

Clusters, Value Chains and Upgrading: How they can help in the preparation of an industrial strategy in Abu Dhabi

Prof. Roberta Rabbellotti

roberta.rabbellotti@eco.unipmn.it

<http://sites.google.com/site/robertarabbellotti/home>

Università del Piemonte Orientale
Italy

Outline

- How is the international productive context changing?
- Upgrading to compete;
- Clusters, networks and collective efficiency;
- Value chains;
- Policy implications.

How is the international productive context changing?

- Grow – at a global level – activities that are:
 - Geographically dispersed (**fragmented**) but
 - **Functionally integrated**;
- Grow their dispersion across countries;
- With large global players playing a **leading role: Global Value Chains (GVCs)**, Global Production Networks, Production Chains,
- ... and **forms of productive agglomeration also persisting** (cluster)
- Increasing attention to **relationships/linkages** among economic actors:
 - The concept of “*governance*’ (coordination) is central;
 - The impact of governance on the generation, transfer, diffusion of knowledge and on enterprise **upgrading** is also key.

Firms can follow two main paths of insertion in the global economy

- **The low road** (or immiserising growth): the “race to the bottom” strategy (e.g. export prices fall faster than export volumes increase or increased exports can only be paid for by lower wages);
- **The high road** (or sustainable income growth): the upgrading strategy.

What explains the difference between high-road and low-road strategy?

UPGRADING

Upgrading is a **necessary** condition for a “**high road**” path to competitiveness in the global market.

UPGRADING

= innovation to increase value added

- Process
- Product
- Functional
- Intersectoral/inter-chain



Upgrading

Process Upgrading (1)

- Achieving a more efficient transformation of inputs into outputs by reorganizing the production system and introducing superior technology;
- Matching standards that are set by buyers (often a condition of market entry more than a trigger for higher prices paid for a “better” product);
- Doing things more competently” (matching strict logistics and lead times and delivering supplies reliably and homogeneously time after time).

