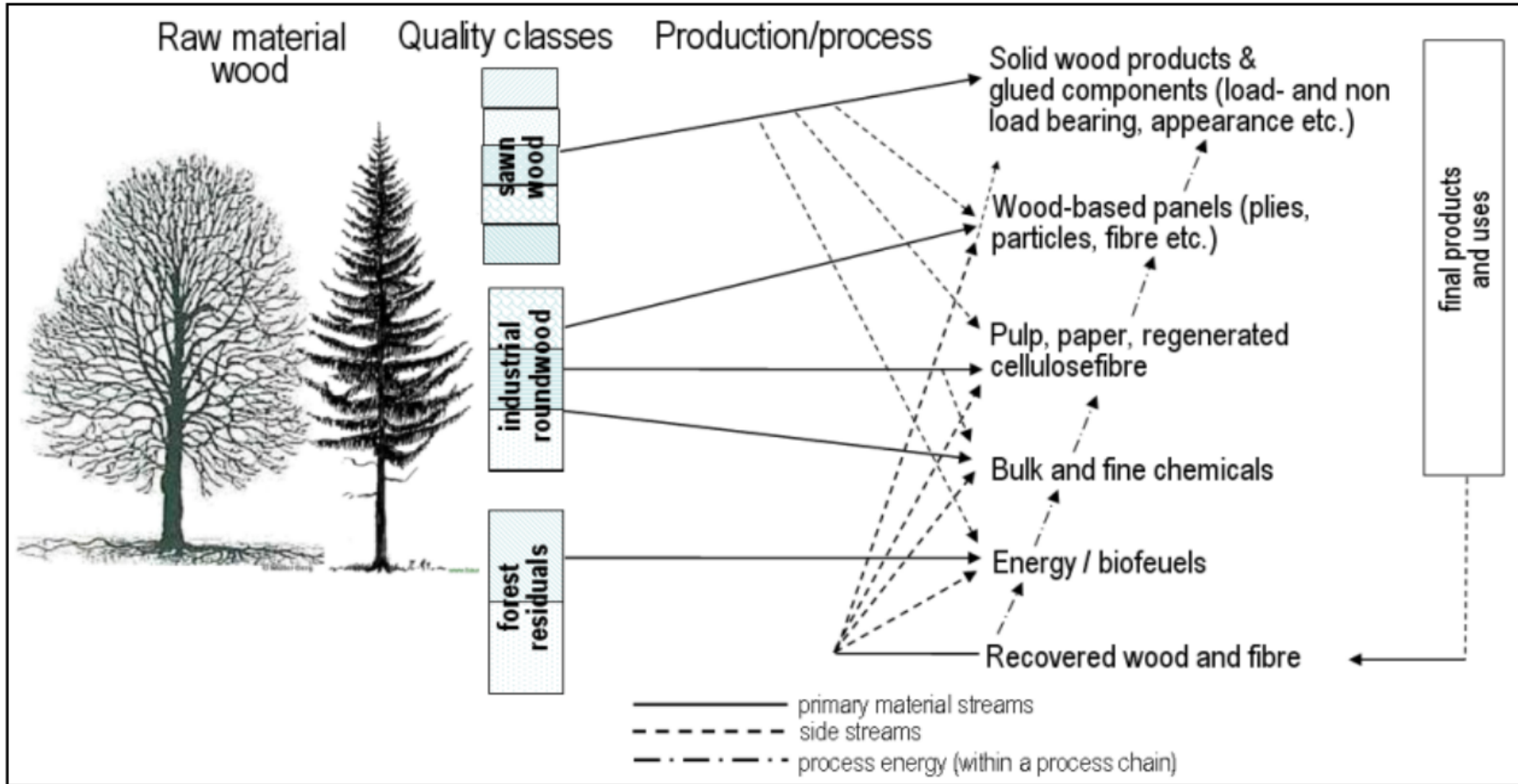


# IMPLEMENTATION OF SMART SPECIALISATION STRATEGY

European Strategies and Policies –  
**Role of Wood Products Industries**



# Wood: Great potential for INNOVATIONS



Source: Teischinger et al (2010), "Possibilities and limits of wood fibre based composites", 8<sup>th</sup> Global WPC and Natural Fibre Composite Congress

