



# **Eco-innovation**

## **The main driver of a green economy**

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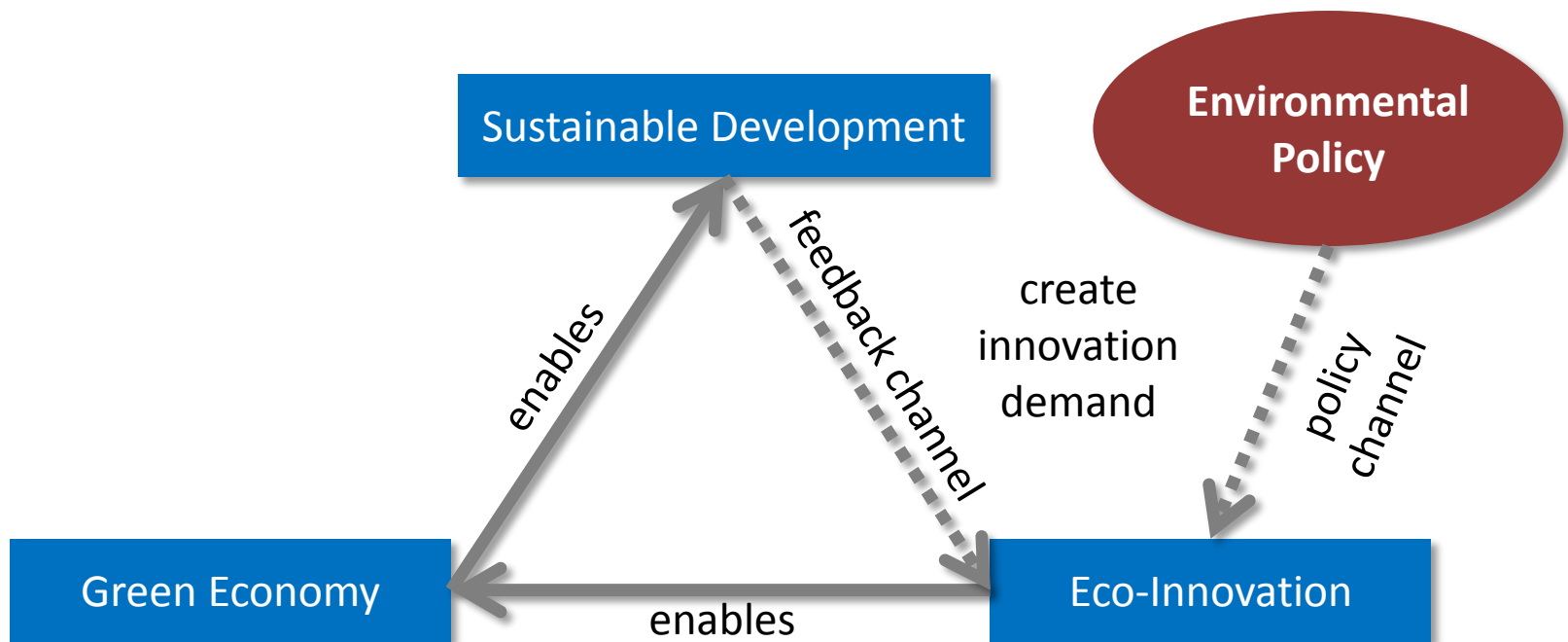
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Polish European Community Studies Association



