

Startevent: KET-Platform Vlaanderen Invalshoek KET Advanced Materials

Brussel, 14 november 2012

Content of the presentation



- Key Enabling Technologies and the Innovation Chain
- The situation in Flanders
- Conclusions

Except as otherwise specified, all data and graphs in the first part of the presentation are taken from the reports published by the EC in the context of the High Level Group on Key Enabling Technologies

http://ec.europa.eu/enterprise/sectors/ict/key_technologies/kets_high_level_group_en.htm

KEY ENABLING TECHNOLOGIES
HLG composition

President

Mr Jean THERME (Director of CEA (French Atomic Energy Commission) in Grenoble).

Members

Prof. Luigi AMBROSIO (Director of the Institute for Composite Biomedical Materials).

Mr Giorgio ANANIA (Chairman of Cube Optics).

Dr. A-J AUBERTON-HERVE (CEO and President of SOITEC).

Mr Andrea BENASSI (Secretary General of UEAPME).

Mr Peter BAUER (CEO of Infineon).

Dr. Daniel BERNARD (Scientific Vice President of ARKEMA).

Mr Carlo BOZOTTI (CEO of STMicroelectronics).

Prof. Hans-Jörg BULLINGER (President of Fraunhofer-Gesellschaft).

Dr. Spase DRAKUL (CEO of THYIA Tehnologije).

Mr Javier EGUREN (CEO of NICOLAS-CORREA).

Ms Anne De GUIBERT (Research Director of Saft Group).

Dr. Winfried HOFFMANN (President of the European Photovoltaic Industry Association, EPIA).

Jochen HOMANN (Staatssekretär in the Ministry of Economics).

Dr. Andre KOLTERMANN (Group Vice President of Süd-Chemie).

Prof. Erkki LEPPÄVUORI (President of VTT Technical Research Center of Finland).

Mr Jan MENGELERS (President of the Netherlands Organization for Applied Scientific Research).

Mr Jim O'HARA (General Manager Intel Ireland).

Mr J Richard PARKER (Director at Rolls Royce).

Mr Richard PELLY (Chief Executive of European Investment Fund).

Dr. Wolfgang PLISCHKE (Board Member of BAYER).

M. Luc ROUSSEAU (General Director in the Ministry of Industry).

Mr Frank ROZELAAR (Non-executive Chairman of QinetiQ).

Mr Marc van SANDE (Chief Technology Officer and Vice President of UMICORE).

Mr Gerald SCHOTMAN (Chief Technology Officer of Royal Dutch Shell).

Dr. Lars STROMBERG (Vice President Vattenfall AB).

Mr David Willets (Minister of State for Universities and Science).

Enterprise and Industry

Information and communication technologies

- ICT Competitiveness
- Key Enabling Technologies**
- e-Skills for the 21st Century
- ICT Standardisation
- e-Invoicing
- Assessing ICT and e-business impact

Information and communication technologies

High-Level Expert Group on Key Enabling Technologies

The High Level Group (HLG) on Key Enabling Technologies (KETs) was set up to develop a shared longer term strategy for key enabling technologies. The group shall in particular address and assess the ten policy areas which have been outlined in the Communication on Key Enabling Technologies for possible policy measures to promote the industrial deployment of KETs.

[Background brochure on the High-Level Group](#) [4 MB]



