Belgium, a powerhouse of the plastics and rubber industry

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General Assembly
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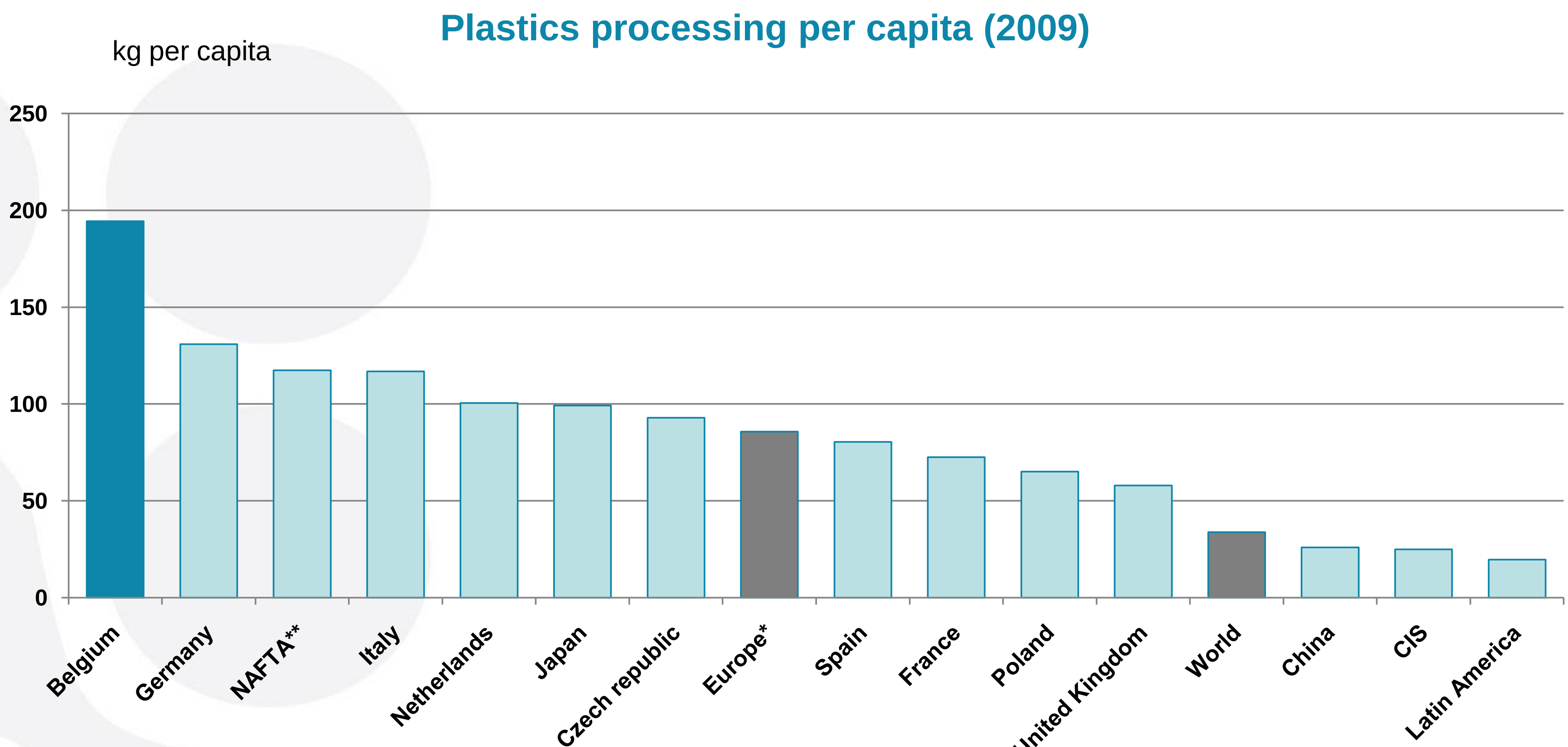
The evidence

Belgium is the biggest plastics converter in the world on a per capita basis



Source: Plastics Europe (2010)
Based on plastics demand by country. Outside Europe: estimated data based on production
* EU27+Switzerland+Norway
** USA+Canada+Mexico

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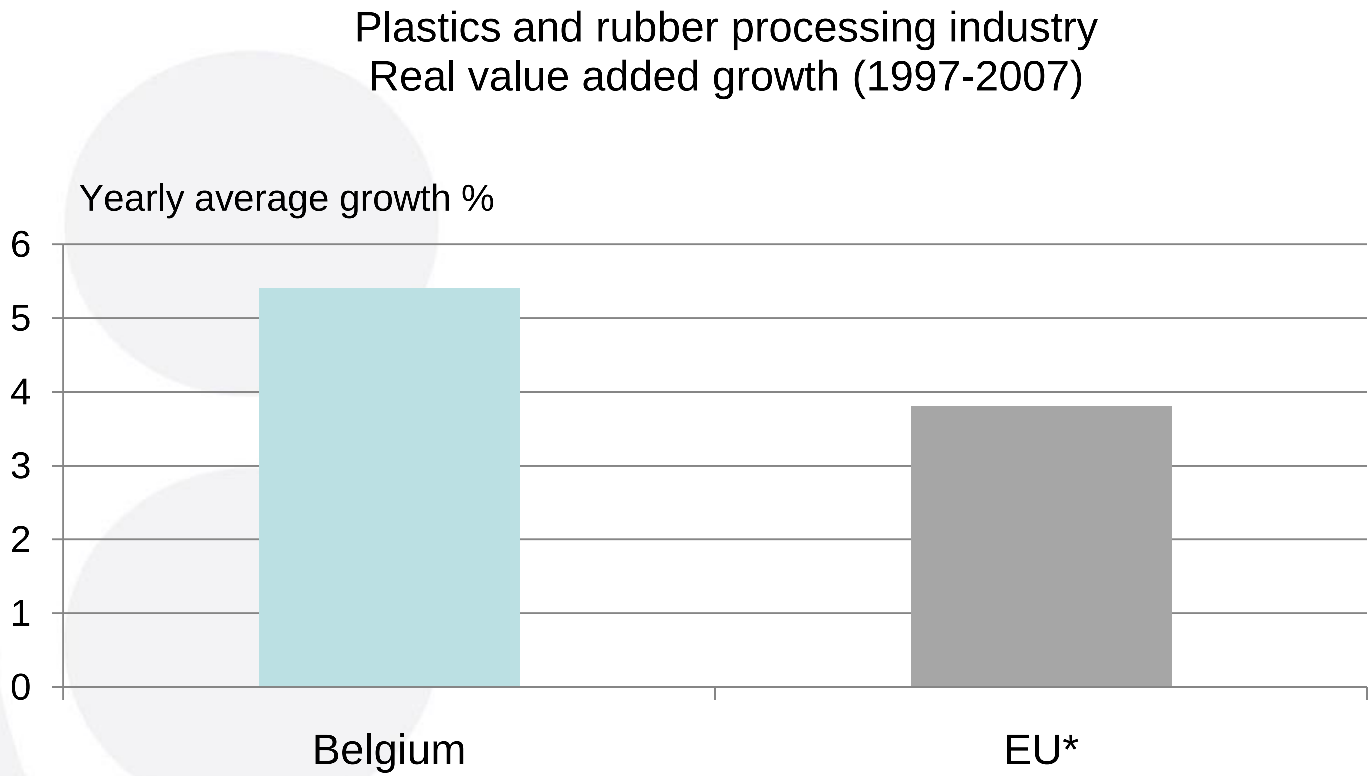
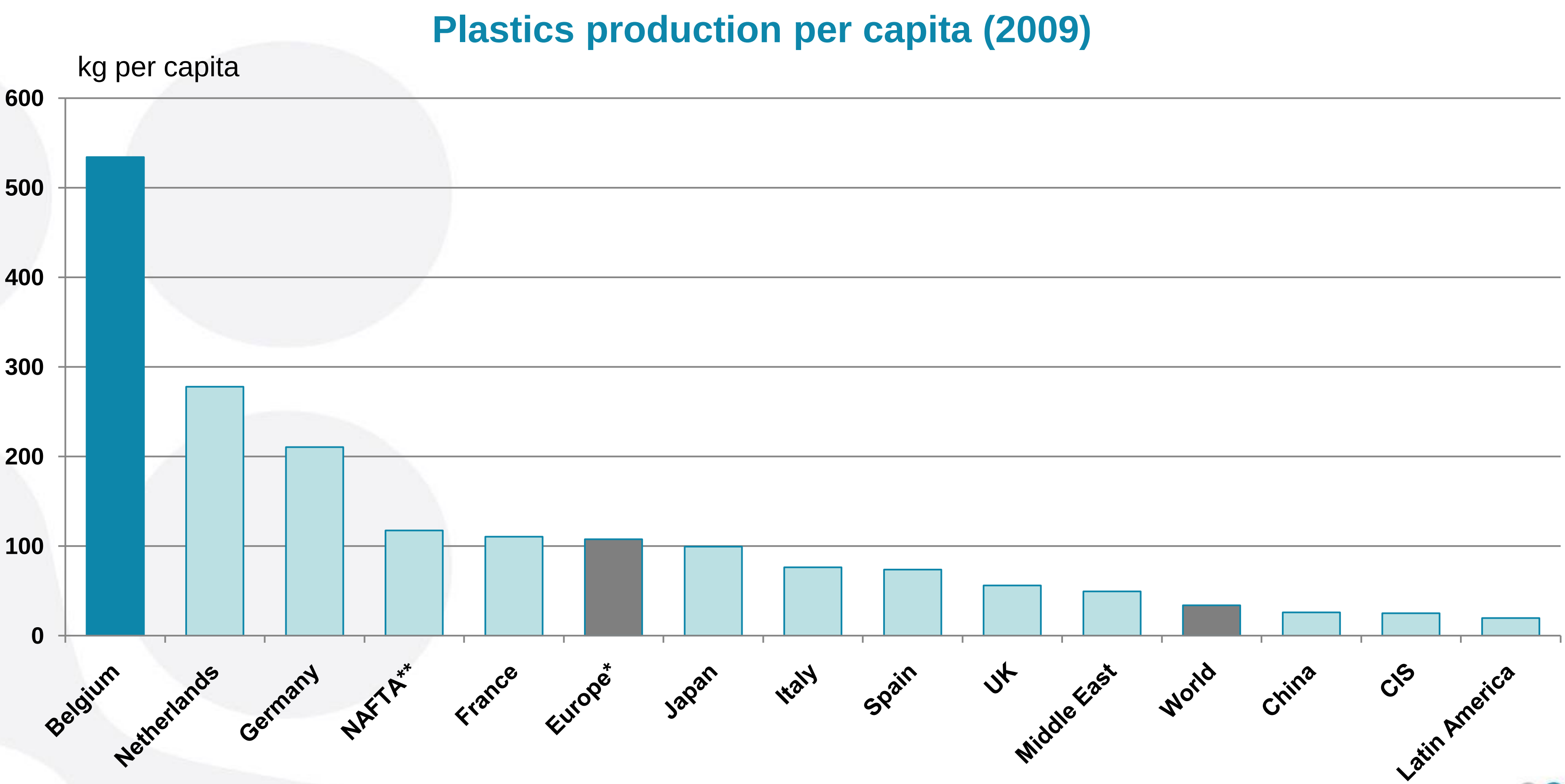
The Belgian plastics and rubber processing industry, a key performer in Europe in terms of value added



