



ISTMA WORLD
BOARD OF DIRECTORS AND MEMBERS MEETING
FIGUEIRA DA FOZ, PORTUGAL
11-13 June 2006

Manufuture Session

PORTUGAL's Mould & Die: a "Born" Global Industrial Partner

Leonor Sopas



CATÓLICA

PORTUGUESE CATHOLIC UNIVERSITY
SCHOOL OF ECONOMICS AND MANAGEMENT

Portugal's Mould & Die: a "Born" Global Industrial Partner

- Manufacturing: a new service-approach
- Portugal's Mould & Die Clusters
 - Origins of the industry and cluster development
 - Local relationships and Global networks
 - Portugal: a centre of excellence in mould-making

Manufacturing: a new service-approach

- The service-content of industry is increasing rapidly
 - services contribute to differentiation
 - services are new sources of growth
- Services in manufacturing span a range of tasks:
 - design, product development, market research, testing, equipment installation, maintenance contracts, supply chain management, ...
- Common to all of these is the fact that all of them require a “customer-facing” capability.

Relationships in Product Development

- Consumers value innovative, sophisticated and customized products at competitive prices.
- ⇒ Product development becomes an increasingly complex and multidisciplinary process and product life cycle shortens.
- Firms have to change the way they develop their offer:
 - Focusing on some core competencies.
 - Outsourcing non-core activities:
 - Updates of previous products;
 - Reverse engineering;
 - ...
 - Increasing cooperating with suppliers and clients.

Relationships in Product Development

- **Cooperation** in product development requires:
 - **Technical competencies**
 - Mastering different technologies
 - **Relational and organizational capabilities:**
 - Being able to communicate with different corporate and national cultures
 - Being able to interact across the borders of the firm
 - Trust
 - In the technical competencies of the partner
 - In the behaviour of the partner (it will not lie, cheat or behave in an opportunistic way)
 - Being open to continuous mutual adjustments
 -

Portugal and Mould & Die

Argument:

- Portuguese mould makers have both:
 - The **technical** competencies
 - The **relational** competencies