## High **IMPACT** for regional/national **ECONOMY**



Wood at Science Park Linz



Lin<sup>z</sup>

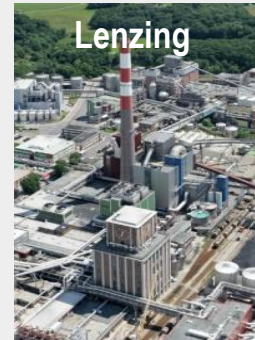
Tulln an der Donau

Wood at UFT Tulln



Lenzing

Lenzing



St. Veit a.d. Glan



**Research & Technology Organisation** / Established in 2001 / Public Ownership  
**Joint Research Programme** of 3 Universities and 25 Companies  
**4 Research Sites** / ~120 Employees / >200 Projects



# Innovation @ Wood K plus: from Fundamentals to **IMPLEMENTATION**



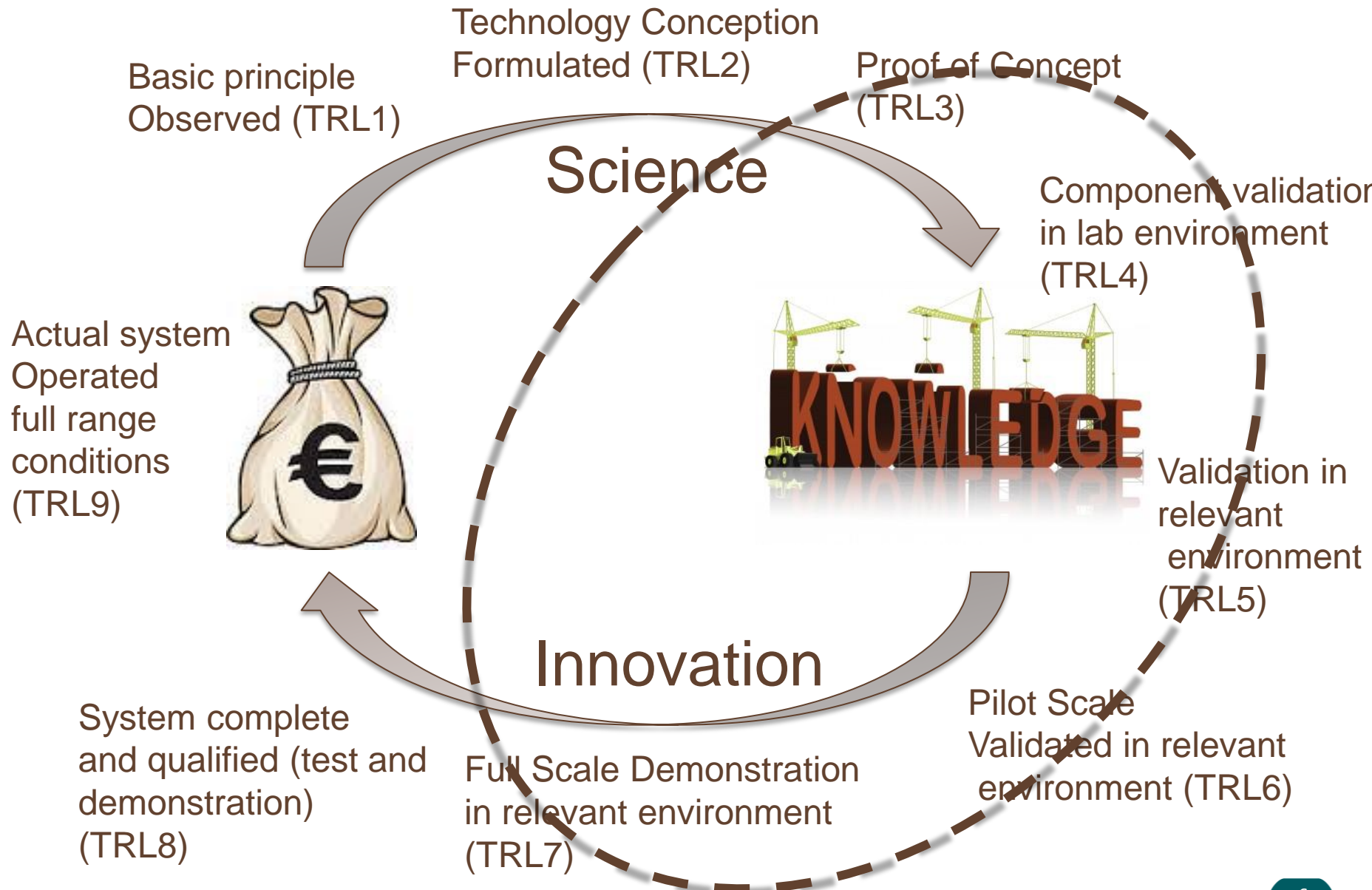
Labs: ~3.000 m<sup>2</sup> / Office: 1370m<sup>2</sup>