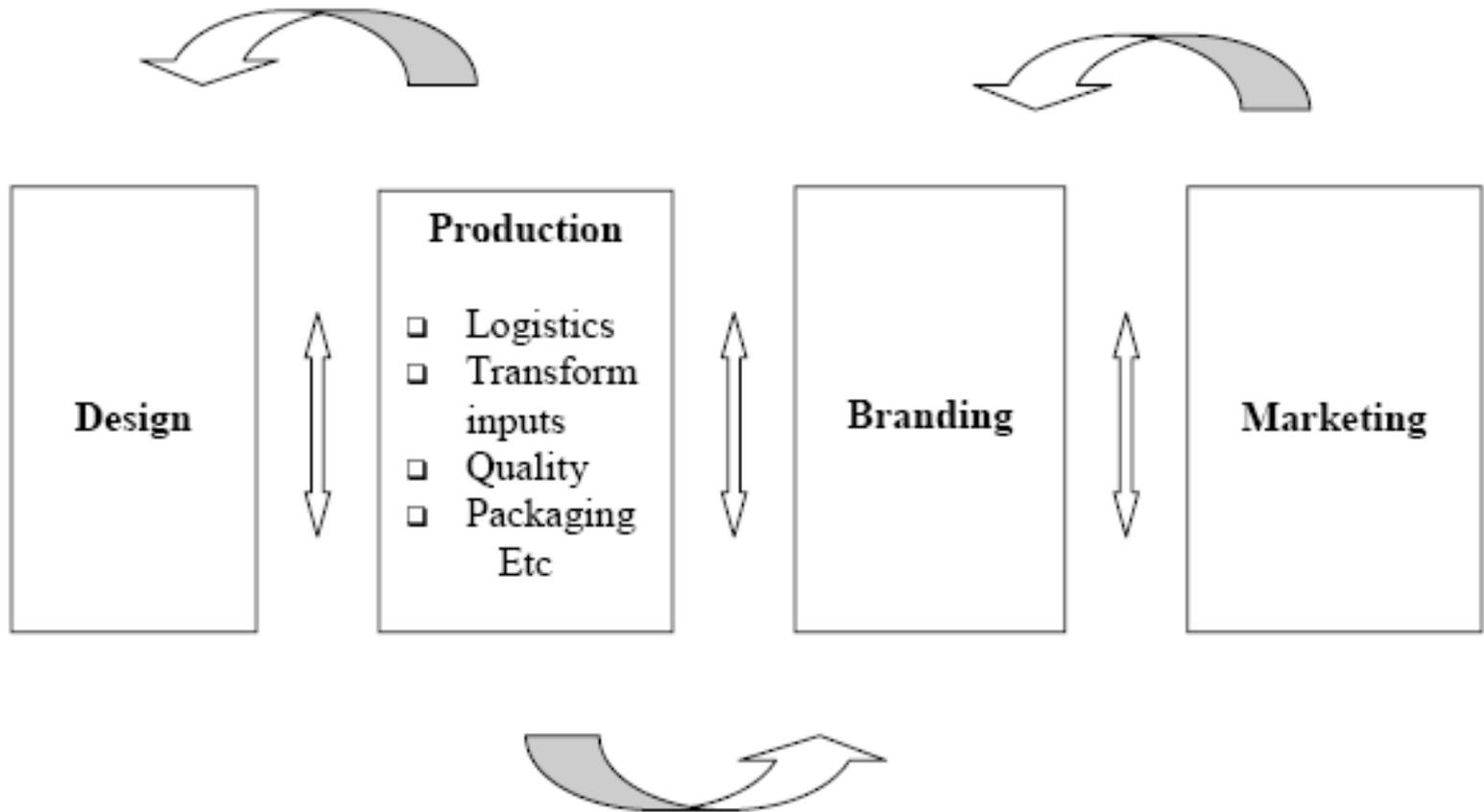
Product Upgrading

- Moving into more sophisticated products with increased unit value;
- Producing a large range of products with different specifications that cover the whole range of quality and/or origins (e.g., wine portfolios representing all major regions, varieties, and price points);
- It is sometimes difficult to distinguish product and process upgrading, especially in agro-food products, where the introduction of new processes generates new categories of products (e.g., organics, “sustainable” products).

Functional upgrading

- Changing the mix of activities within the firm and acquiring new, functions that increase the skill content of activities (for example from manufacturing to design).

Functional Upgrading



Functional upgrading is changing the mix of activities within and between links

Intersectoral/inter chain upgrading

- Applying competences acquired in one function of a chain and using them in a different sector/chain;
- Learning what is taking place in one strand of a value chain (e.g., the strand of a value chain oriented toward domestic consumption) applying to another (e.g., the strand of a value chain oriented toward export).

How can SMEs face the challenge of upgrading?

Exploiting the opportunities offered by two different and complementary forms of industrial organization:

1. Clusters

2. Value Chains

Clusters and Value Chains

The analysis of **industrial clusters** is focused on the role of **local linkages** in generating competitive advantages and sustaining the upgrading of SMEs

The **value chain** analysis emphasises linkages with key **external actors**.