Source: EU Klems database (data until 2007)
* EU-25

Belgium is the biggest plastics producer in the world on a per capita basis



Source: Plastics Europe (2010), AMI
* EU27+Switerland+Norway
** USA+Canada+Mexico
Own analysis

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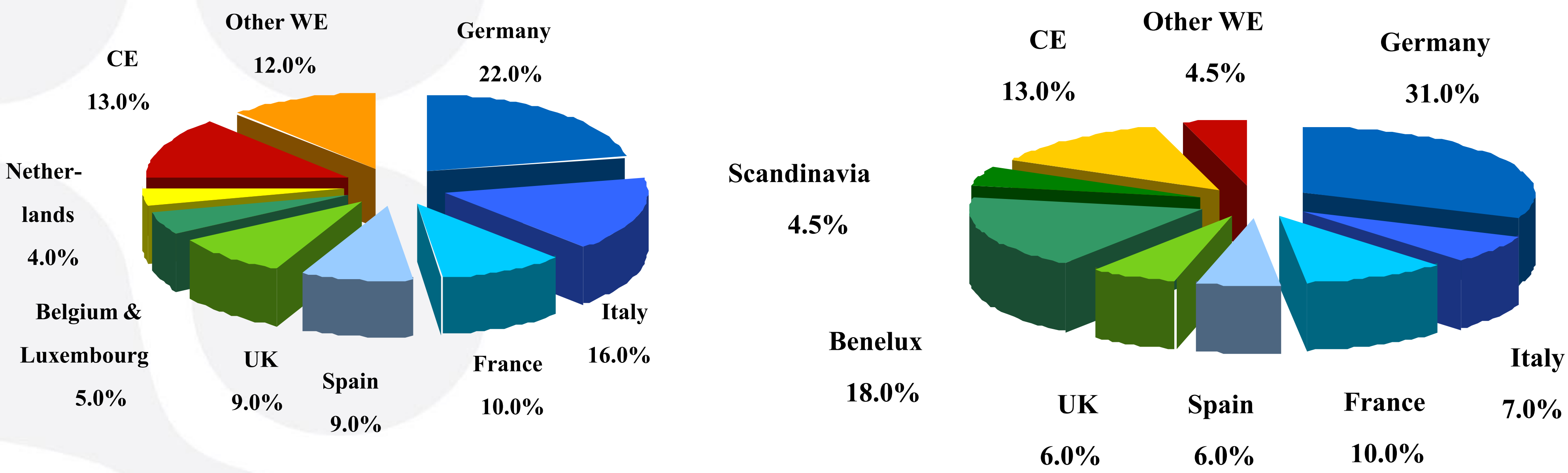
Belgium is a powerhouse of the plastics industry in Europe

Population of Belgium : 2.2 %

Plastics processing : 5 %

Plastics production : 10 %



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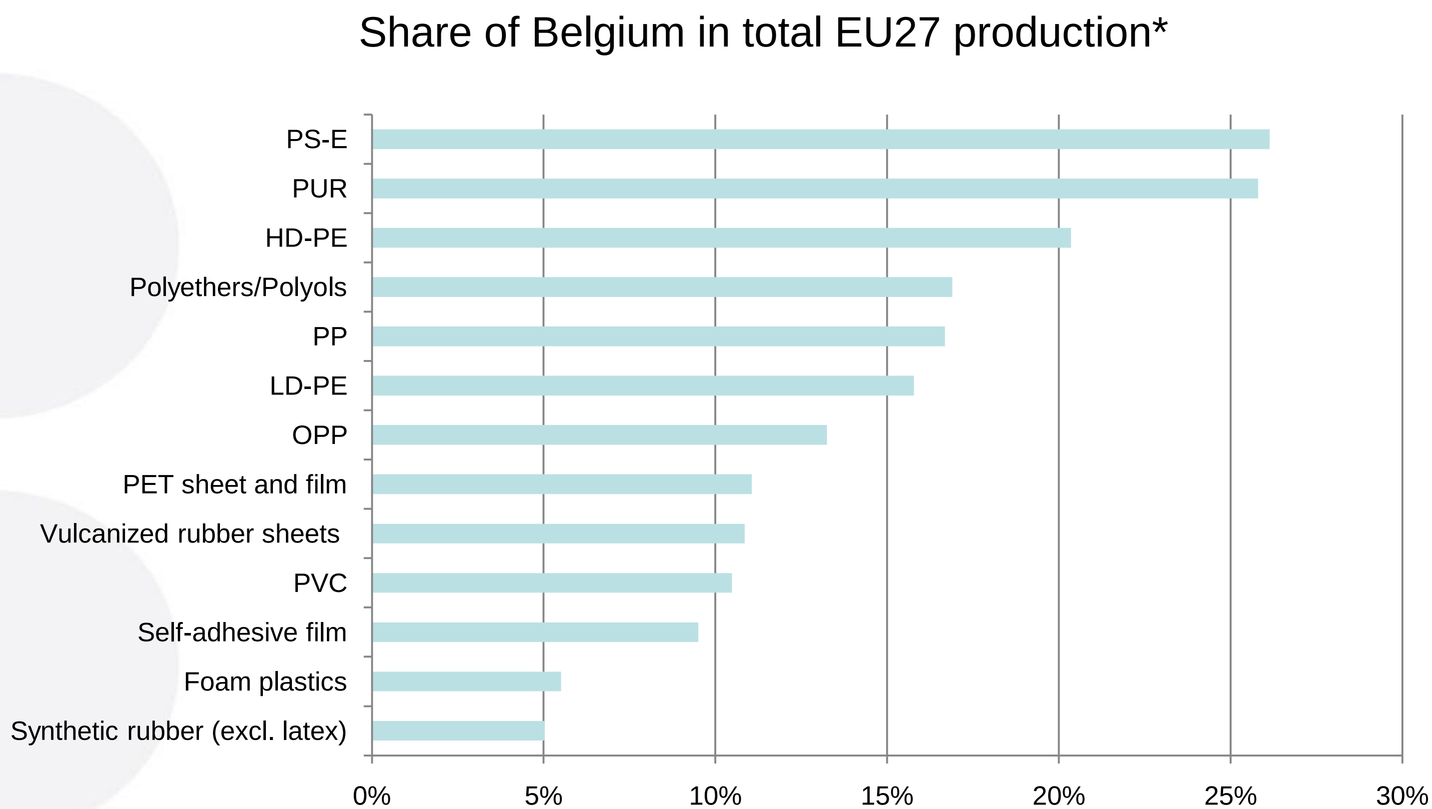
Belgium is a dominant player for a wide range of key primary and converted plastics and rubber in Europe