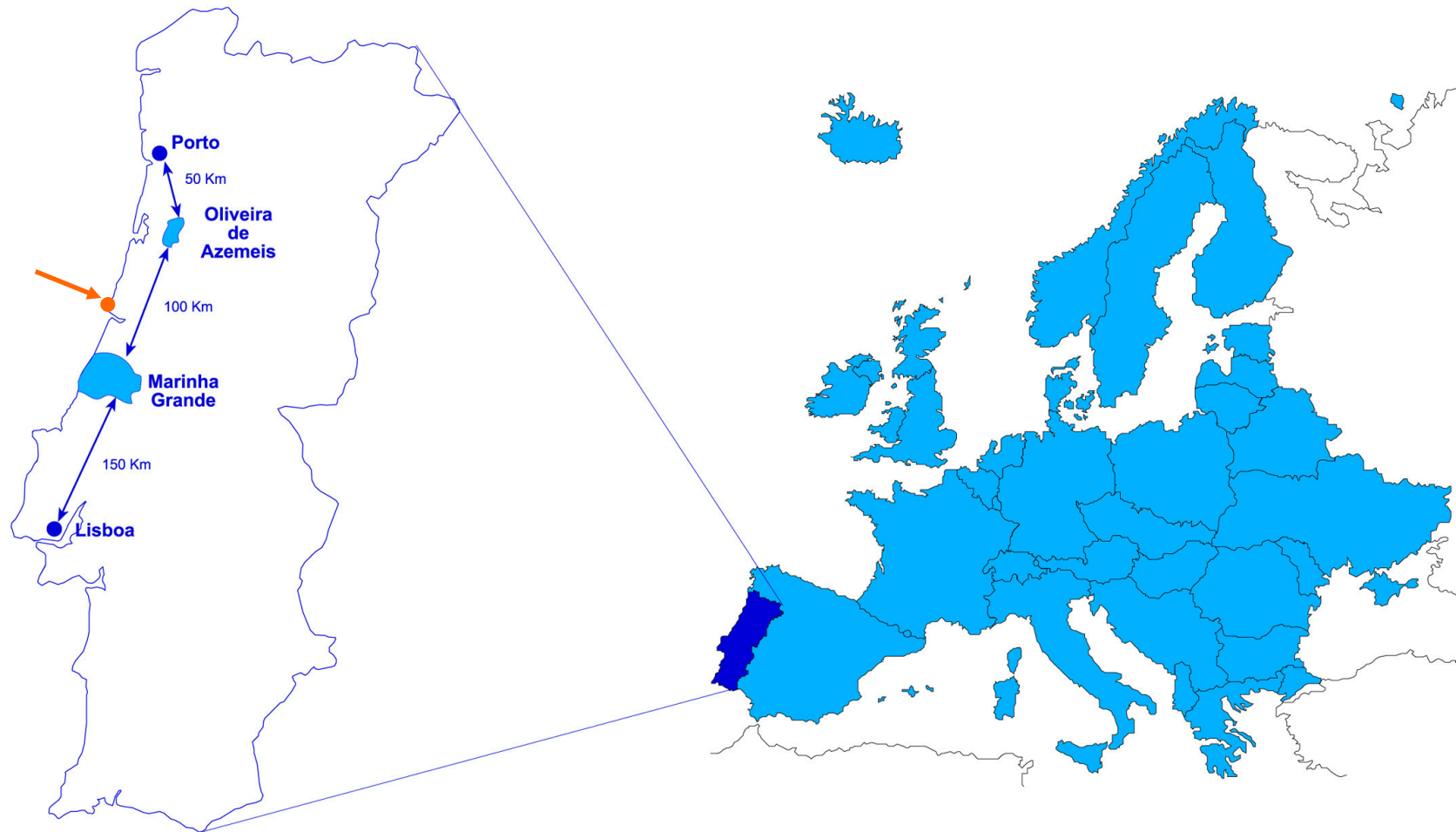
to be effective partners in product development and other manufacturing services ...

... especially so in a global, knowledge-intensive world.

Portugal's Mould & Die: the origins

- Origins:
 - early 20th century: moulds for glassware
 - 1944: first mould-making plant for Bakelite products
 - 1955: first exports of moulds to UK and then to the USA
- Strong foreign demand along with continuous investment in human capital and technology led to the development of two mould-making clusters
 - Spin-offs: born-exporting firms in clusters
 - Relations external to the cluster and the country are important to discover market opportunities.
 - Local relations are important to gather the resources required to start-up.

Portugal's Mould & Die: 2 clusters



Portugal's Mould & Die: 2 clusters

Marinha Grande (MG)

- 190 mould-makers (63%);
 - \approx 5.000 employees;
- \approx 100 individual entrepreneurs;
- \approx 50 engineering or trading firms.

Oliveira de Azeméis (OA)

- 86 mould-makers (29%);
 - \approx 1.500 employees;
- \approx 20 individual entrepreneurs;
- \approx 5 engineering or trading firms.

- Subcontracting $>$ 15% of total turnover
- Investment $>$ 16% of sales
- Local suppliers of services and foreign representatives of equipment, steel and standardized components

Portugal's Mould & Die: local institutions

- **Cefamol** - The Portuguese Association for the Mould Industry (1969, MG; 136 associates that represent 90% of total mould production)
 - **Centimfe** - Technological Center for the Mouldmaking, Special Tooling and Plastic Industries (1991, MG + OA)
 - **Cenfim** - professional training center for metallurgic and mechanical industries (1985, MG+OA)
 - School of Technology and Management – Leiria Polytechnic Institute
 - Local Professional Schools
 - Town Councils of Marinha Grande, Batalha, Leiria, Oliveira de Azeméis
 - ...
- ⇒ **Institutional Thickness** that promotes **local** relationships.