Clusters

There are many definitions of cluster

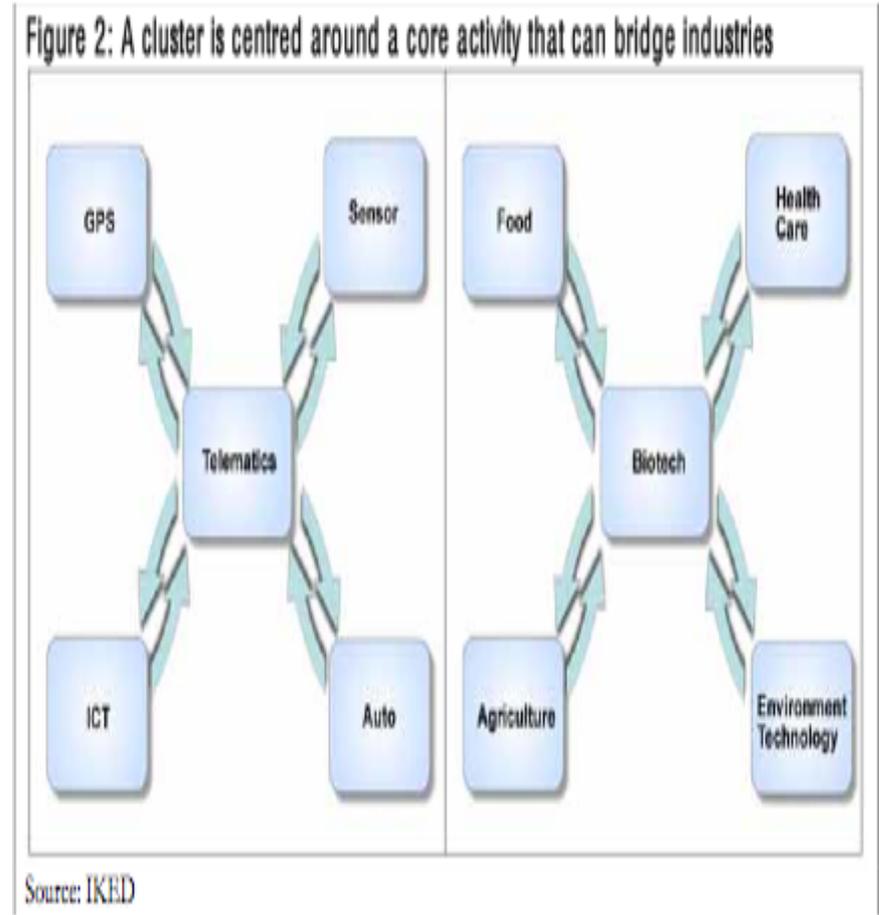
- The “**traditional**” definition elaborated on the basis of the early studies on Italian industrial districts is:
 - Geographic agglomeration of firms in the same sector/sub-sector, involved in interdependent production processes, and embedded in the local community.

The 4 pillars of clusters

- 1 Clusters are **geographically bounded**;
- 2 Clusters are **specialized in one core activity**; 
- 3 There are intensive **vertical** (with suppliers and buyers) and **horizontal linkages**;
- 4 There is a strong and relatively homogeneous **cultural and social background**.

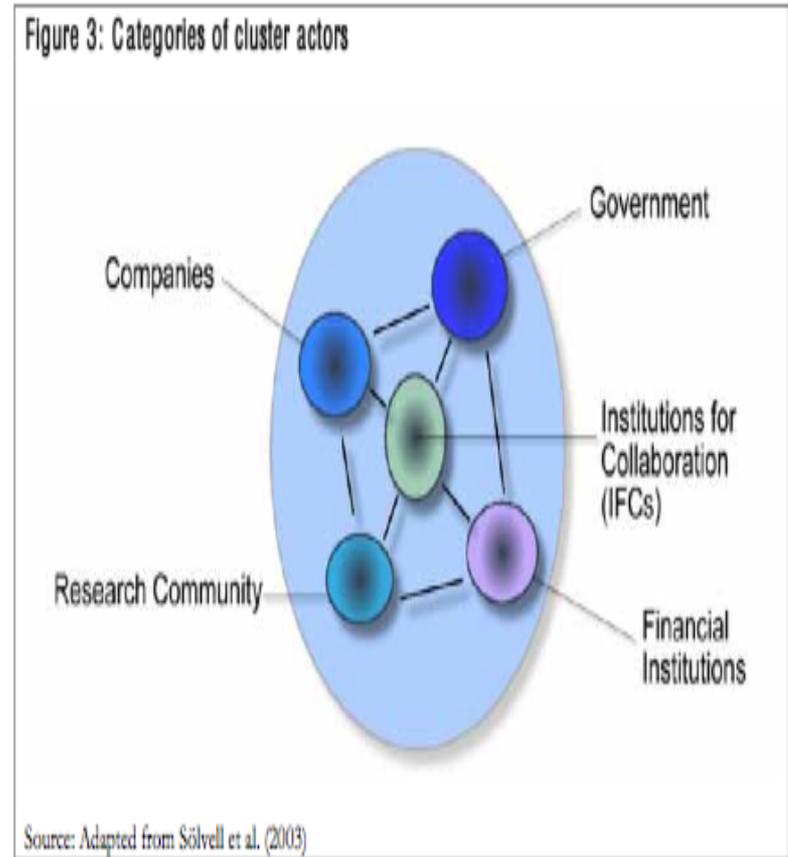
Specialisation

- The specialisation may span numerous sectors, branches and industries;
- Nevertheless, effective clustering is likely to entail a strong element of complementarities between actors.