Source: Prodcom (2009)
* Production sold in volume
For PVC and synthetic rubber, data are confidential. Estimate based on production capacity (CMAI).
For PVC: in % total Europe

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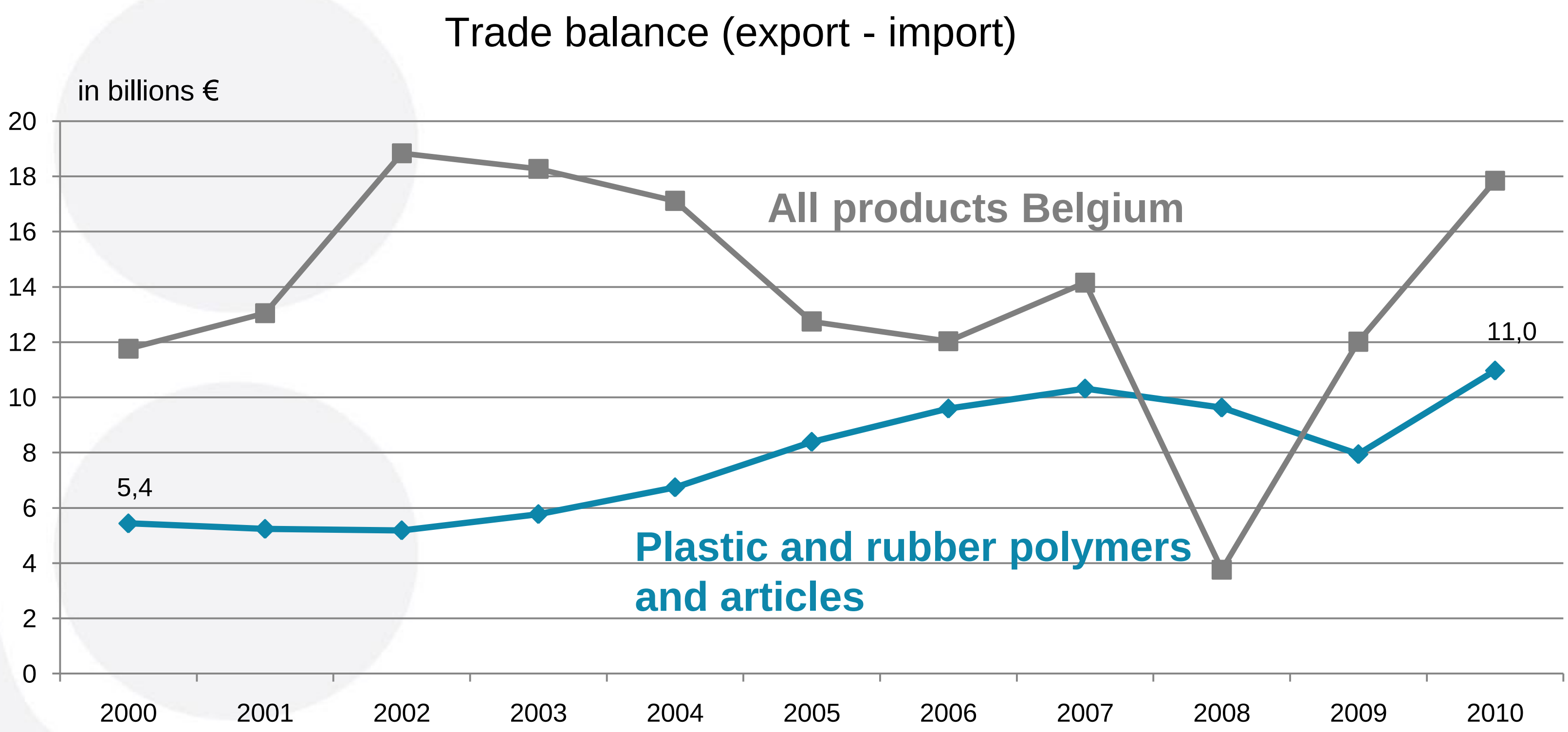
Plastics and rubber exports contribute increasingly to the wealth of Belgium and its population

Plastics and rubber trade balance doubled in 10 years



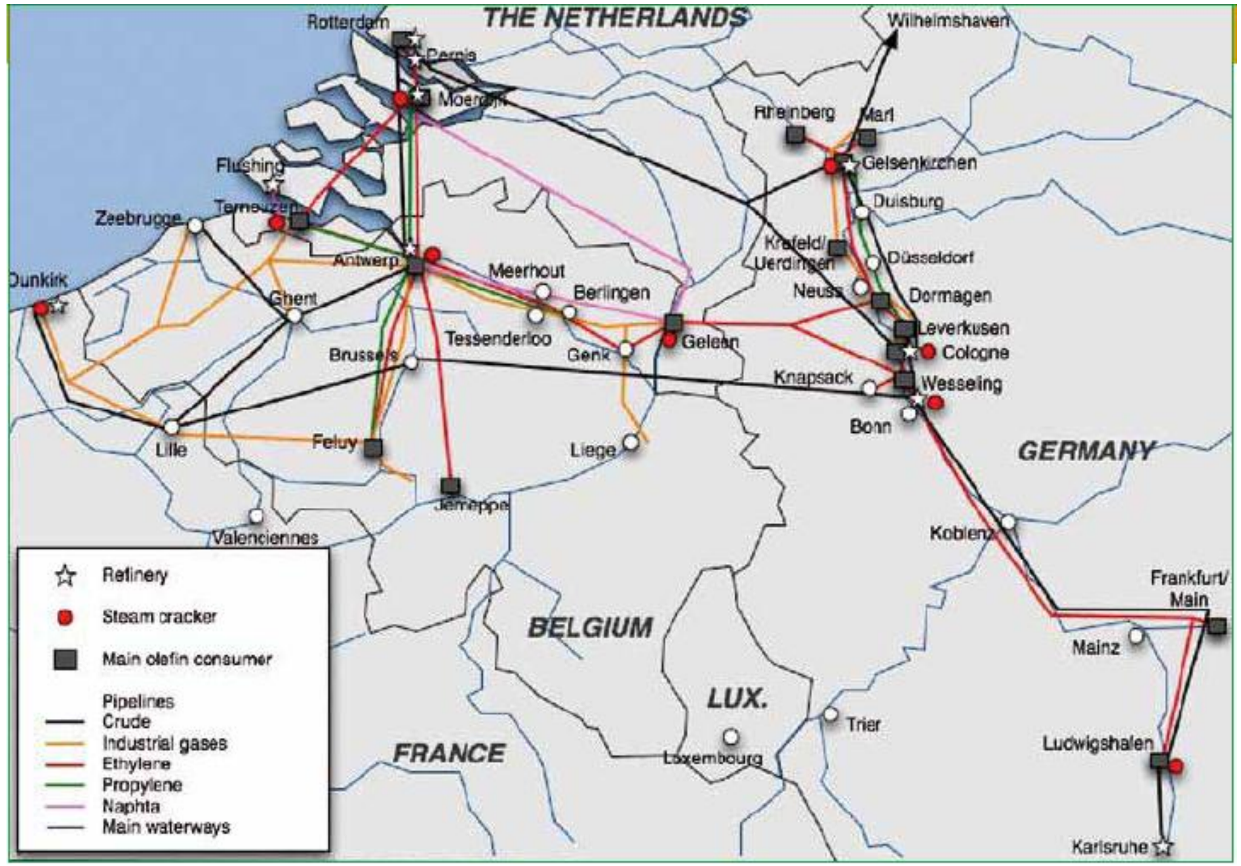
Source: National Accounts Institute/NBB according to the communautarian concept
Estimated data for 2010 (based on 11 months real data)
*Harmonised System section VII (chapter 39-40)
** Chapters 01-99: all products

Why is Belgium so attractive for this industry?