Information flows inside the clusters

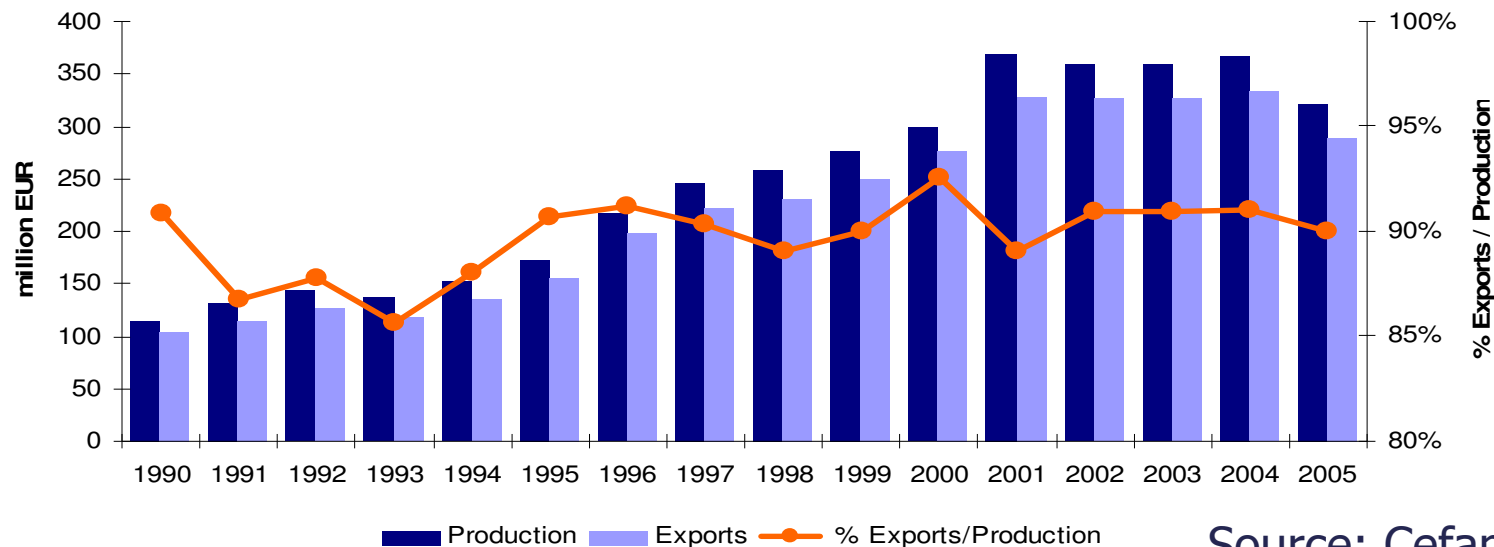
- Start-ups through spin-offs means firms are born embedded into local networks.
- Firms operate in local production networks:
 - They buy inputs, components and services from local suppliers
 - They subcontract work or are subcontracted locally
 - They cooperate in large projects
- Most firms are members of the same local specialized institutions - Cefamol, Centimfe, Cenfim.... - and participate in joint projects.
- Entrepreneurs and workers are embedded in thick local social networks, in which trust is developed, reputation is important and competition is intense (personal).
 - They meet frequently, formally and informally, speak the "same language", trust each other, exchanging information and experiences.

Portugal's Mould & Die: relationships

- Inside clusters
 - With suppliers of specialised services
 - With subcontractors
 - With competitors
 - With partners
 - Through local specialised institutions
- External to clusters
 - With customers
 - With R&D centres, universities and technical schools
 - With professional associations from other countries
 - With other institutions...

Relationships with customers...

