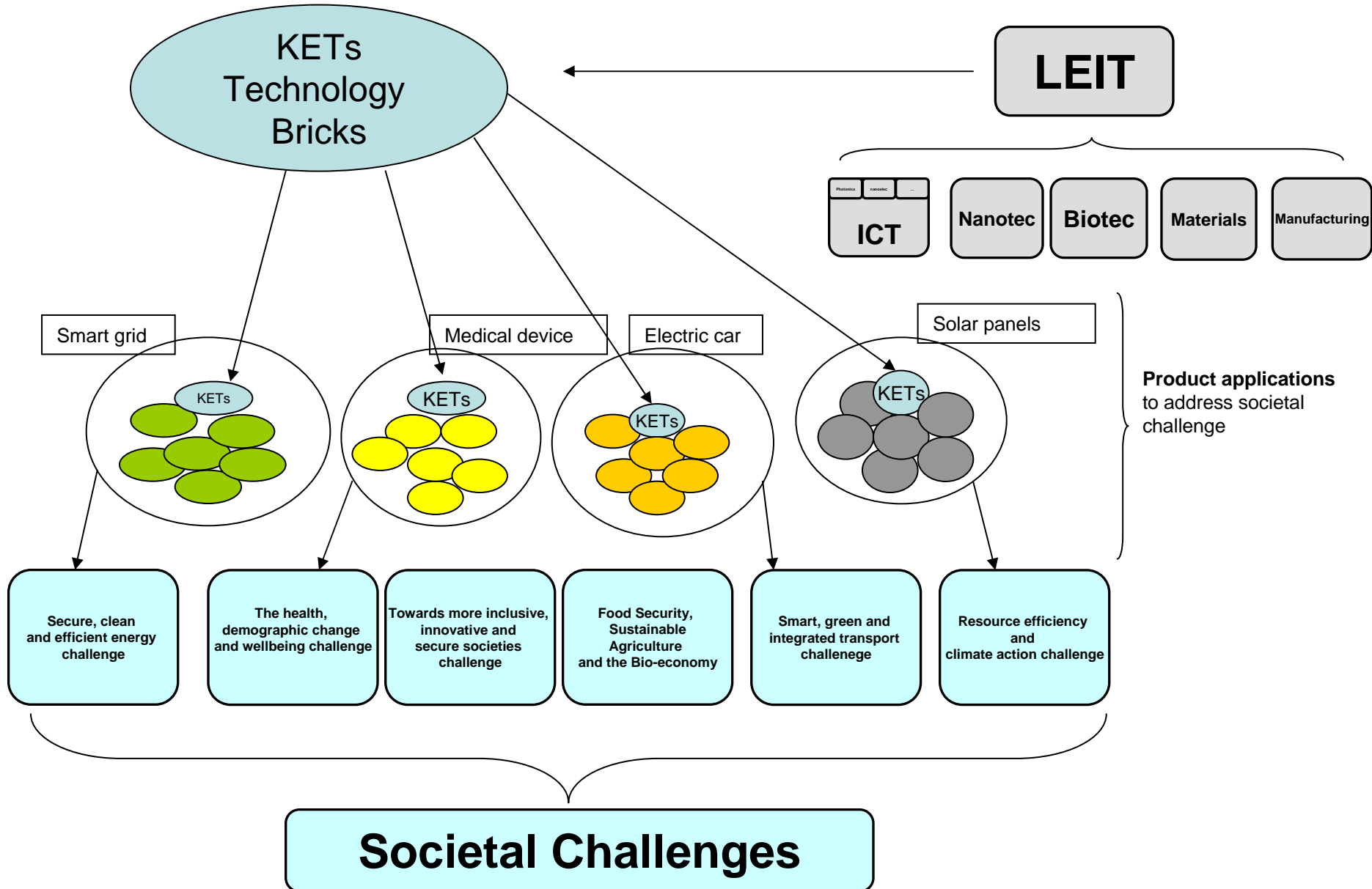
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Leverage “Deployment of KETs” to ensure significant synergies between Innovation & Structural Funds