First class availability of raw materials thanks to the presence of Europe's biggest chemical cluster and major seaports

3 major seaports in Belgium
• Antwerp
• Zeebrugge
• Ghent

A dense network of pipelines distributing petrochemical feedstock at low cost



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The high level of integration and diversity across the value chain is unique in the world

Synergies in energy, process integration and logistics offer world class cost effectiveness

RAW MATERIALS		FEEDSTOCKS	BUILDING BLOCKS	COMMODITIES	INTERMEDIATES	FINAL PRODUCTS
Natural gas / Crude Oil / Condensate	C_1	Methane / refinery residue	Synthesis Gas	Methanol Ammonia, Nitric Acid	Formaldehyde Urea, AN, CAN, UAN	Glues, Resins Fertilizers
Natural gas / Crude Oil / Condensate	C_2	C2-C3 / Naphtha	Ethylene	PE, EDC, VCM Ethylene oxide	PVC Glycols, EVOH, Ethyl NBO, Glycol Ethers	Polymers, EPDM, Copolymers
Natural gas / Crude Oil / Condensate	C_3	C2-C3 / Naphtha	Propylene, propane	Polypropylene Propylene oxide, Acrylic acid	Polyols, SAP	Polymers e.g. Polyurethane
Crude Oil	C_4	Refinery off-gas / Naphtha	Mixed C4	Butadiene	Polybutadiene	Acrylonitrile, Butadiene, Styrene
Crude Oil	C_6	Naphtha	Benzene, Toluene	Cyclohexane, Caprolactam, Aniline	BPA, Nylon 66, MDI	Polycarbonate, Polyurethane
Crude Oil	$C_{7,8}$	Naphtha	Mixed Xylenes	O, P-Xylene	PA, PTA	PET
Sea water / Brine	Cl	Chlorine, NaOH	EDC, Phosgene	VCM	PVC, MDI, hypochlorites	Plastics, polyurethane , bleach

Ship, pipeline, barge (Raw materials – Feedstocks)

Pipeline, barge, rail (Raw materials – Building blocks)

Rail, road (Raw materials – Commodities)

Mainly road (Raw materials – Final products)

Source: EPCA, Results of the Think Tank Sessions, Aug 07

items are produced in the cluster

Belgium offers access to 80% of the European purchasing power within a 500 km radius

Source: European Distribution Report, Cushman & Wakefield, 2008

The Belgian logistics platform offers a competitive differentiator for the plastics and rubber industry

Considering costs, transport system, accessibility, supply, labour and know-how

Ranking*	2002	2004	2006	2008
Belgium	1	1	1	1
The Netherlands	2	4	3	2
Hungary	9	9	7	3
Czech Republic	5	5	4	4
Poland	7	6	5	5
France	4	2	2	6
Austria	8	7	9	7
Germany	3	3	6	8

Source: European Distribution Report, Cushman & Wakefield, 2008

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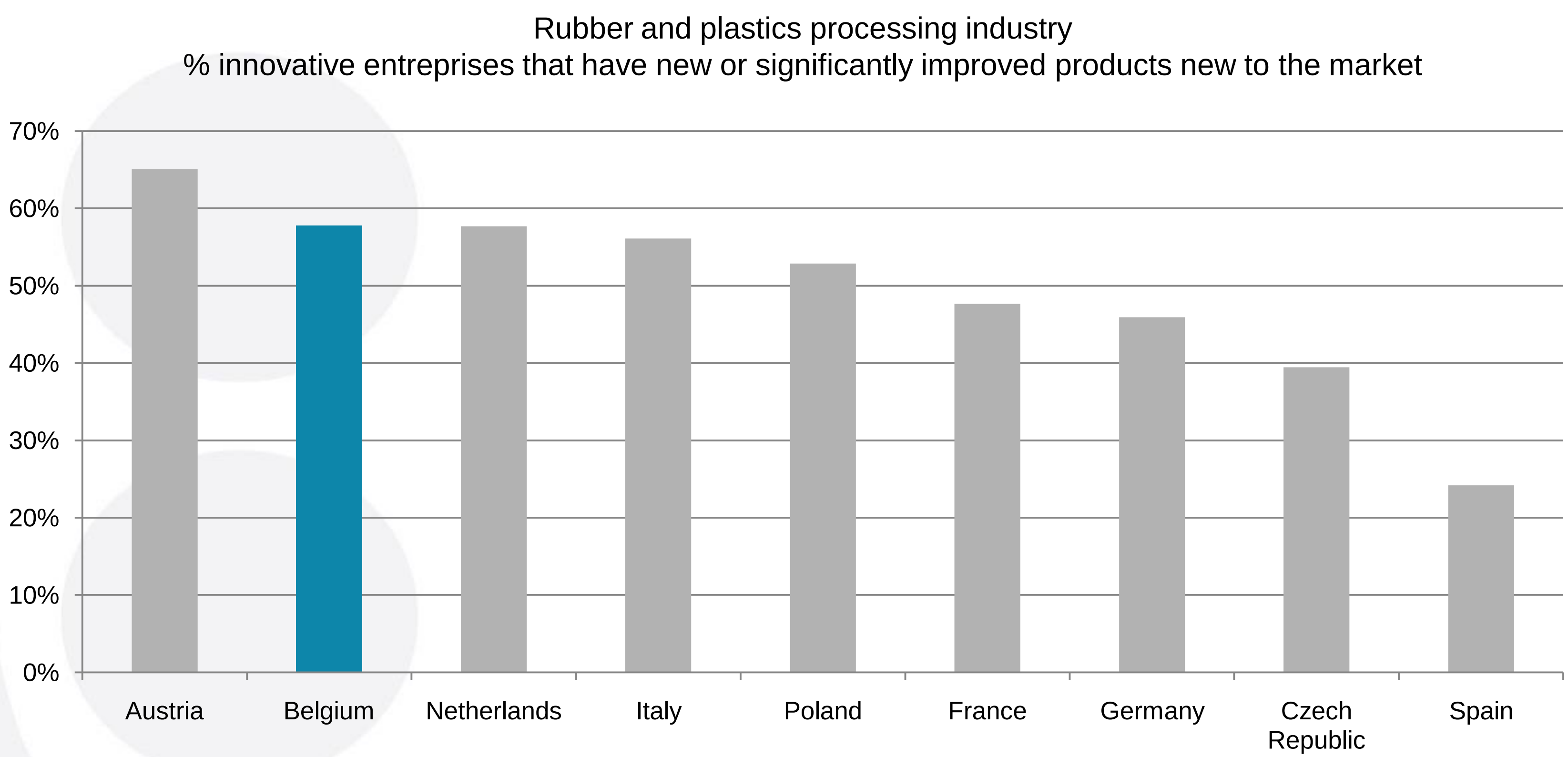
The Belgian federal and regional authorities support the industry to foster innovation

- **PlasticVision** is the competence centre for **innovation** in the plastics and rubber industry in **Flanders**
- **PlastiWin** is the **innovation** cluster of the plastics and rubber industry in **Wallonia**
- **VKC** (Vlaams Kunststof Centrum) is the Flemish centre of expertise for **Plastics Technology**
- **SIRRIS** is the Belgian centre of expertise for **Materials Technology**
- **FISCH** is Flanders' initiative for **Sustainable Chemistry**
- **GreenWin** is Wallonia's initiative for **Sustainable Chemistry & Materials**

Belgium hosts a network of academic research & educational institutes in plastics technology & polymer science

- **KUL University of Louvain**
  - ✓ Laboratory of Applied Rheology and Polymer Processing, Louvain
  - ✓ Composite Materials Group, Louvain
  - ✓ Master programme at KHBO University College of Bruges-Ostend
  - ✓ Cel Kunststoffen, KHLim Diepenbeek
- **UCL University of Louvain**
  - ✓ Laboratoire de science des polymères (POLY), Louvain-La-Neuve
  - ✓ CerTech, Senefffe
- **UGent – University of Ghent**
  - ✓ Polymer Chemistry and Biomaterials Group, Ghent
  - ✓ CPMT - Centre for Polymer & Material Technologies, Ghent
- **University of Mons**
  - ✓ MateriaNova, Mons & Ghislenghien