# Motivation

# The Eco-Innovation as an Enabler of Sustainable Economic Growth



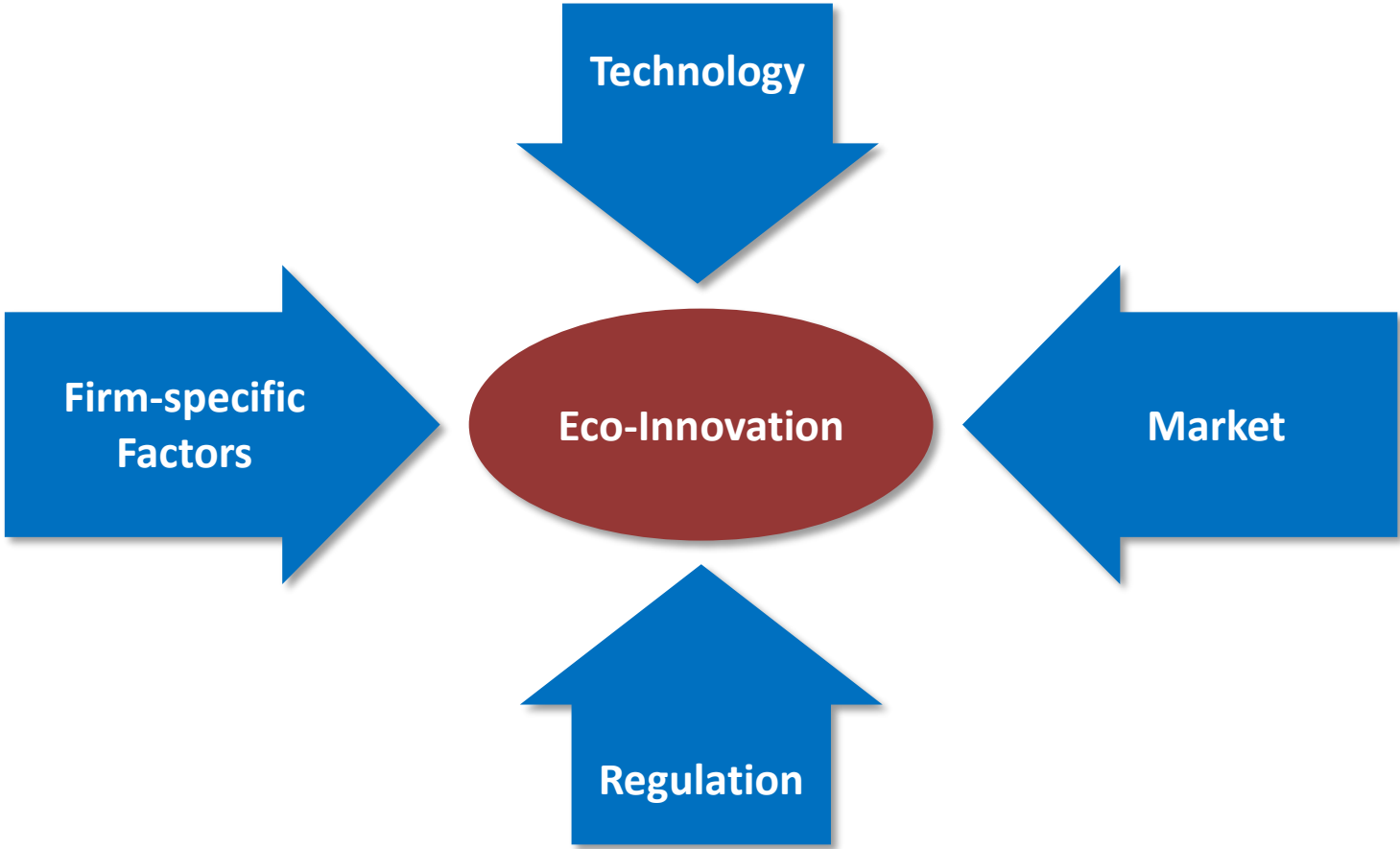
# The Determinants of Eco-Innovations 1/2

## Why is economic research on the Drivers so important?



- For “conventional” innovations, there are private incentives such as demand pull (Schmookler 1960) that stimulate technical change.
- For eco-innovation, this is not the case. There is a double externality problem. In the words of Popp et al. (2010, p. 877):  
“Pollution creates a negative externality, and so the invisible hand of the market allows too much of it. Technology creates positive externalities, and so the invisible hand of the market produces too little of it.”
- Thus, there is – at least in theory – a lack of private incentives for eco-innovation. Other factors may matter too, see next slide!

# The Determinants of Eco-Innovations 2/2



# Eco-Innovations in Different Environmental Areas in Germany

Environmental impact areas	In % of all firms with innovations				Number of firms <sup>a</sup>
	High	Medium	Small	No	
<i>Introduction of innovations with environmental benefits within the firm 2006 to 2008 ("process innovations")</i>					
Reduced material use per unit of output	5.6	16.8	17.6	60.0	4929
Reduced energy use per unit of output	7.9	16.7	20.5	55.0	4929
Reduced CO <sub>2</sub> emissions	7.3	12.6	15.4	64.8	4927
Reduced emissions of other air pollution	4.8	8.9	12.1	74.3	4928
Reduced water pollution	4.2	9.3	11.4	75.1	4927
Reduced soil pollution	2.4	5.5	8.5	83.6	4927
Reduced noise pollution	3.4	9.6	13.2	73.7	4925
Replacement of hazardous substances	4.4	9.5	12.0	74.1	4928
Recycled waste, water or materials	7.3	14.6	17.4	60.7	4926
<i>Introduction of innovations with environmental benefits from using a firm's products 2006 to 2008 ("product innovations")</i>					
Reduced energy use	9.1	15.7	14.0	61.2	4886
Reduced air, water, soil or noise emissions	7.0	10.5	12.8	69.8	4887
Improved recycling of products after use	4.6	9.4	12.0	74.0	4886