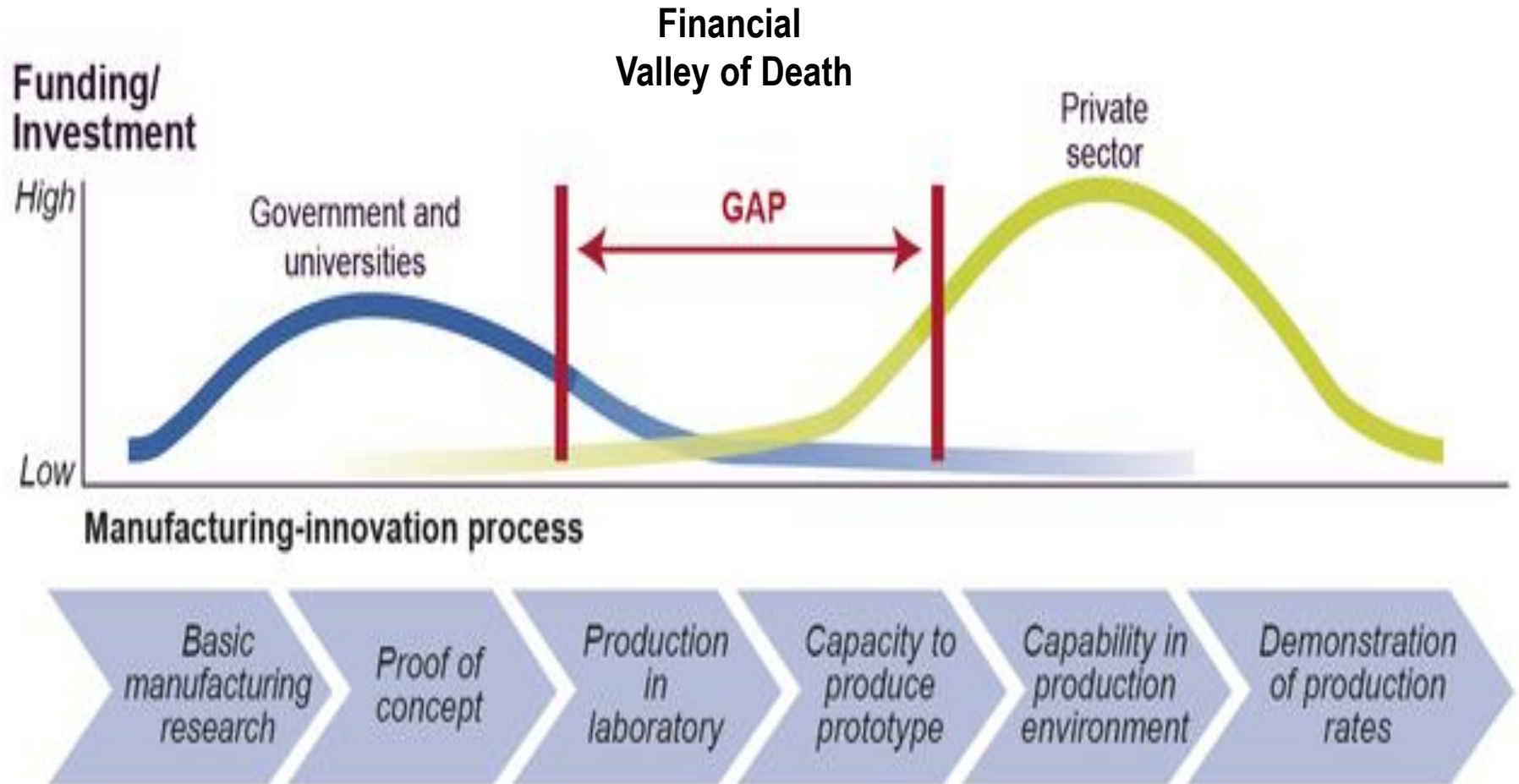


# Approach: Knowledge Based Innovation





# Innovation and the „Valley