

THE CONTRIBUTION OF NEW TECHNOLOGIES TO THE RENAISSANCE OF TRADITIONAL INDUSTRIES



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MANUFACTURING SECTOR LOSES WEIGHT IN THE EU

The relative importance of the manufacturing sector has continued to shrink in recent years: declining from **18.5% of the GDP** of the EU-28 in 2000 to no more than **15% in 2012**.

Over a far shorter period of time, from 2008 to 2012, **manufacturing lost 3.8 million direct jobs** within the 28 EU Member States as a whole.

Even so, in 2012 it still accounted (in the UE-28) for around:

- **80% of exports;**
- **60% of productivity growth;**
- **77% of R&D investment.**

Today in the economy of the Member States of the European Union, manufacture still accounts for an added value in the order of **1.76 trillion Euros** and directly **employs around 32 million people**. Added to this is **indirect employment of a further 64 million people** performing myriad activities in the supply of goods and services.

1. Introduction

THE NEED TO REVERSE THE TREND

INDUSTRIALISATION

RE-INDUSTRIALISATION

RE(NEW)INDUSTRIALISATION

“FOR A EUROPEAN INDUSTRIAL RENAISSANCE”, document COM (2014) 14 Final of 22 January 2014:

*«The Commission considers that **a strong industrial base will be of key importance for Europe’s economic recovery and competitiveness**»;*

*«The objective of revitalization of the EU economy calls for the endorsement of the reindustrialisation efforts in line with the Commission’s aspiration of **raising the contribution of industry to GDP to as much as 20% by 2020**».*

2. Importance of Traditional Industries in Italy, Portugal and Spain

WEIGHT IN GVA (GROSS VALUE ADDED) AND EMPLOYMENT

	% of Manufacture GVA			
	Ital	Port	Spain	Germ
Textiles and Textile Products	8.1	13.4	3.3	1.5
Leather and Leather Products	3.0	3.7	0.9	0.2
Wood and Wood Products	2.3	4.2	2.2	1.5

	% of Manuf Employment			
	Ital	Port	Spain	Germ
Textiles and Textile Products	11.6	24.0	5.7	2.1
Leather and Leather Products	3.7	6.1	1.7	0.3
Wood and Wood Products	3.4	6.2	3.7	2.1

	% of GDP			
	Ital	Port	Spain	Germ
Textiles and Textile Products	1.5	1.9	0.5	0.3
Leather and Leather Products	0.5	0.5	0.1	0.0
Wood and Wood Products	0.4	0.6	0.3	0.3
Manufacture	18.2	14.3	14.6	23.6

	% of Total Employment			
	Ital	Port	Spain	Germ
Textiles and Textile Products	2.3	4.2	0.8	0.4
Leather and Leather Products	0.7	1.1	0.3	0.1
Wood and Wood Products	0.7	1.1	0.6	0.4
Manufacture	19.8	17.7	14.9	19.3

2. Importance of Traditional Industries in Italy, Portugal and Spain

COMPARATIVE PRODUCTIVITY AND COMPARATIVE WAGES

	Comparative Productivity			
	Ital	Port	Spain	Germ
Textiles and Textile Products	70	56	58	68
Leather and Leather Products	80	61	54	59
Wood and Wood Products	67	67	60	70
Manufacture	100	100	100	100
Total Economy				

	Comparative Productivity			
	Ital	Port	Spain	Germ
	64	45	57	83
	74	49	53	71
	62	53	59	85
	92	80	98	122
	100	100	100	100

	Comparative Wages			
	Ital	Port	Spain	Germ
Textiles and Textile Products	74	67	77	71
Leather and Leather Products	74	70	61	63
Wood and Wood Products	75	83	73	70
Manufacture	100	100	100	100
Total Economy				

	Comparative Wages			
	Ital	Port	Spain	Germ
	77	52	78	96
	78	54	62	86
	79	65	74	95
	105	78	102	136
	100	100	100	100

2. Importance of Traditional Industries in Italy, Portugal and Spain

COMPARATIVE PRODUCTIVITY AND COMPARATIVE WAGES: VERSUS GERMANY

	Comparative Productivity			
	Ital	Port	Spain	Germ
Textiles and Textile Products	77	25	60	100
Leather and Leather Products	104	32	65	100
Wood and Wood Products	73	29	60	100
Manufacture	76	31	70	100

	Comparative Wages			
	Ital	Port	Spain	Germ
Textiles and Textile Products	82	30	72	100
Leather and Leather Products	93	35	65	100
Wood and Wood Products	85	38	70	100
Manufacture	78	32	67	100

2. Importance of Traditional Industries in Italy, Portugal and Spain

TO CONCLUDE

We hope that this little digression has been sufficient to confirm, with the support of a few statistics, what we already knew:

- the still relatively high share of so-called traditional industries in our economies;
- the high productivity and wage differentials which characterise them, both relative to the average figures for our economies and, above all, relative to the figures for the EU's more developed economies;
- the benefits that would accrue, both in terms of value added and wages, if these traditional industries could develop in terms of raising productivity and sophistication levels for the benefit of the economies and communities in our three countries;
- from every point of view, Portugal is the country which has most to gain from this development, but the gains that could be achieved by both Italy and Spain are not insignificant.