- Mostly foreign customers
 - Exports = 90% of production (since the 60ties)



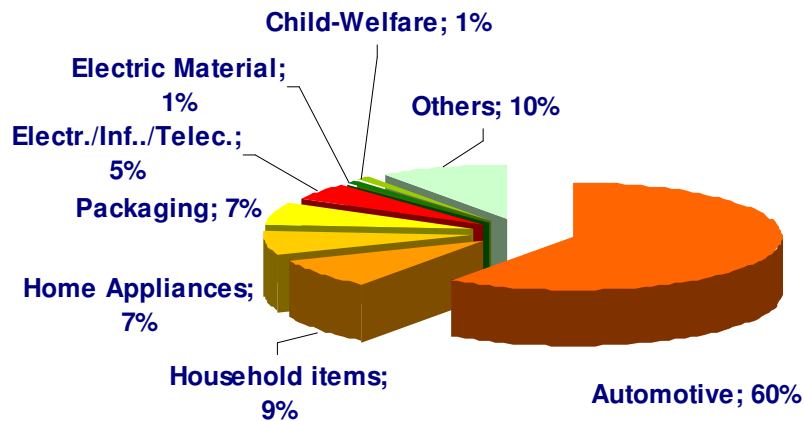
Source: Cefamol/ICEP.

- from a large number of countries,
- a variety of industries,
- ranging from large MNCs to Small Firms.

Relationships with customers...

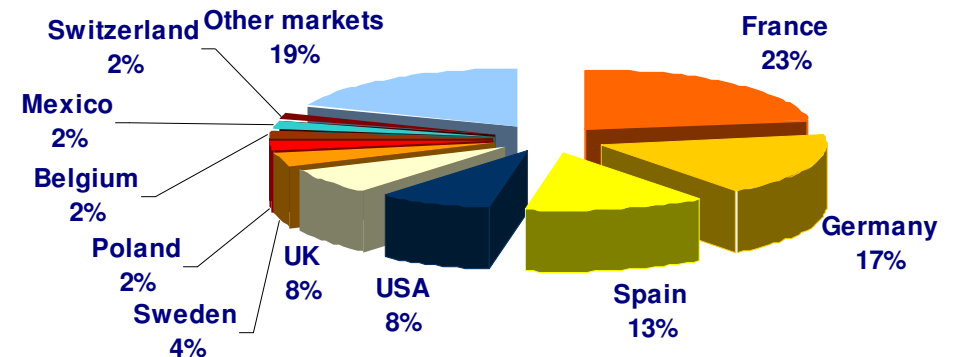
- Different industries

Main customer industries - 2004



- More than 100 countries

Main export markets in 2004/05



Source: Cefamol/ICEP.

Relationships with customers

- Customers include the most important Multinational Companies (MNCs) in these industries.
- In spite of the geographical distance (even “longer” before the internet age) many MNCs developed close relationships with their Portuguese suppliers
 - which have extended from mould-making to close cooperation in product development, prototype building, part and even systems production, synchronization of internationalization strategies,...
 - ⇔ Mould makers in Portugal offer a “service-approach” to their customers
- Nowadays Portuguese mould makers are active partners in many different global value chains
 - They benefit from 50 years of experience in cooperating with distant customers (making them feel close in spite of the geographical and cultural distance).