of Death“

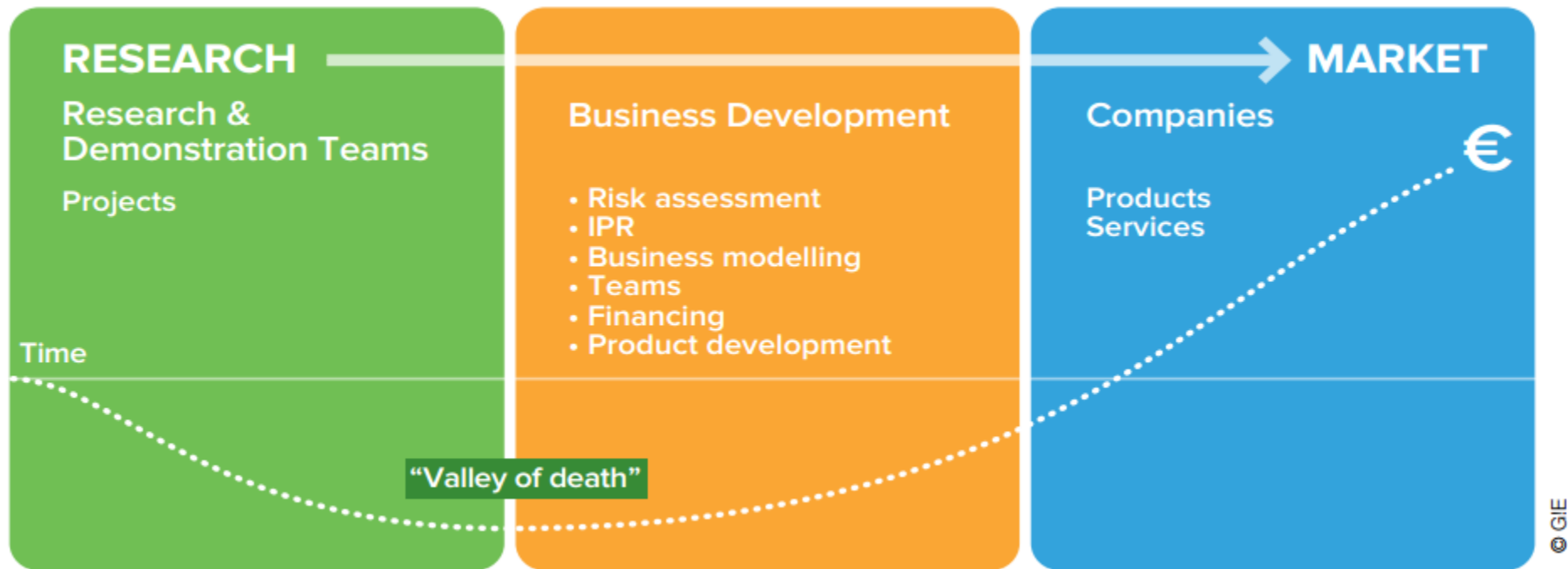


Source: GAO adapted from Executive Office of the President.