Belgium hosts a network of very innovative plastics and rubber processing SME's



Source: Eurostat CIS-6 (2008)

Building a sustainable future
with innovative solutions from the
Belgian plastics and rubber industry

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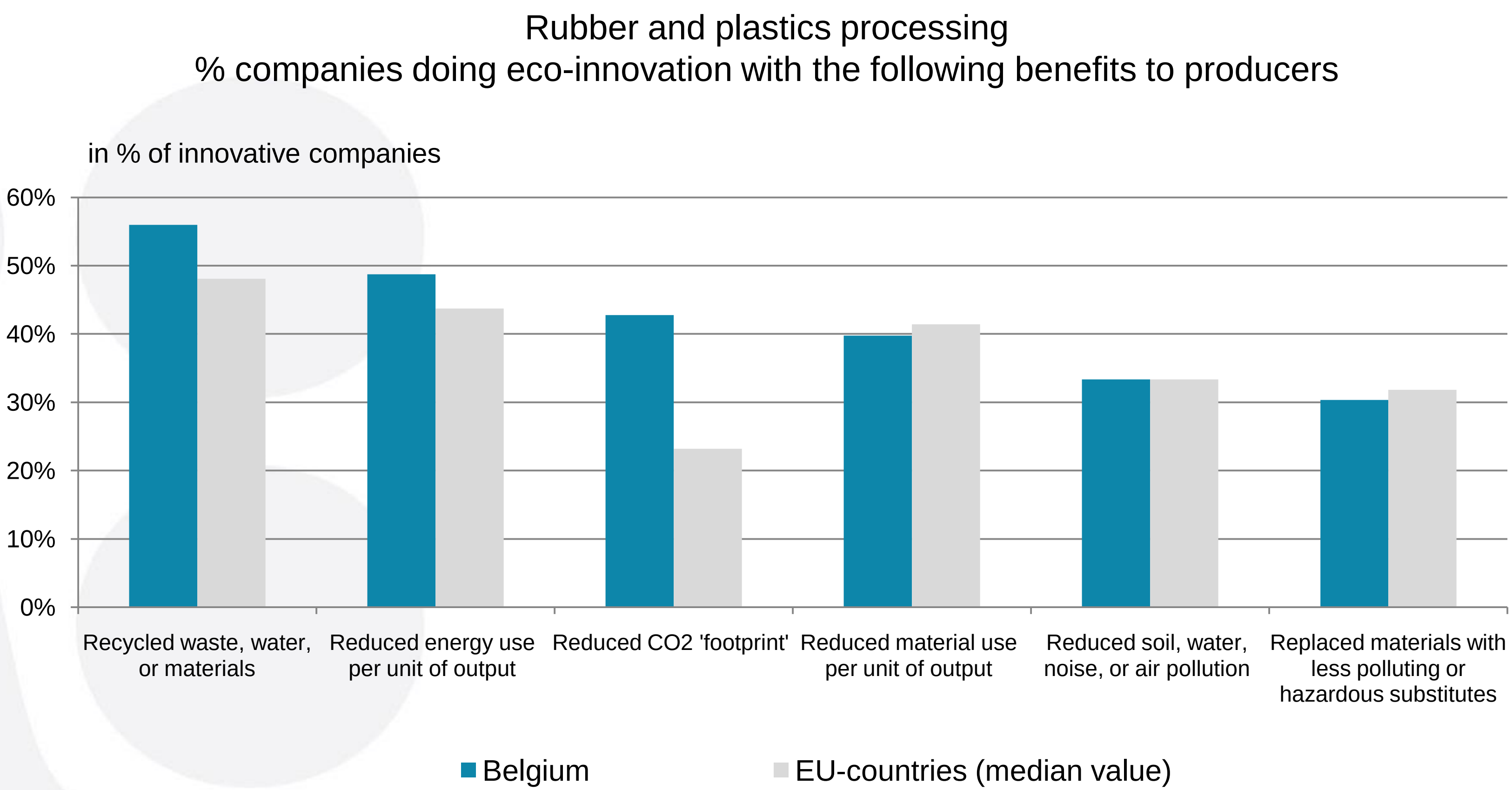
Belgian association of manufacturers of plastic and rubber articles

MISSION STATEMENT

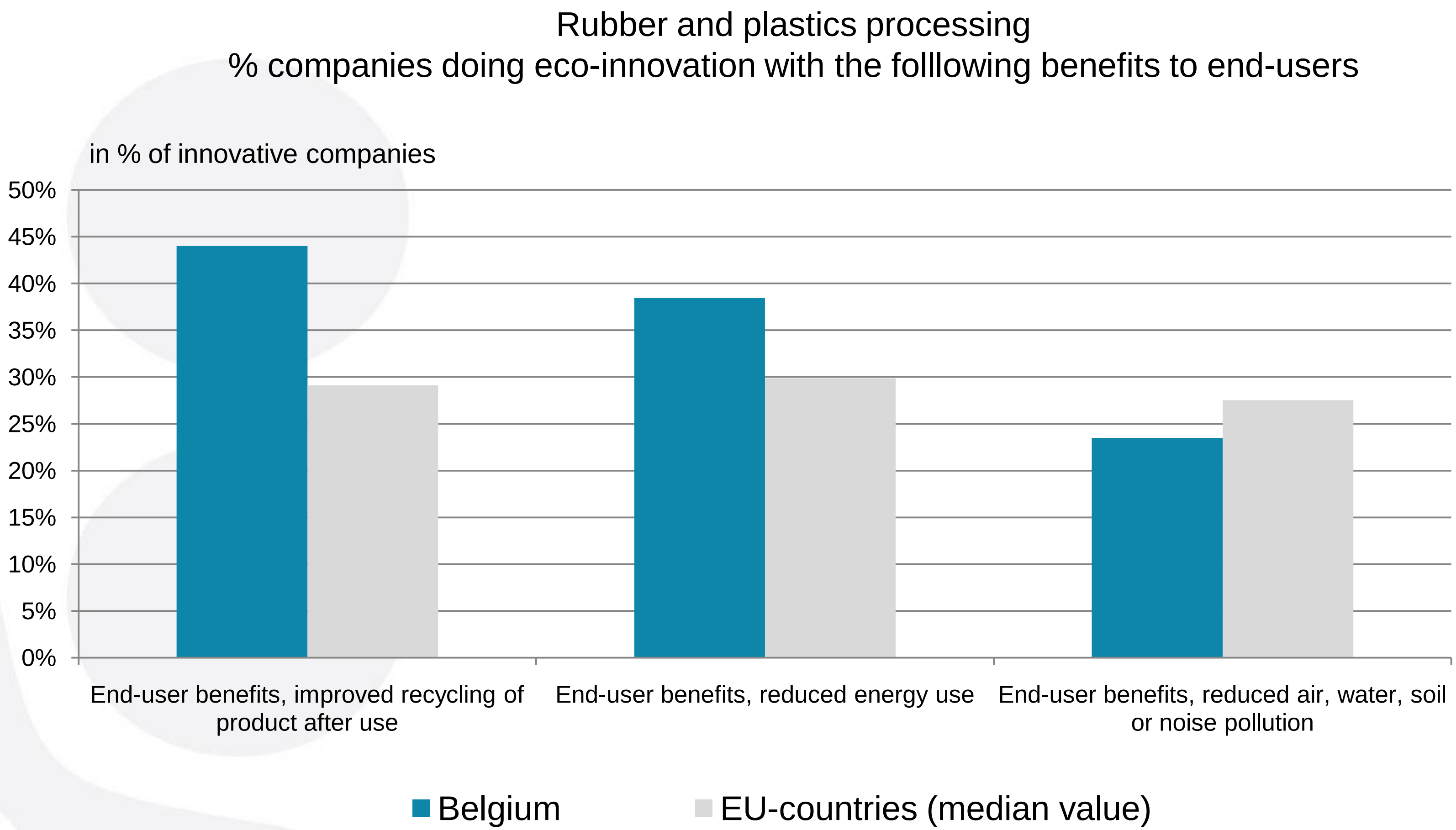
*By means of its membership relations and its networking within society Federplast.be supports the development of the plastics and rubber industry in Belgium to contribute to a **sustainable future**.*

Belgian plastics and rubber processors continuously invest in reducing their ecological footprint



Source: Eurostat CIS-6 (2008)

Belgian plastics and rubber processors help to reduce the ecological footprint of the end-user thanks to innovative solutions