Photonics

Biotechnology

Advanced Materials

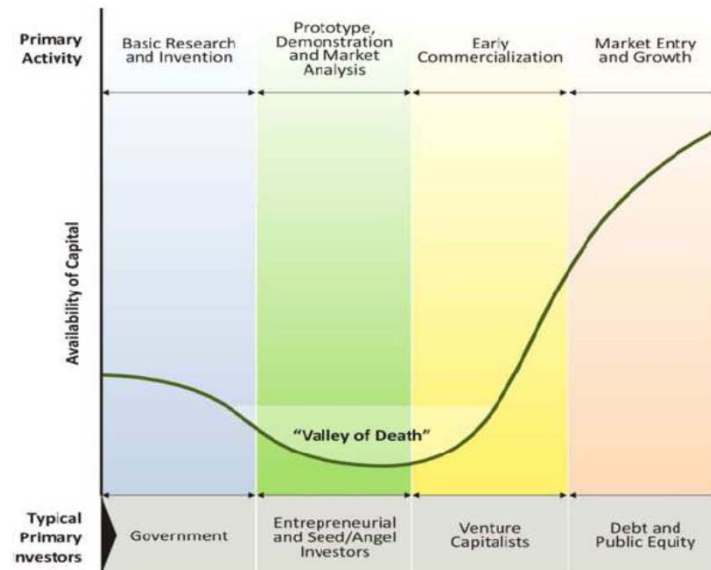
Micro/nano-electronics

Nanotechnology

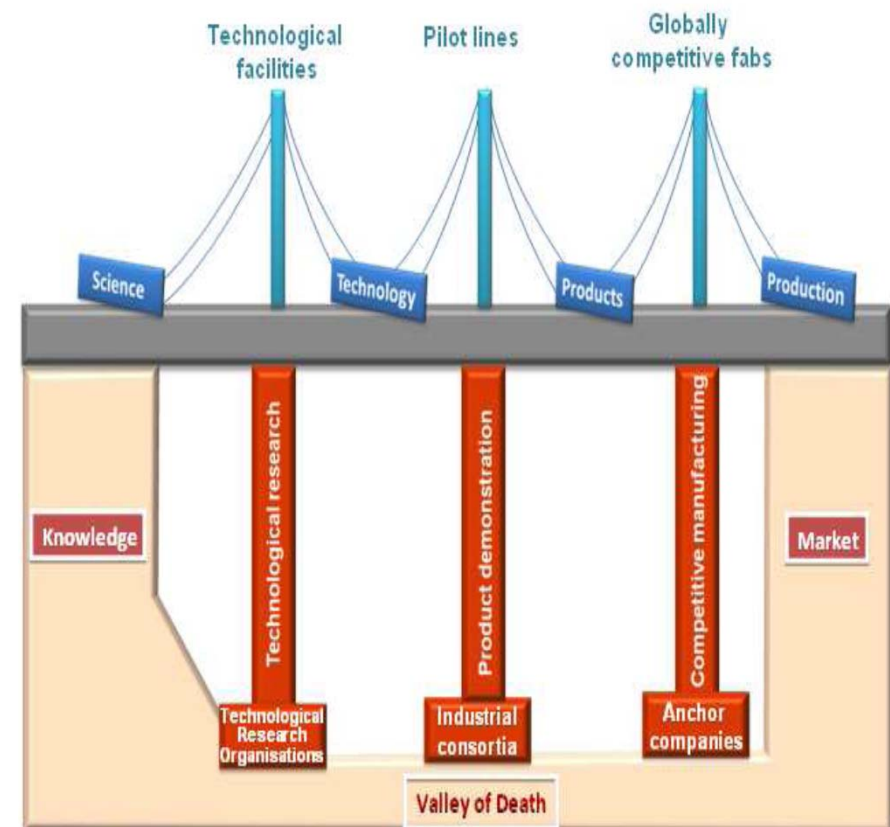
Advanced Manufacturing

The innovation chain between knowledge and the market lies the Valley of Death

- Valley of Death particularly menacing for Europe, lacking “proprietary” approach of other geo-regions



- The European Commission’s High Level Group on Key Enabling Technologies proposes 3-pillar bridge approach
 - bridge is only as strong as its weakest pillar
- Not only a question of money, equally important :
 - how/where to deploy financial resources
 - regulatory framework (very relevant for Flanders : permits, ...)
 - education
 - move away from “service industry only”, renewed interest in manufacturing