# COMPREHENSIVE STRATEGIES

→ along the (Wood based)  
Innovation Chains



Source: GREENOVATE

<http://www.greenovate-europe.eu/innovation-process>



# Wood Intersectoral Business Opportunities

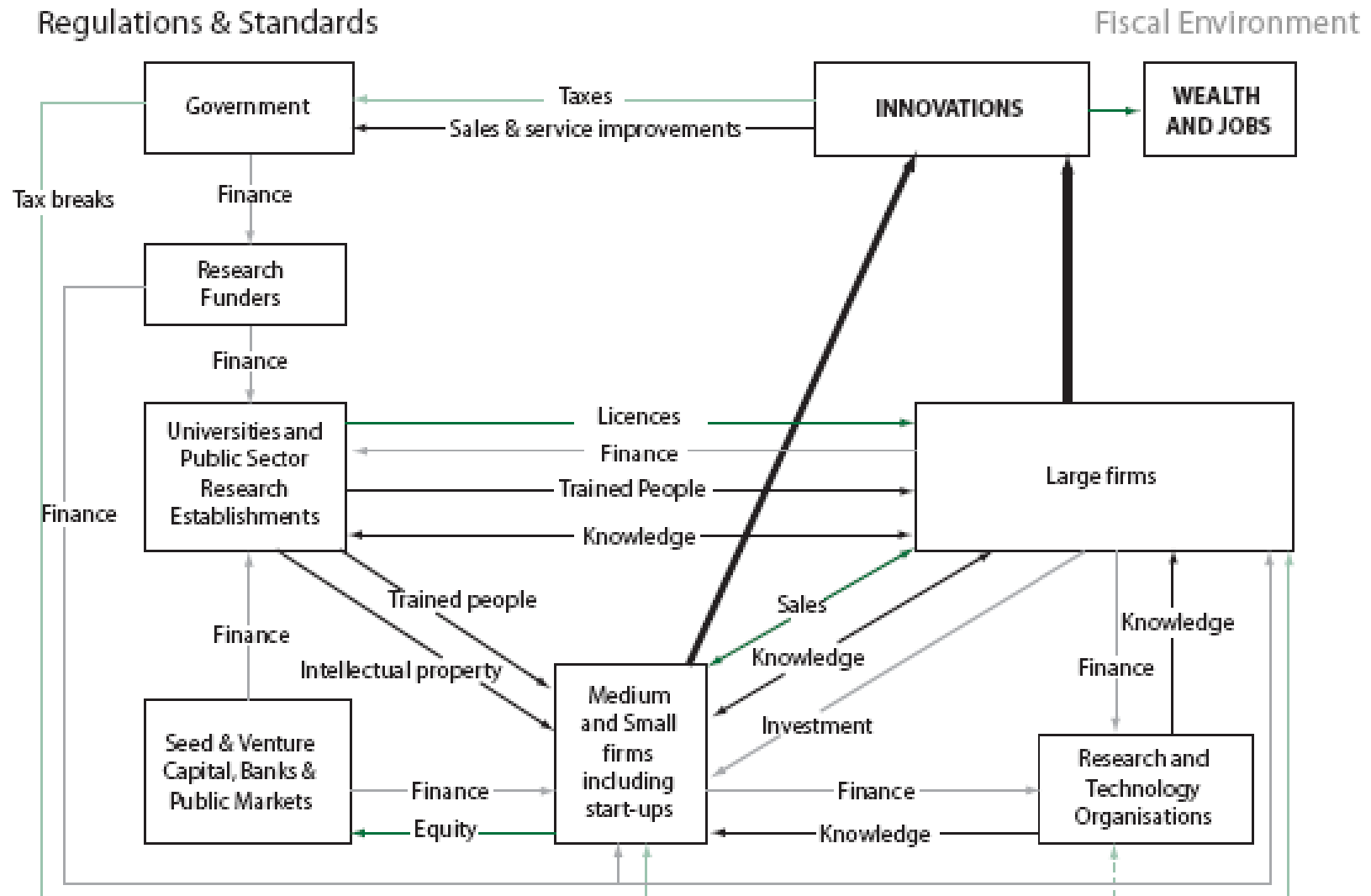


Building bridges for the bioeconomy © Bio-based Industries Consortium



# Demand for Stake Holder Involvement

## → Smart Specialisation Strategy

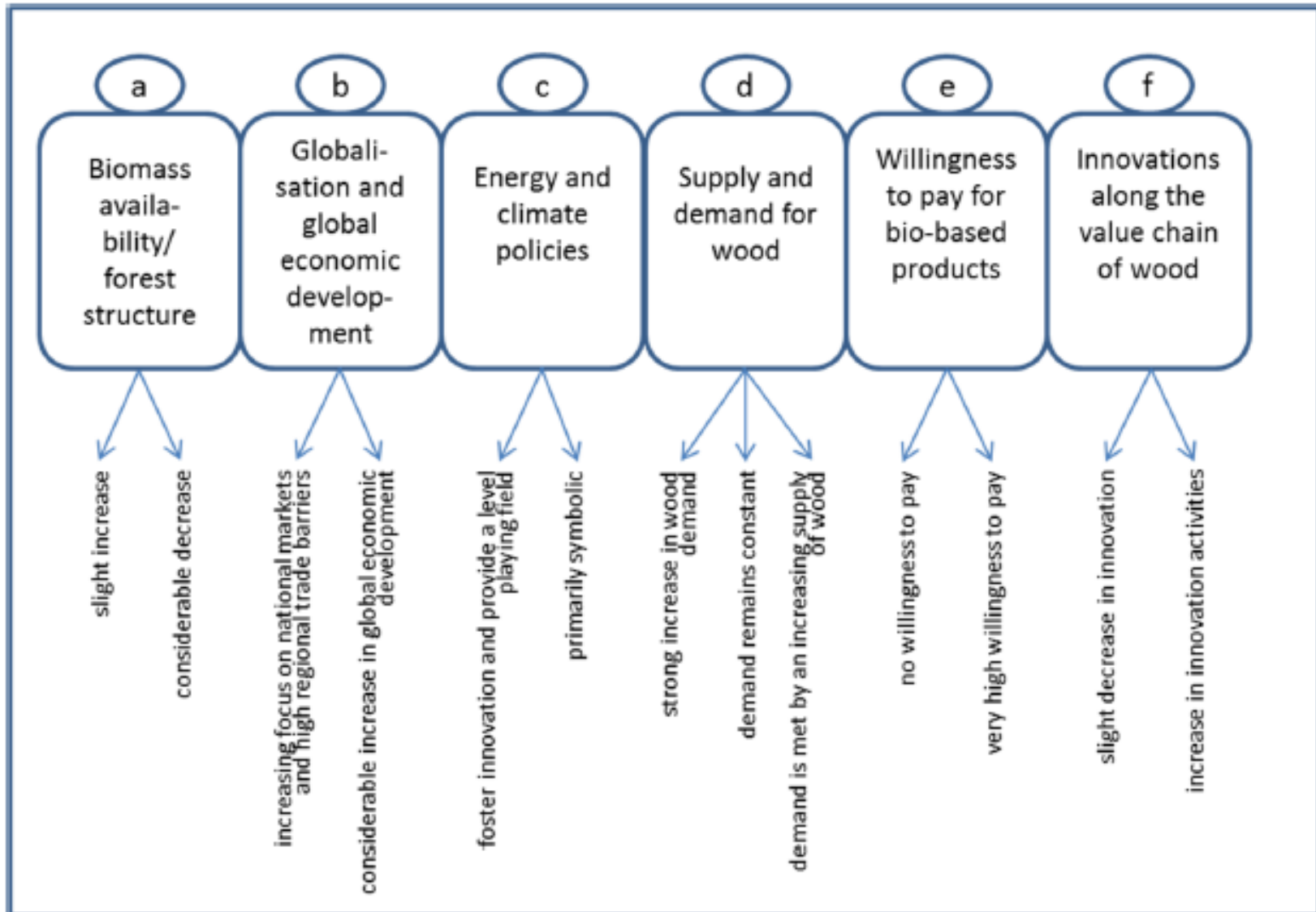


Source: University of Manchester:

<http://www.publications.parliament.uk/pa/cm201213/cmselect/cmsctech/348/34805.htm>



# Key Policy Influence Factors (regional)





# Key Raw Material Issues (Global)

## The Big Picture

GLOBAL MARKET POTENTIALS FOR DIFFERENT BIO-PRODUCTS  
FROM FOREST BIOMASS (Billion US\$)

	2015	2020	2030
Bio-energy, bio-chemicals, fibre composites	505	776	1309
Conventional forest industrial products	495	512	545

References:

Heat, power, bio-fuels, bio-gas: FAO, 2010 and IIASA, 2010

Green chemical products: NRCAN and Industry Canada, 2010, and Consulting Reports, 2008-2010

Building with wood and living with wood: FPInnovations 2010, and Nilsson & Goodison, 2010

Conventional forest products: FAO, 2008, and Nilsson & Goodison, 2010



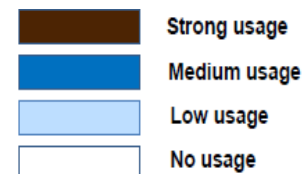
# European View on Raw Material

Raw material types		Sawn-wood	Ply-wood	Pulp, Paper & Board	Oriented Strand Board (OSB)	Particle Board	Medium Density Fibreboard (MDF)	Pellets	CHP Combined Heat & Power
Wood	Pulpwood								
	Logs								
	Forest residues								
Industrial residues	Bark								
	Chips								
	Sawdust								
Recycled material	Recovered paper								
	Recovered wood								