Source: Eurostat CIS-6 (2008)

Economic trends of the Belgian plastics and rubber industry in 2010 & 2011 forecast

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AGORIA & ESSENSCIA
Plastics & Rubber 2010

306 companies

- 254 Producers of plastic and rubber articles (Federplast.be)
- 52 Producers of plastic and rubber polymers (essenscia Polymers)

Employment

- 34.000
- Plastics & rubber processing: - 2.6 % (Q2 2010/2009)

Turnover

- 14.7 billion €
- Plastic and rubber articles: +14.9 %
- Polymers: +24.5 %

Exports

- + 27 %

Production of plastic and rubber articles
°2005 = 100

	2010	**2010/2009**
PL	152.5	+15.4 %
DE	106.8	+12.5 %
BE	104.1	+5.7 %
EU27	**96.7**	**+7.9 %**
UK	85.1	- 0.2 %
IT	85.2	+3.4 %
ES	83.7	+8.1 %
FR	83.1	+7.8 %

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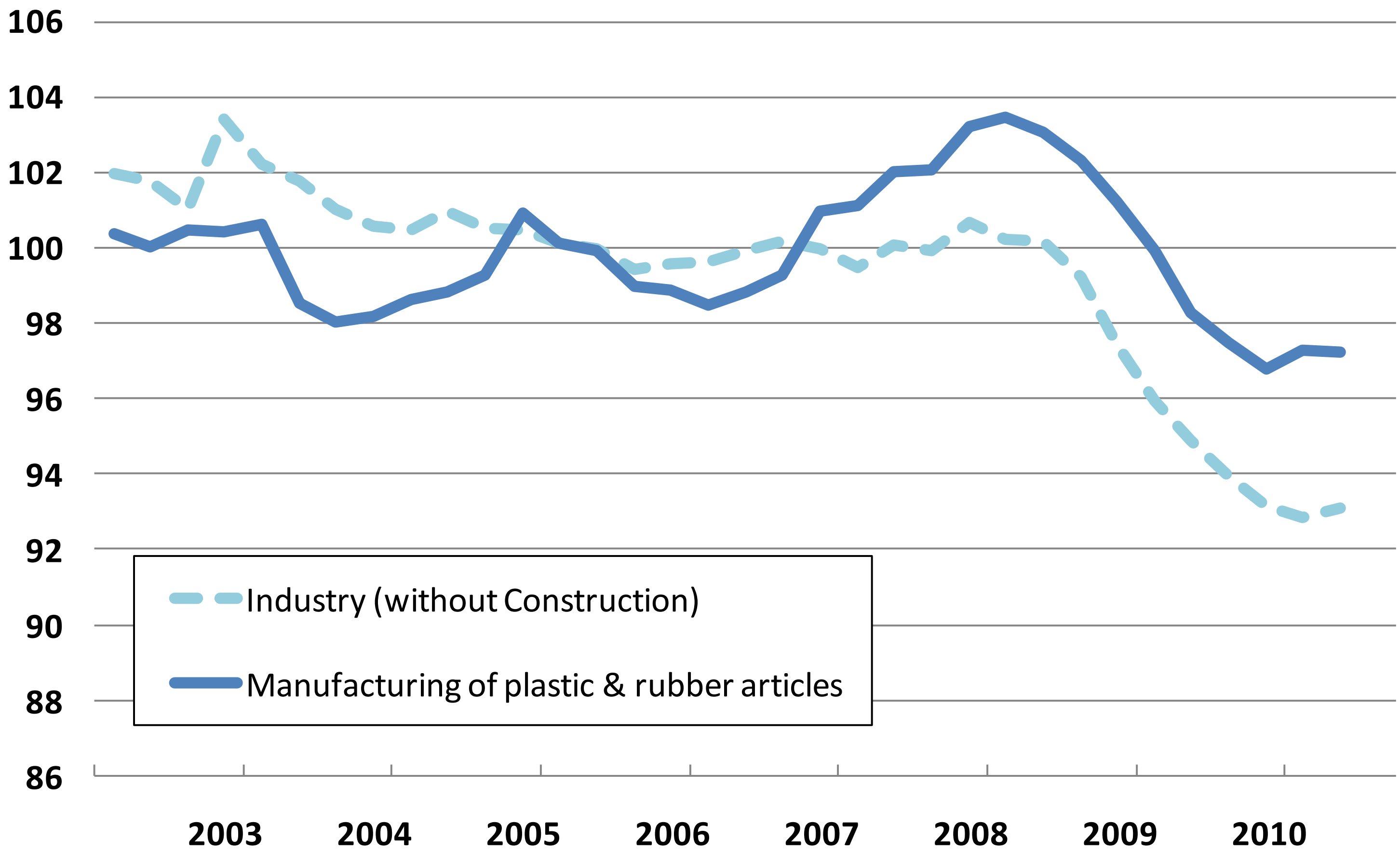
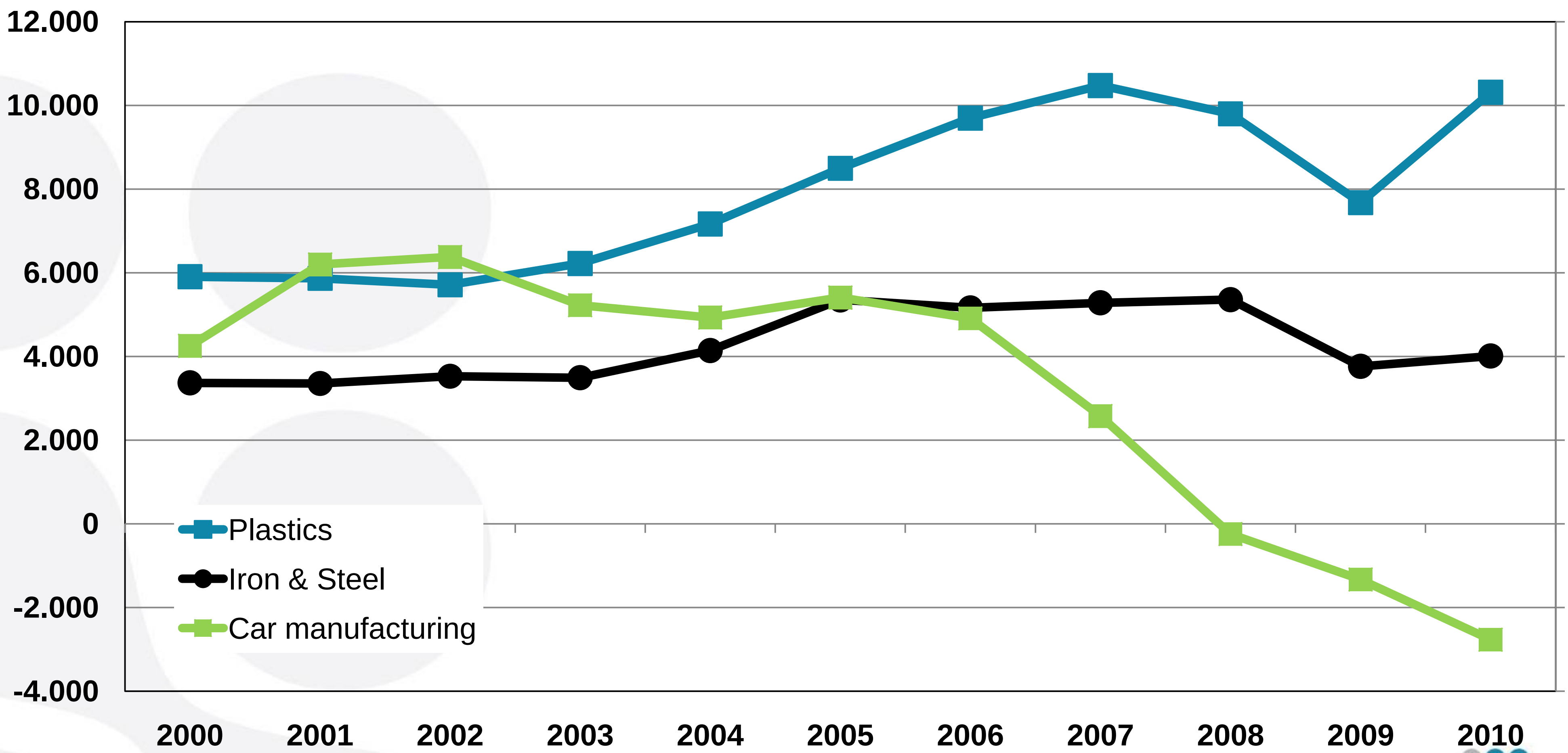
Employment in the Belgian plastics & rubber processing industry °2000 = 100