The innovation chain

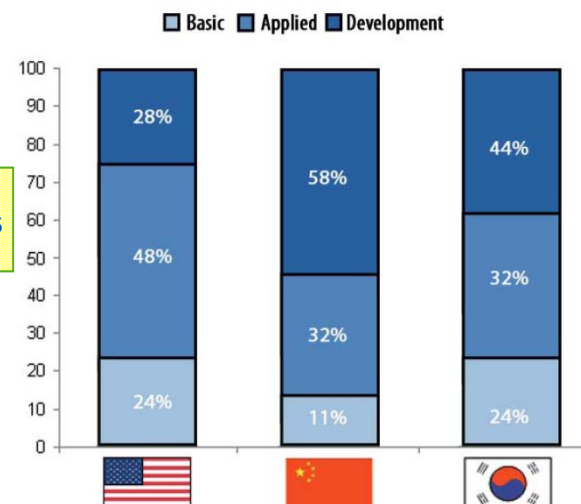
public funding helps to bridge the Valley, but less so in Europe



- European public funding supports mainly science-oriented basic research
 - EC is very strict in WTO rules interpretation, not taking full advantage of possibility provided by Frascati Manual (OECD) to support applied research / development

HLG KET Recommendation 3 : Fully exploit scope of relevant R&D definitions

- This is not so much a problem for multinational companies, as they can perform R&D and transfer to industrial activity in geo-regio's where broader funding is available
 - >75% of federal funding in US, China, Korea is applied R&D
 - allowing risk mitigation for larger innovative projects
- It is however a serious problem for start-ups, SME's and – more general – for job creation in Europe
 - loss of industrial activity in Europe clearly visible in KET-related industries such as advanced batteries, solid state lighting, photovoltaics



HLG KET Recommendation 4 : Rebalancing of EU RDI funding programmes towards development activities