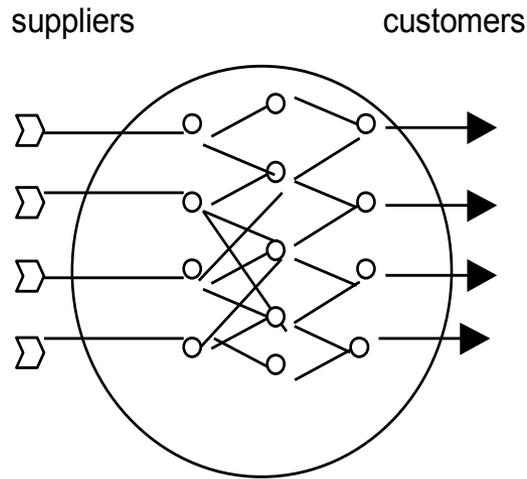


The 4 main categories of cluster actors

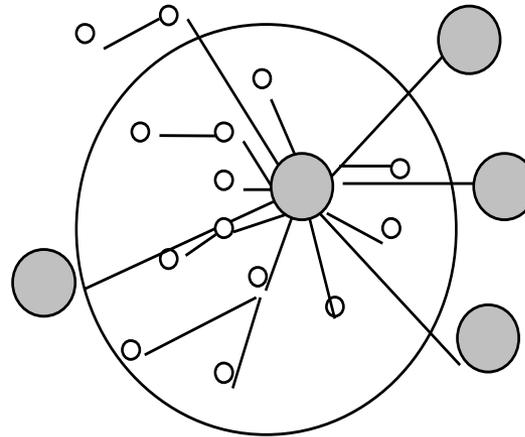
- 1 Firms
- 2 Governments
- 3 Universities and PROs
- 4 Financial institutions



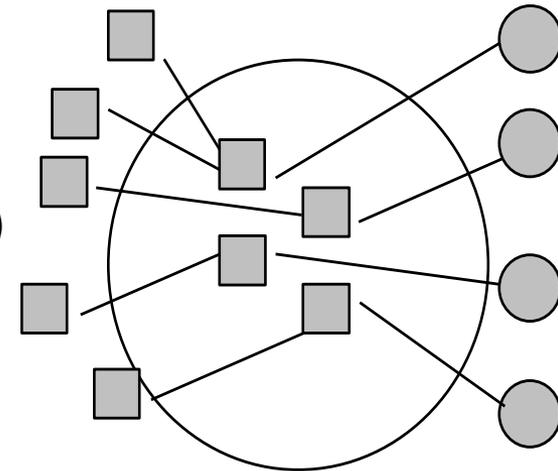
There are many different types of clusters (Markusen's typology)



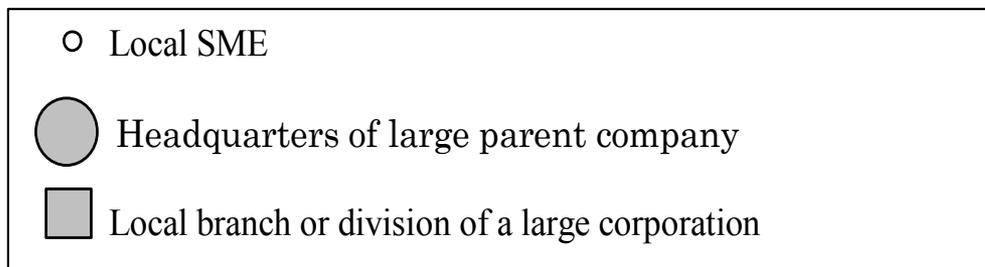
Marshallian ID



Hub-and-spoke



Satellite Platform



Hub-and-Spoke Clusters

- It occurs when one or more firms/facilities act as **anchors or hubs** to the regional economy, with suppliers and related activities spreading around them like spokes of a wheel;
- A single large firm or several large firms may act as hubs, surrounded by smaller and dominated suppliers;
- The spokes may represent strong ties or loose ties, such as agglomeration economies derived from proximity (i.e. skilled labour pool; supply of business services);
- The large hub-firms often have substantial links to suppliers, competitors and customers outside the district;
- These 'long arms' enable the transfer of new ideas and technology to the home region;
- Inter-firm relationships occur between the hub firm and their (often long-term) suppliers, but always on the terms set by the former.