Source: Indufor Oy

## RAW MATERIAL SOURCES FOR VARIOUS END USES

*NB: wood products' raw materials are further limited by species, quality and dimensions (not shown) but bio-energy can use all wood sources.*





- COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS  
**A new EU Forest Strategy: for Forests and the Forest-Based Sector**  
(2013)
- COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS  
**Innovating for Sustainable Growth - A Bioeconomy for Europe**  
(2012)
- FOREST BASED SECTOR TECHNOLOGY PLATFORM  
**Strategic Research and Innovation Agenda for 2020**
- EUROPEAN FOREST INSTITUTE **Future of the European Forest Based Sector- Structural Changes Towards Bioeconomy** (2014)

## *Related COMMUNICATIONS*

- EC Energy Roadmap 2050
- Towards an Industrial Renaissance
- Low Carbon Economy



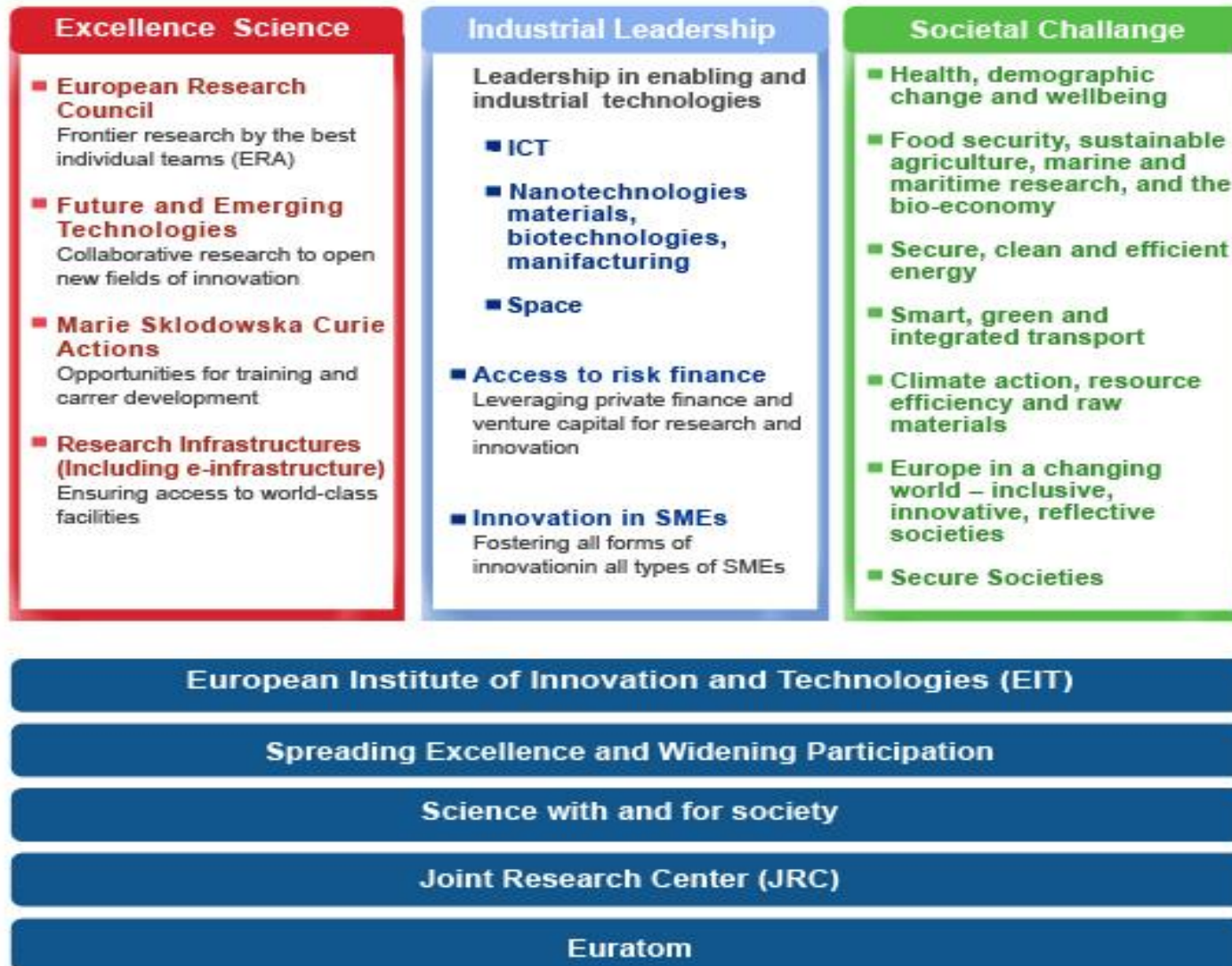
# {COM (2013) 659}: „A Blueprint for the EU FOREST BASED INDUSTRIES“