Relationships with R&D centres, Universities ... in Portugal and abroad

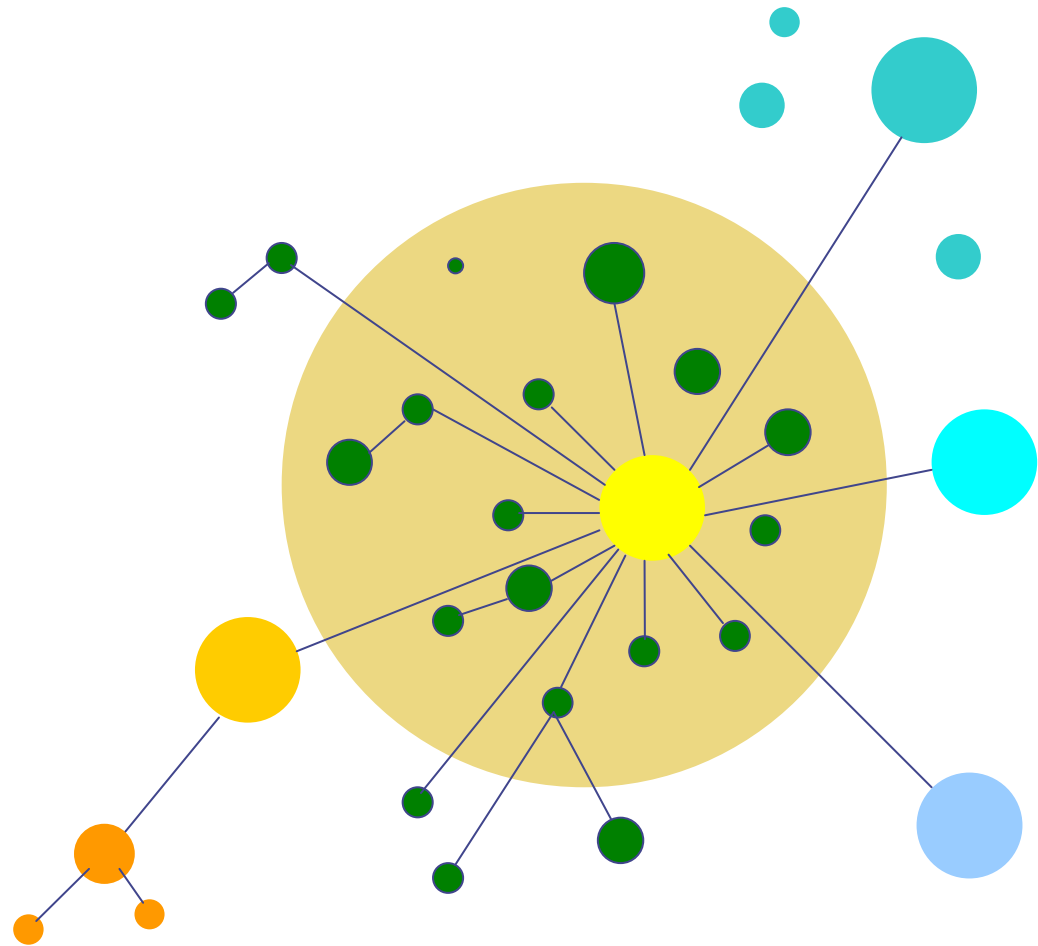
- Local specialized institutions develop ongoing relationships with a diversity of partners, both in Portugal and abroad.
- For example, as regards Centimfe's portfolio of projects:
 - N° of projects: 17 (including 4 R&D projects)
 - Workers involved: 26
 - Investment: € 3,6 million (€ 1,6 in R&D)
 - N° of partners: 109 from 11 countries (Spain, Belgium, Germany, Netherlands, United Kingdom, France, Poland, Italy, Austria, Norway, Slovenia)
 - Companies: 34 (of which 13 are Portuguese)
 - RTD: 24
 - Universities: 17
 - Industrial Association Grouping: 11 (including Cefamol)
 - Local or National Authorities: 6
 - Others: 17

Information flows into the clusters

- Portuguese mould makers benefit from a diversified portfolio of relationships
- ⇒ they have continuous access to the latest information on:
 - Market trends in different industries and regions of the world;
 - Strategic moves of leading players in the same industries and regions;
 - Technological and organizational innovations in these different industries...
- Each mould-maker has access to specific pieces of information.
- Integration of different pieces of information:
 - result in accurate pictures of the global competitive environment.
 - are basic inputs in knowledge development.