KETs as the “glue” between Innovation & Societal challenges

Providing European technology bricks that enable European product solutions



Conclusion : building a bridge to success for Europe

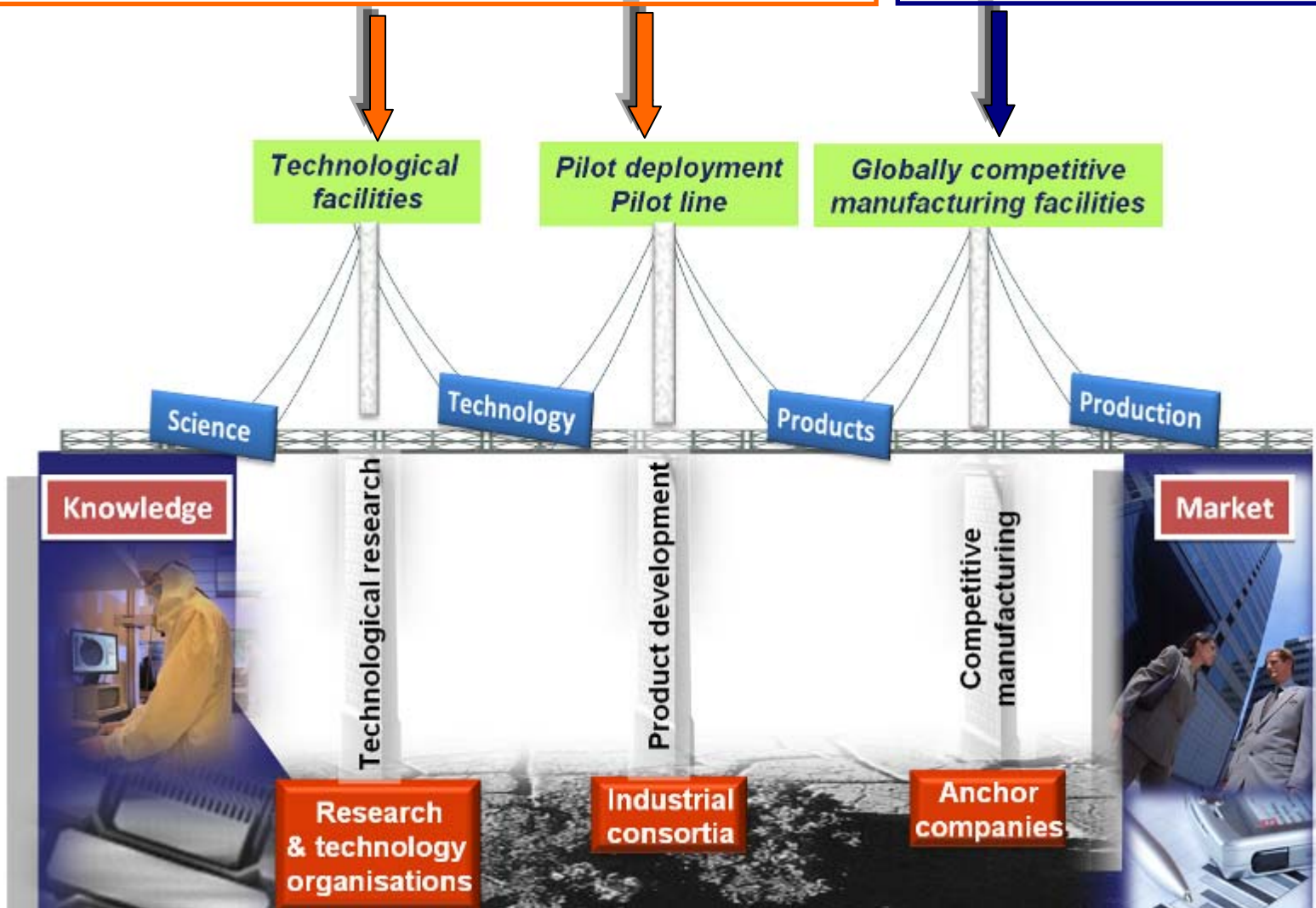


Public Financing

Development of Technology building blocks within DG INFSO, DG Res & Inv, ...
 Re-industrialisation of Europe: KETs Pilot Lines & Deployment financed by H2020 and Structural Funds

Capacity Build-out on a **level playing field**: KETs industrial Policy

Private Financing



Conclusions

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Thank you for your attention

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