## SECTORAL TECHNOLOGICAL OUTLOOK

- How to **innovate and develop new products** and services to meet rapidly changing societal needs, including up to 2020, 2030 and 2050?
- How to design and **develop new production processes** that use less wood, other raw materials and energy, while minimising waste, and are capable of manufacturing completely new groups of products?
- How to **educate and update the knowledge and skills** of the F-BI's researchers and workforces to be able to develop such products and implement such processes?
- How to **produce wood more cost-effectively and sustainably from existing EU forests** and other wooded land in qualities and assortments better matched to manufacturing needs?"



# EU-R&D Financing: Horizon 2020





# EU (Inter)Regional Development Financing:



Source: EC Regional Policy Info [http://ec.europa.eu/regional\\_policy/en/policy/cooperation/european-territorial/](http://ec.europa.eu/regional_policy/en/policy/cooperation/european-territorial/)

→ ***Strategic Synergies H2020 & Interreg V***



# Established Products/Markets





# Enabling Technologies for Innovations: ICT → *Industry 4.0*



Source: McKinsey 2016 “Industry 4.0 after the initial hype Where manufacturers are finding value and how they can best capture it”



## **McKinsey 2016:**

“We define Industry 4.0 as the next phase in the digitization of the manufacturing sector, driven by four disruptions:

- the astonishing rise in data volumes, computational power, and connectivity, especially new low-power wide-area networks;
- the emergence of analytics and business-intelligence capabilities;
- new forms of human-machine interaction such as touch interfaces and augmented-reality systems;
- and improvements in transferring digital instructions to the physical world, such as advanced robotics and 3-D printing.”

Source: McKinsey 2016 “Industry 4.0 after the initial hype Where manufacturers are finding value and how they can best capture it”

## ***Impact für the Wood Working Industries:***

- ***information for process optimisation***
- ***information for product portfolio optimisation***
- ***information for quality optimisation***
- ***information for time to market reduction***



# Established Products/Markets



Source: [www.lenzing.com](http://www.lenzing.com)

**Dissolving Pulp**



Source: [battenfeld-coincinnati](http://battenfeld-coincinnati)

**Composites**



Source: [www.bbcgoodfood.com](http://www.bbcgoodfood.com)

**Chemicals**

Source: [www.lenzing.com](http://www.lenzing.com)



**Textile**

Source: [www.pinuform.de](http://www.pinuform.de)



**Decking**

Source: [www.danisco.com](http://www.danisco.com)



**Food**



# New Products/Markets



Source: <http://mainejournal.umaine.edu/>

Nano-Cellulose



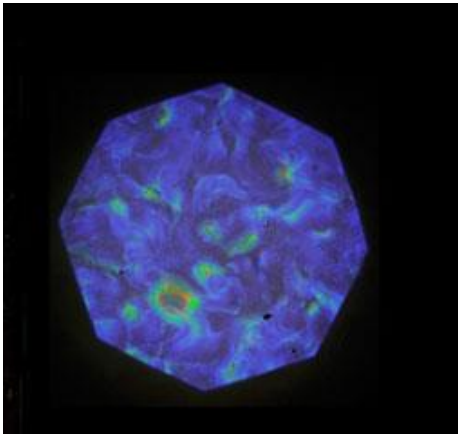
Source [www.Innventia.com](http://www.Innventia.com)

Carbon Fibre



Source: [www.plasticstoday.com/](http://www.plasticstoday.com/)

Biopolymers



Source: [www.nanowerk.com](http://www.nanowerk.com)

Optics



Source [www.Innventia.com](http://www.Innventia.com)

Automotive



Source [www.ceepackaging.com](http://www.ceepackaging.com)

Packaging



Thank you for your attention!

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