3.1. KETs - Key Enabling Technologies

WHAT ARE/WHICH ARE

*«The Commission defines KETs as ‘knowledge intensive and associated with high R&D intensity, rapid innovation cycles, high capital expenditure and highly skilled employment. **They enable process, goods and service innovation throughout the economy** and are of systemic relevance. They are multidisciplinary, cutting across many technology areas with a trend towards convergence and integration. KETs can assist technology leaders in other fields to capitalize on their research efforts’».*

Based on current research, economic analyses of market trends and their contribution to solving societal challenges, the EU came to identify **six “cross-cutting” key enabling technologies**:

- **Micro and nanoelectronics;**
- **Nanotechnology;**
- **Industrial biotechnology;**
- **Photonics;**
- **Advanced materials;**
- **Advanced manufacturing technologies.**

3.1. KETs - Key Enabling Technologies

HIGH WEIGHT – BUT UNEQUAL – ON SMART SPECIALISATION STRATEGIES OF THE EU COUNTRIES

The importance and priority attributed to KETs was given a warm welcome in the smart specialisation strategies formulated by the European regions.

Up until January 2015, advanced manufacturing systems had received 34.7% of all KETs-related expressions of priority by the 393 European regions which had submitted at least one patent in the 2009-2011 period. This percentage remains very high in the cases of advanced materials (29,5%) and industrial biotechnology (20.1%), falling considerably in the case of photonics (4.9%), micro and nanoelectronics (4.5%) and nanotechnology (2.6%).

For the short period of time for which data is available, March 2013 to January 2015, advanced manufacturing systems saw its share rise from 20% to the aforementioned 34.7% of all expressions of priority received.

(cont.)

3.1. KETs - Key Enabling Technologies

HIGH WEIGHT – BUT UNEQUAL – ON SMART SPECIALISATION STRATEGIES OF THE EU COUNTRIES

The same is evident with patents (patents applied at the EPO - European Patent Office or through the so-called PCT - Patent Cooperation Treaty of the World Intellectual Property Organization), with advanced manufacturing systems, advanced materials and micro and nanoelectronics accounting for around 75% of all patents submitted in the 2009-2011 period. Advanced manufacturing systems alone account for around one-third of all patents submitted in that period.

3.1. KETs - Key Enabling Technologies

RECOMMENDATIONS

- *Boost European technology infrastructures to support industry;*
- *Strengthen KETs pilot lines and dissemination activities;*
- *Unleash significant investment in manufacturing through new EU tools;*
- *Escalate regional smart specialization strategies to a European level;*
- *Establish bonding between KETs and societal challenges for a sustainable and competitive Europe;*
- *Ensure European interests are met in trade and investment agreements;*
- *Fully exploit the dual-use potential of KETs;*
- *Invest in KET-related skills to ensure Europe's innovation potential.*

3.2. ICT - Information and Communication Technologies and Digital Entrepreneurship

A SECOND WAVE OF FIVE DIGITAL TECHNOLOGIES

- Mobility and mobile apps;
- Social media;
- Cloud;
- Big data analytics;
- The Internet of Things.

CRITICAL IMPORTANCE FOR TRADITIONAL INDUSTRIES

In a recent publication (“Digital Transformation of European Industry and Enterprises – A Report of the Strategic Policy Forum on Digital Entrepreneurship”, European Commission, 25/03/2015), the Strategic Policy Forum on Digital Entrepreneurship set out **a clear focus on the digital transformation of existing industry and enterprise, for two main reasons:**

- *first, because this is where the biggest opportunities are for Europe - three-quarters of the value of the digital economy for Europe is in the potential for increased productivity, competitiveness and therefore job-creating ability of Europe’s existing industry and enterprises;*
- *secondly, a deeper and more disruptive wave of digital technologies is already beginning to impact Europe and we need to be ready to take full advantage of it”.*

According to this report, **41% of European SMEs are entirely non-digital, a percentage which climbs to 77% if we add “digital beginners”, and only 14% of the same SMEs use the internet as a sales channel**, thus relinquishing the considerable productivity gains to be had from using these technologies.

4. The Emotional Forefront in the Case of Consumer Goods

A LARGE NUMBER OF CONSUMER GOODS ARE CHARACTERISED BY ADDITIONAL NEEDS

- The consumer goods industries are as demanding in technological terms as any other. The food industry, for example...
- However, in the area of consumption there is a set of goods which besides the technological demands common to all other goods are characterised by additional needs: “textiles, clothing, leather and footwear products, sports goods, games and toys, interior products made of different materials such as furniture, sanitary products, floor, wall and window coverings, table and kitchen ware, glassware and spectacles, watches, jewelry, bags & accessories and various cosmetic and beauty products as well as the design-oriented packaging of these and other products” (as framed by the EPSI^{eu} – The European Platform for Sport Innovation, in “Designed to Surprise – Towards a Strategic Roadmap for Research and Innovation in the European Design-based Consumer Goods Sectors”, Vision Document, February 2010).