Plastics industry consolidates its nr. 1 position in the trade balance of Belgium - million €



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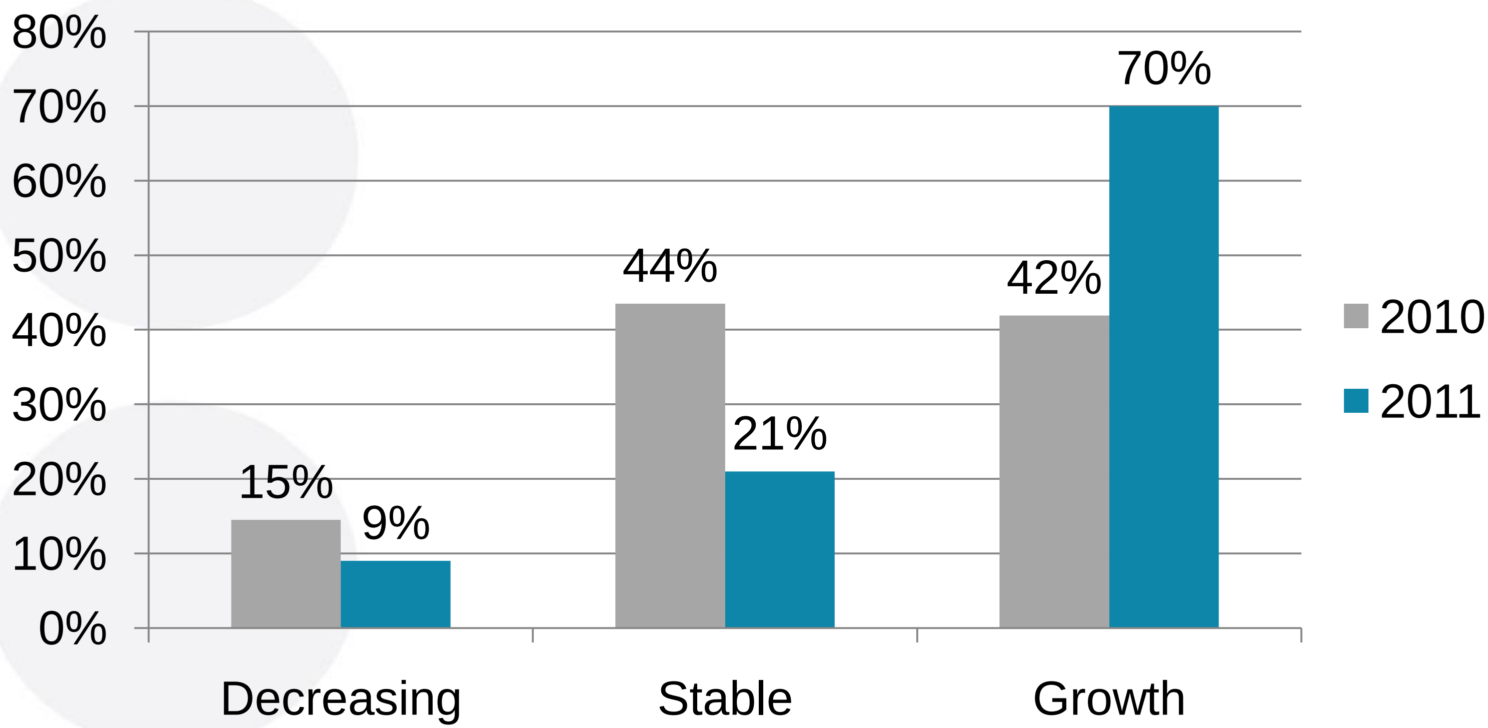
Belgian plastics & rubber processing companies 2011 forecast of the CEO's

- Production volume



- Growth in existing markets: 56 % (2010: 48 %)
- Growth in new markets: 80 % (2010: 57 %)

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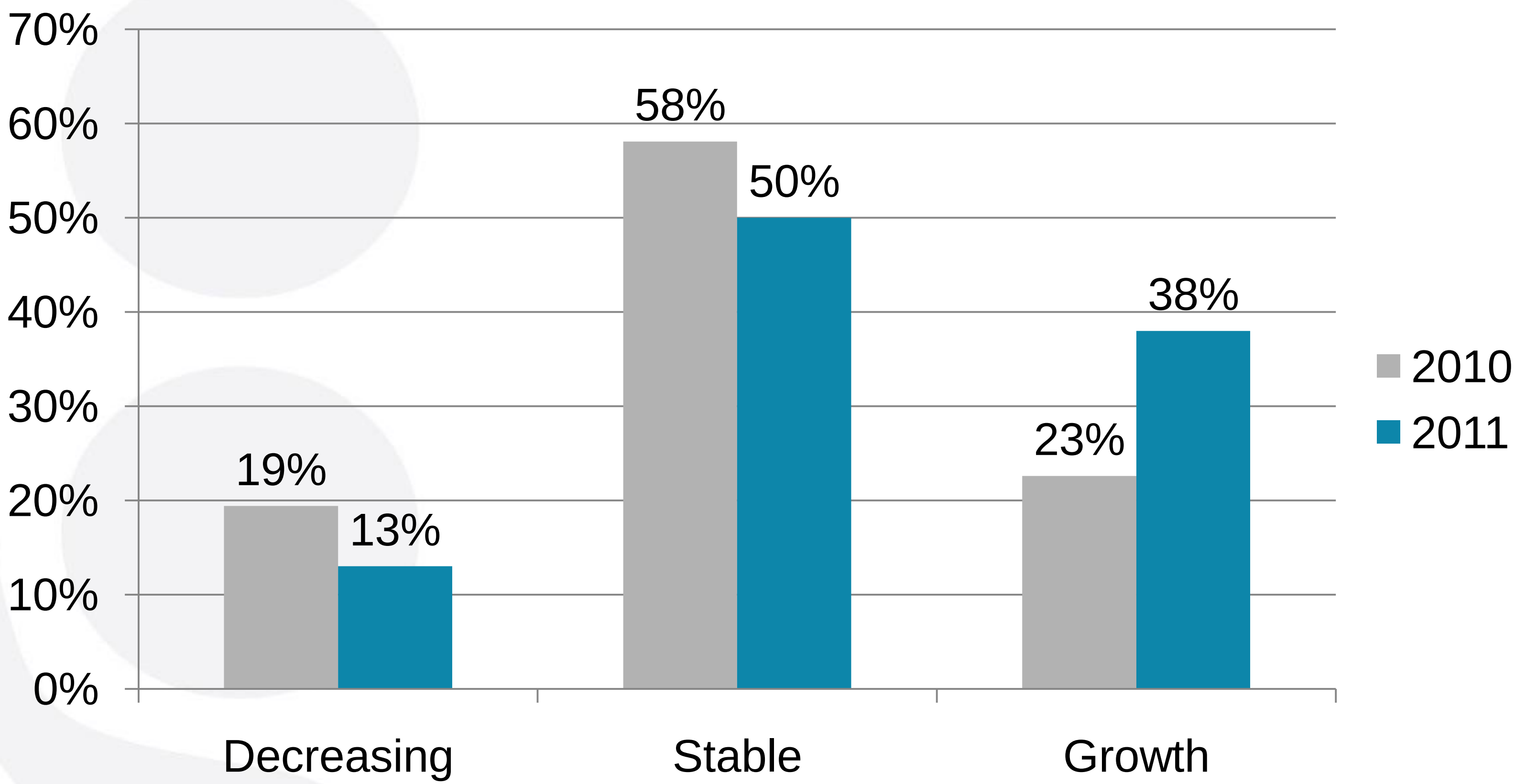
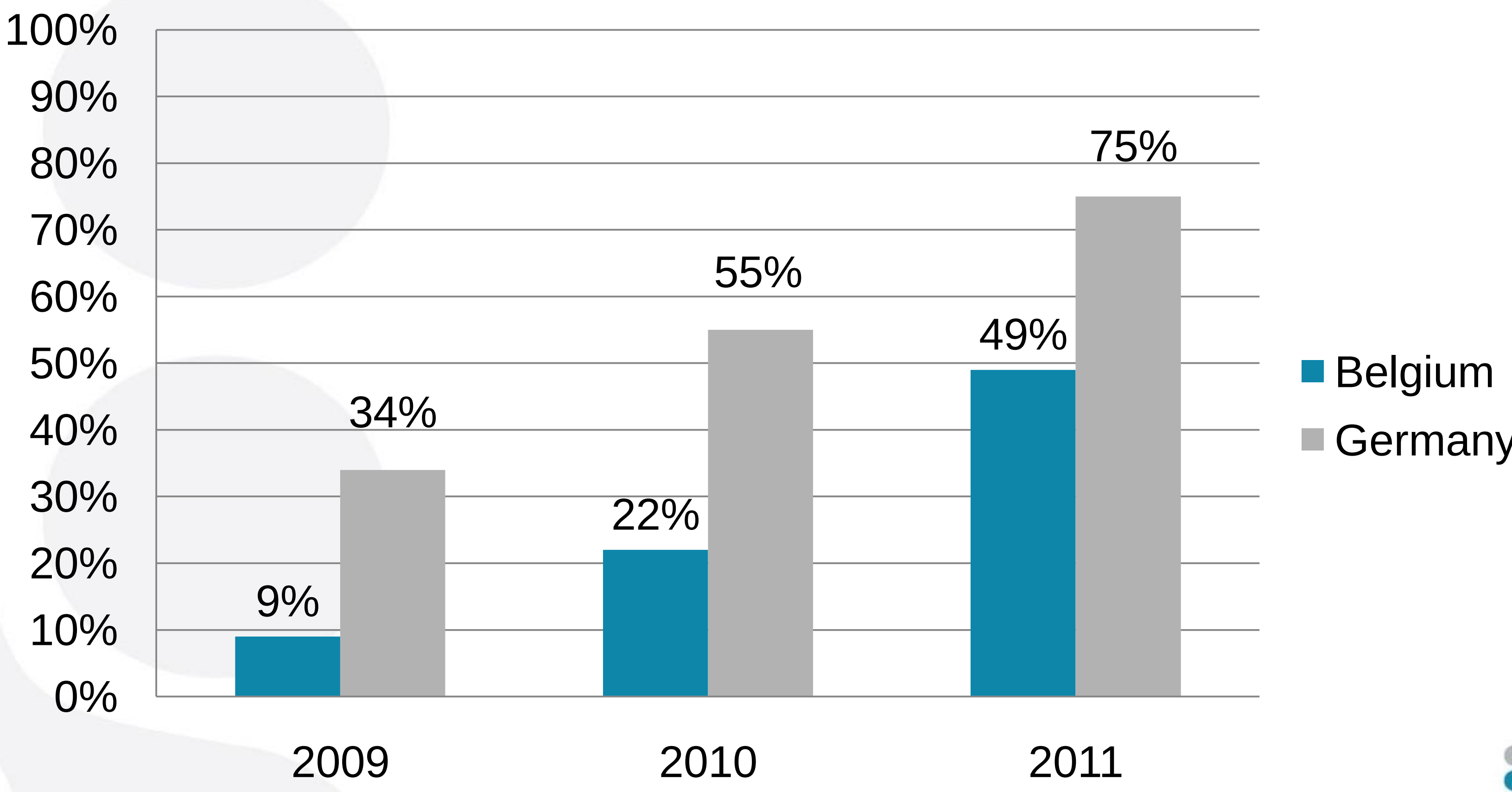
Belgian plastics & rubber processing companies 2011 forecast of the CEO's