State-anchored clusters

- When industrial activities are ‘anchored’ to a region by a public entity, such as a public firm, a defence plant, a university or a concentration of government offices;
- Politics play a central role in the development of such a form of clusters.
- Some new SMEs may emerge out of specialised technology transfer (e.g. via universities) or business services provided by (or spilling over) the anchor institution;
- Many examples of ‘business parks’, ‘science parks’ or the like, being set up through a government initiative fall within this category.

The presence of anchor firms in clusters

- **Miniature innovation systems** in their own right: supplying incubation space to employees, financing their own start ups, providing technical expertise, product specifications and initial markets;
- They provide a **steady flow of trained people** which small innovating firms can hire;
- They create a **critical mass of experienced managers and workers**;
- They can provide a **customer and supplier base**;
- They have **multiplier effects in terms of a region's local economy for materials and services** (these can range from university graduates to office supply services to raw materials' production).

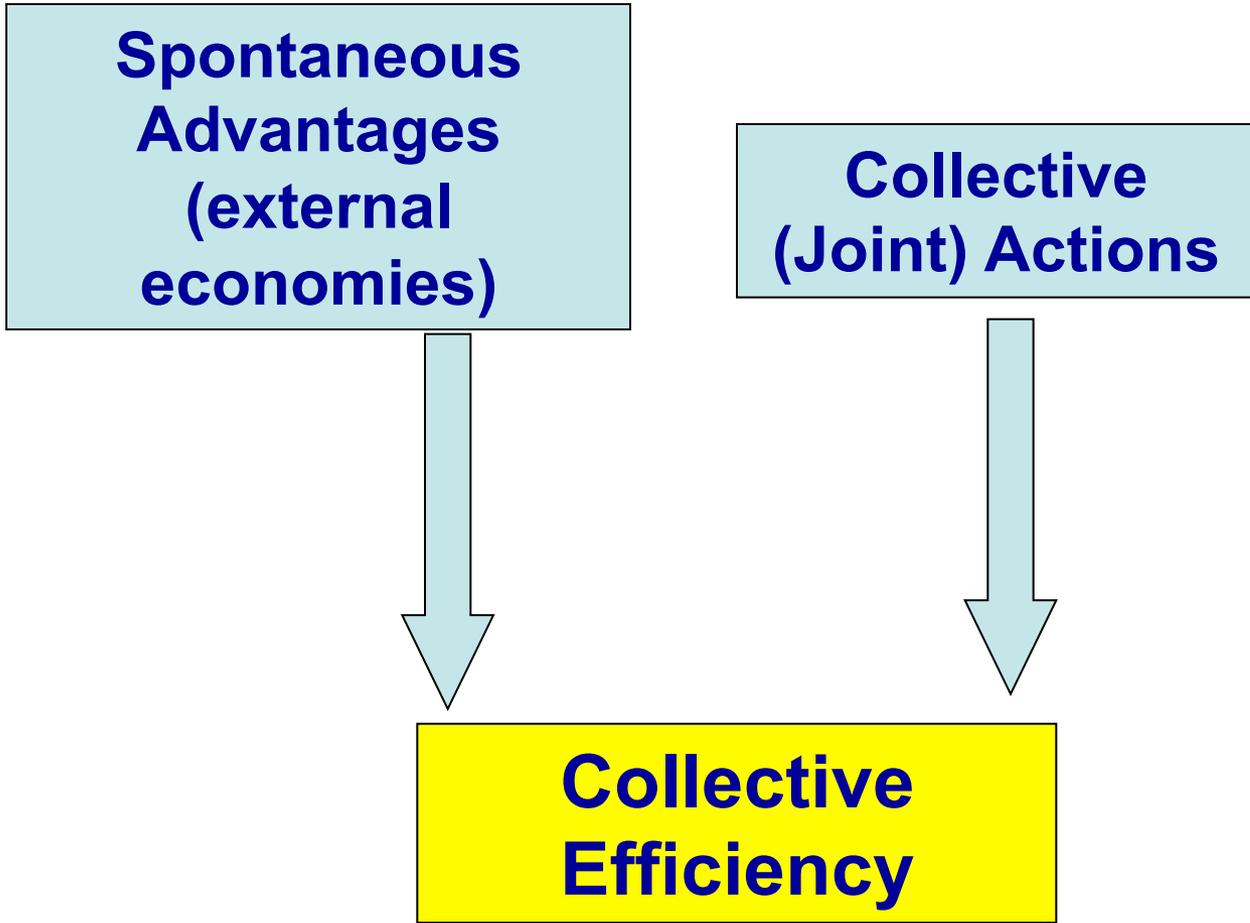
The advantages of an 'anchor' based cluster