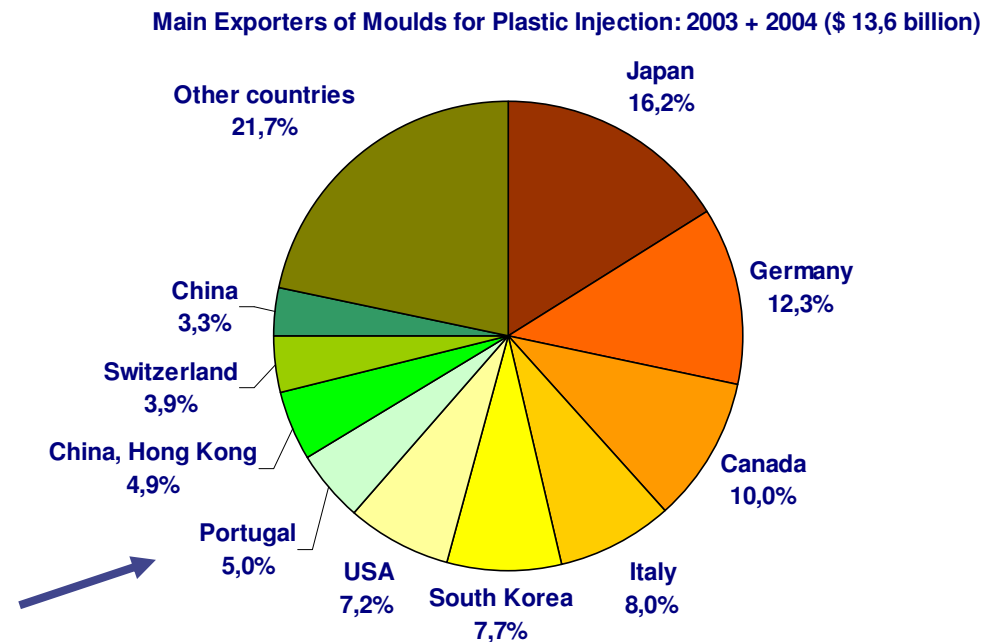
Clusters and networks

- Portuguese mould-making clusters are characterised by dense local networks of production, R&D, information
- deeply embedded in global networks
- ... continuously expanding = dynamic networks



Dynamic networks: the cluster effect

- Clusters' critical mass enhance their external visibility.
 - In Portugal, mould making:
 - is one of the few economic activities in which we are among the World Top 10 Exporters.
 - is a case of collective success.
 - Not just isolated examples of winning firms/groups.
 - Two successful clusters integrating hundreds of firms, entrepreneurs, institutions...
 - ...whose strength is greater than the simple sum of its parts.



Source: UN, Comtrade

Portugal's successful Mould & Die clusters attract...

- ...the most-talented people
 - entrepreneurs, workers, researchers...
- ...the attention of policy makers
 - Mould-making deserves a specific mention in the government program
- ... international attention
 - Foreign customers are drawn into the cluster since they are aware that they will find there mostly everything they need
 - a diversified and competitive supplier base, even for large projects
 - product development capabilities
 - almost any kind of other related services.
 - R&D institutions that are looking for talented partners tap the cluster
 - Foreign suppliers...
 - ...
- Creating an environment that continuously promotes **innovation** ⇒ virtuous circle of **growth**

Portugal: a centre of excellence in mould-making

- Portugal has an edge in the mould making business since it combines:
 - the mastering of technical skills required in the different service and production activities
 - the relational capabilities, developed along decades of strong interactions with customers from different industries and countries
 - Human resources speak different languages (are able to learn new ones) and are used to interact effectively with different cultures.
 - Human resources are used to long-distance communication using both electronic and physical means.
 - There is a culture of strong and repeated interaction with sophisticated and geographically distant customers.

Portugal: a centre of excellence in mould-making

- It is this relationship know-how with all sorts of customers that allows Portuguese mould-makers to be able to understand their needs particularly well and to jointly configure solutions that best suit them.
- Portugal: a centre of excellence in mould-making and a global industrial partner.