- Employment



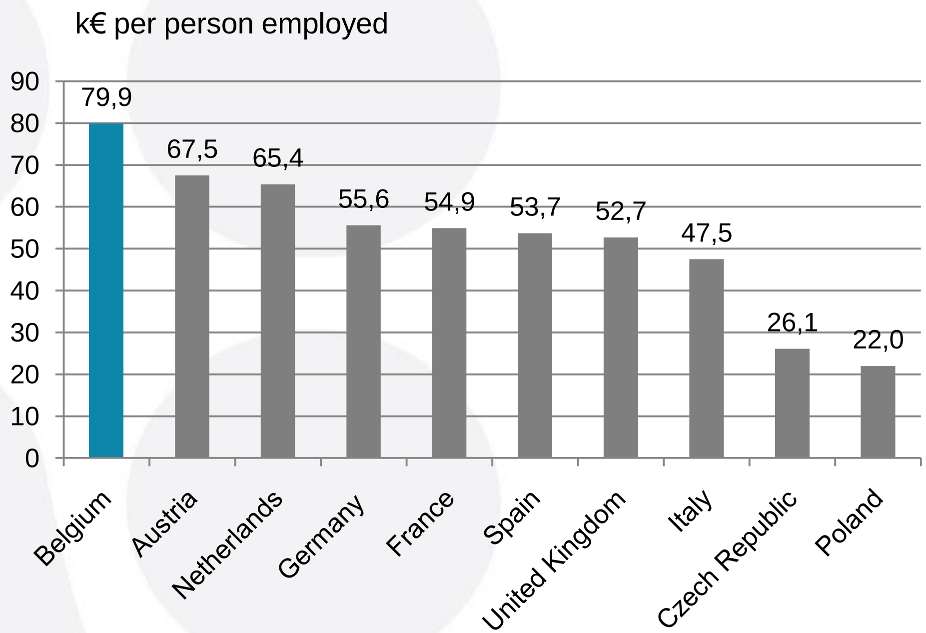
Belgian plastics & rubber processing companies 2011 forecast of the CEO's

- Recovering from the crisis



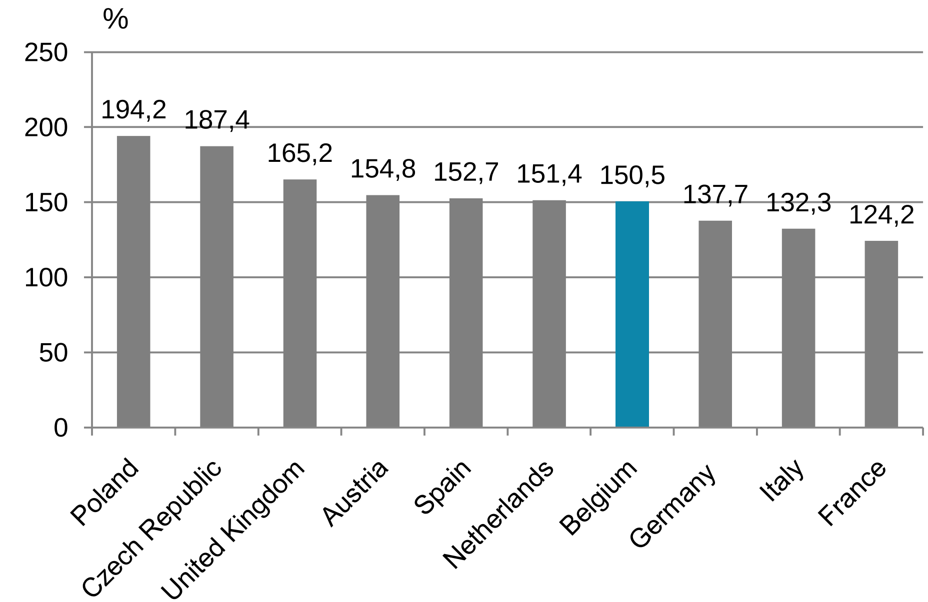
Increase of labour costs threatens competitiveness

Rubber and plastics processing
Apparent labour productivity* (2008)



Source: Eurostat SBS
* Gross value added per person employed

Rubber and plastics processing
Wage adjusted labour productivity** (2008)



Source: Eurostat SBS
** Apparent labour productivity (=gross value added by person employed) by average personnel costs

BELGIAN RUBBER & PLASTICS PROCESSORS GENERATE THE HIGHEST LABOUR PRODUCTIVITY IN TERMS OF VALUE ADDED PER EMPLOYEE IN EUROPE (AND PROBABLY IN THE WORLD) BUT CORRECTED FOR LABOUR COST, LABOUR PRODUCTIVITY IS COMPARABLE TO NEIGHBOURING COUNTRIES

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All time high raw material prices threaten the margins of the plastics and rubber processing companies

- Price increases of commodity plastics February 2011 compared to:

	February 2010	February 2009	September 2008
PE-LD	+ 28 %	+ 85 %	+ 26 %
PE-HD	+ 17 %	+ 69 %	+ 13 %
PP	+ 28 %	+ 76 %	+ 8 %
PS	+ 27 %	+ 94 %	+ 16 %
PVC	+ 17 %	+ 48 %	+ 6 %
PET	+ 35 %	+ 64 %	+ 18 %

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