4. The Emotional Forefront in the Case of Consumer Goods

A LARGE NUMBER OF CONSUMER GOODS ARE CHARACTERISED BY ADDITIONAL NEEDS

- All of these consumer goods are **design intensive**,
- but the set of requirements which surround them extend today far beyond design, above all in the cases of goods consumed by the high and medium-earning classes, for whom the **consumption of these goods is associated with very high levels of personalisation, or even hyper-customisation**;
- ... factors of an **aesthetic** nature and, beyond this, **personal taste**;
- ... factors of a **cultural** order;
- ... **fashion**-related phenomena;
- ... product's **comfort** and also, naturally, its functionality;
- ... **the emotional attachment to consumption of these types of products**;
- ... **an extremely subjective process increasingly associated with individual taste (each consumer has his own) and the affirmation, in each act of consumption, of the "I" in each one of us.**

4.1 PROSUMER.NET Initiative and its Innovation Roadmap

A FOUNDER INITIATIVE

PROsumer.NET is a networking initiative of five European Technology Platforms addressing design-based consumer goods industries and related research and technology fields:

- The European Technology Platform for the Future of Textiles and Clothing;
- The European Footwear Products & Processes Technology Platform;
- The European Platform for Sport & Innovation;
- The European Forest-based Technology Platform;
- The ManuFuture Technology Platform.

The most notable result of this initiative is the “**Joint Research Roadmap**”, the final outcome of the PROsumer.NET Market/Innovation Trends and Technology Foresight activities which serve as an outlook on research and technology development priorities in the design-based consumer goods sector up to 2020.

4.1 PROSUMER.NET Initiative and its Innovation Roadmap

A FOUNDER INITIATIVE

87 research projects divided into 6 major areas:

- Product service design and development;
- Advanced processes and control systems;
- Consumer integration;
- New materials and components;
- New business models;
- Knowledge management.

5.1. Strategic Research Agenda of the European Textile and Clothing Industry

“VISION FOR 2020”

Three main focus:

- From commodities to specialty products;
- New textile applications;
- From mass production to customization.

A Strategic Research Agenda:

- New speciality fibres & fibre-composites for innovative textile products;
- Functionalisation of textile materials & related processes;
- Bio-based materials, biotechnologies and environmentally friendly textile processing;
- New textile products for improved human performance;
- New textile products for innovative technical applications;
- Smart textiles & clothing;
- Mass customization;
- New design and product development concepts and technologies;
- Integrated Quality and Life Cycle Management.

5.1. Strategic Research Agenda of the European Textile and Clothing Industry

“VISION FOR 2020”

As we saw with the High-Level Expert Group on Key Enabling Technologies and the Strategic Policy Forum on Digital Entrepreneurship, the Strategic Research Agenda of the European Technology Platform for the Future of Textiles and Clothing comes with a set of “very important preconditions” to achieve a European textile and clothing industry more innovation driven and more competitive:

- An innovation-friendly regulatory framework;
- An educational system to support industrial transformation;
- A financial system to accommodate textile innovation;
- Innovation-supporting standardization;
- Capacities for effective management of innovation and technological change.

5.2. Portuguese Footwear Industry

20 YEARS OF WORK FROM A BUSINESS ASSOCIATION AND A TECHNOLOGICAL CENTER

Confronted with the challenges of globalisation, the Portuguese footwear industry has focused since the early 1990s “on a new development paradigm which it was prospectively thought would involve”:

- Production of small orders;
- Emphasis on production and organisational flexibility with use of advanced technology and equipment;
- Emphasis on leather goods with a high fashion and design content;
- Manufacture and rapid shipping of goods direct to sales points;
- Direct sales to small retail and independent sales points;
- Emphasis on R&D focused on critical success factors.

Three main programmes:

- The “Footwear Factory of the Future” (1994-2006);
- ShoelNov (2007-2014);
- Footinov” (2015-2020).

5.2. Portuguese Footwear Industry

20 YEARS OF WORK FROM A BUSINESS ASSOCIATION AND A TECHNOLOGICAL CENTER...

Over 150 new types of equipment have been developed and commercialised.

Over 100 new materials worldwide.

The four sub-programmes of the new FootInov Programme:

- *InoMat: to develop new materials, components and accessories;*
- *ProdDesign: to design and innovate new concepts and consumer products;*
- *EquiTech: to develop equipment and factory technologies;*
- *EcoDev: environmental and sustainable development sub-programme.*

... AND A POWERFUL COMMUNICATION CAMPAIGN WITH STRONG
EMOTIONAL APPEAL

PORTU
GUESE
SHOES
DESIGNED BY
THE FUTURE



THE
SEXIEST INDUSTRY
IN EUROPE