Content of the presentation

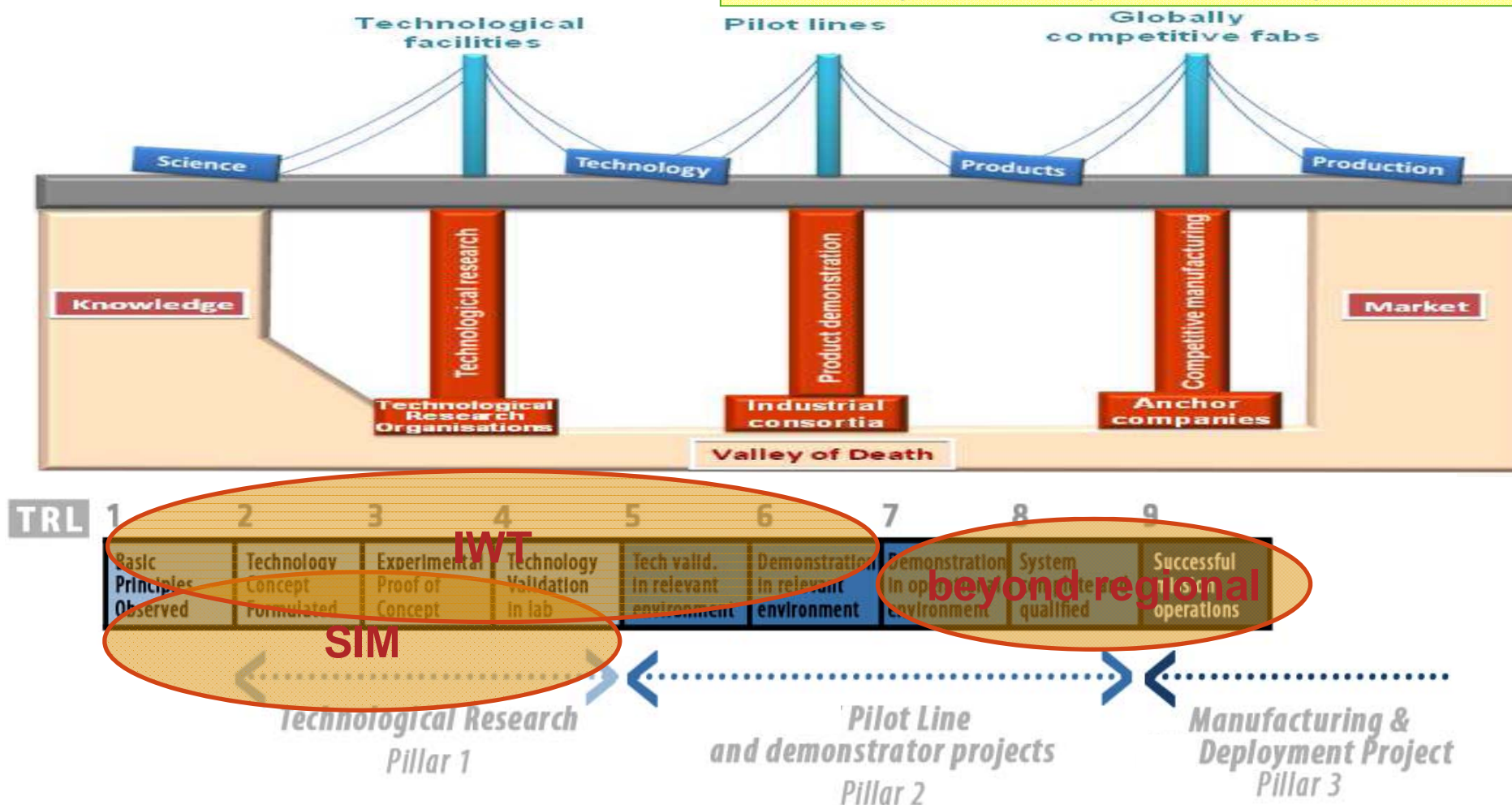


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The innovation chain public support in Flanders for KET Advanced Materials (1)



HLG KET Recommendation 2 :
EU should apply Technology Readiness Level scale
as metric for guidance along the 3-pillar bridge



The innovation chain public support in Flanders for KET Advanced Materials (2)



- Low to mid TRL levels, general : IWT
 - bottom-up : continuously open (no call system)
 - compatible with IP constraints of mid TRL range
 - no lengthy decision process (HLG KET report p 34 “time-to-contract no more than 6 months”)
 - responding to long-term materials development cycle by follow-up projects
 - international angle by Eureka-, Eranet-link (in some cases)
 - local valorisation requirements more stringent than in other EU countries/regions
- Low to mid TRL levels, materials : SIM
 - “cooperative industrial basic research projects”
 - extending to TRL 4 by (mandatory) industrial collaboration
- High TRL levels 7 and up : beyond regional reach, but relevant
 - to be considered as R&D if not “revenue generating” / “market impacting”
 - these activities are often too risky for risk-averse European VC’s
 - “non-bankable” companies, such as start-ups, are not eligible for EIB financing (RSFF, EIF)
 - a very threatening aspect of the Valley of Death looms near the end of the Innovation Chain

What are the financial requirements in the TRL 7 – 8 range ? expenditures for pilot plants



Excerpt of case studies presented by companies in different stages of maturity during relevant KET workshop in April 2011 (link on HLG KET website)

KET	Capex				Sharing with			Societal impact
	25M or less	25M< <100M	100M< <250M	250M or more	RTOs	value chain	competition	
adv mtl	X	Capex only, because hardest to come by				X		En Eff
nanoelec								Jobs
photonics	X				X	X	FP7-type projects won't work	En Gen
nanoelec		X			X	X		Jobs
nanoelec				X		X		Jobs
adv manuf	X				?	?		En Gen
nanoelec		X			X	X		En Eff
biotech	X				X			En Gen
adv mtl	X				X	X		En Eff

Recommendation 7 : Combined funding mechanisms (Horizon 2020, Structural Funds, MS)
Adapt role of RSFF, EIF
In return, Recommendation 9 : IP policy “encouraging” 1st exploitation of IP in EU

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Conclusions

- The Valley of Death is most threatening for Europe in the TRL 7–8 range
- To remedy this problem a combination of private and public money will have to be mobilised, requiring a change in the minds of many
- Horizon 2020 provides an opportunity to get this change process started
- A sense of urgency is required as the technological and industrial fabric of Europe is being eroded