<sup>a</sup> Only firms with product, process, organizational or marketing innovations ("innovators"). Following the OSLO manual, "A marketing innovation is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing." (OECD and Eurostat, 2005: 49).

# Eco-Innovation Drivers from 2006 to 2008

Eco-innovations that were introduced in response to	Yes	No	Number of firms <sup>a</sup>
	In % of all firms with at least weak environmental impacts		
Existing regulations	31.5	68.5	3733
Expected regulations	27.0	73.0	3730
Financial support by governments	9.9	90.1	3733
Demand from customers	27.4	72.6	3733
Voluntary codes and industry agreements	28.0	72.0	3727

<sup>a</sup> Only firms with eco-innovations.



## Effects of the most Important Eco-Innovation of the firm (in %)



Source: Additional telephone survey 2009.

Effects	Higher	No effect	Lower	Number of firms
Change of cost	19.6	43.2	37.2	1256
Change of turnover	32.4	65.9	1.7	1258
Change of employment	13.3	85.0	1.8	1282



A 3D network diagram consisting of a grid of interconnected nodes and lines, representing a network structure. The nodes are small spheres, and the lines are thin, metallic-looking rods. The diagram is centered on the page and serves as a background for the text.

**Prospects:  
green.eu and the inno4sd.net  
network**



# Innovation for Sustainable Development Network



## The project is designed to improve ...

- harmonisation of definitions
- collection of relevant information on performance of past and current efforts
- coordination among stakeholders

**... to achieve the following goals ...**





# Innovation for Sustainable Development Network



## Goals of green.eu and inno4sd.net:

- Consolidation of concepts related to eco-innovation and their role in implementing a green economy
- Development of guidelines to integrate eco-innovation and green economy strategies for the European Commission
- Development of concepts of an appropriate transfer of eco-innovation and a dialogue between parts of the world
- Increase the EU's competitiveness by exploiting win-win strategies making use of first mover advantage in the field of eco-innovation
- Services related to eco-innovation to stakeholders beyond the EU
- Establish a work plan and exit strategy for the project to ensure sustainability, involving programme owners and stakeholders

# Innovation for Sustainable Development Network

## What has been done so far?

- Eco-innovation, regulation-driven innovation and competitiveness (Porter hypothesis, etc.). Several scientific publications and contribution to the European competitiveness report 2012.
- Several publications on the determinants of eco-innovations.
- Publications and other relevant contributions related to definitions of eco-innovation.





- KnowlEdge Srl (K-Srl), IT
- Greenovate! Europe (G!E), BE
- King's College London (KCL), UK
- Stellenbosch University (SU), ZA
- University of Ferrara (UNIFE), IT
- University College London (UCL), UK
- Technical Research Institute of Sweden (SP), SE
- Local Governments for Sustainability (ICLEI), DE
- Centre for European Economic Research (ZEW), DE
- Foundation Tecnalia Research and Innovation (Tecnalia), ES
- Netherland Organisation for Applied Scientific Research (TNO), NL
- Maastricht Economic and Social Research Institute on Innovation Technology, NL



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ZEW

Zentrum für Europäische  
Wirtschaftsforschung GmbH  
Centre for European  
Economic Research

# International Stakeholders:



Institute Of Energy, Environment And Economy, Tsinghua University



EUROPEAN COMMISSION  
JOINT RESEARCH CENTRE  
Institute for Prospective Technological Studies (Seville)  
Sustainable Production and Consumption Unit  
Head of Unit



Centre for Green Development and Energy Policy  
University of Niccolò Machiavelli Research Foundation



Observatoire Méditerranéen de l'Énergie



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Australian National University

Sustainability Transitions Research Network





# Thank you for your Attention!

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