- They can focus public resources;
- They can stimulate networking;
- They can facilitate industrial restructuring;
- Large firms can sometimes marshal the resources to assist other companies (in terms of offering valuable personnel support or helping to nurture the cluster for instance).
- They can result in cost savings (localisation economies) in terms of local suppliers, labour, technology and infrastructure.

Collective efficiency

Firms (SMEs) in clusters benefit from **collective efficiency** (from which they derive their competitive advantages):

- **External economies** that may affect (*spillover*) all the firms in the cluster;
- **Joint actions** that may affect some of the firms participating to a cluster.



External economies

- Availability of a pool of **specialized labour force**;
- Cheap and ready available supply of **specialized inputs**;
- Easy access to **specialized technical knowledge** and rapid dissemination of information (informally and formally within business associations);
- Improved **market access**: the concentration attracts customers;
- Relationships based on mutual trust and shared values (**social capital**): easy information access.

Joint actions

- **Joint action within vertical linkages:** backward with suppliers and forward with traders and buyers;
- **Joint action within horizontal linkages between two or more local producers;**
- **Joint action within horizontal multilateral linkages among a large number of local producers;**

Types of joint actions

- Joint purchasing of inputs
- Joint sales (under a collective label), export consortia;
- Joint participation and joint stands in trade fairs;
- Creation of a common website;
- Joint appointment of trade agents in overseas markets;
- Joint after sales assistance units;
- Joint negotiation of shipping or air cargo rates.

Joint actions at the level of business associations

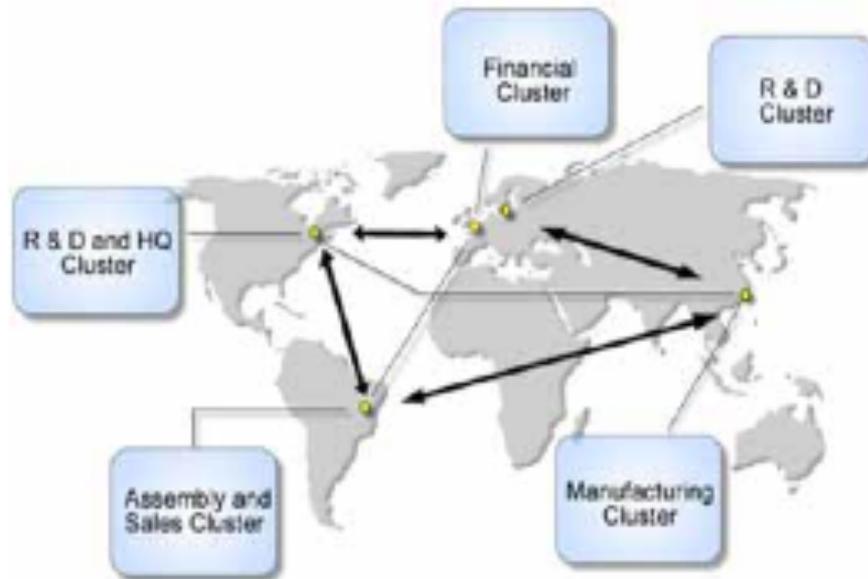
- Collective provision of business services;
- Joint supporting institutions in fields like training, technology information, or export information;
- Political lobbying and active participation in forums which work on shaping locational advantages.

Pitfalls and risks of clusters

- Proximity allows transfer of good practices as well as “bad” practices;
- Proximity facilitates imitation;
- The fear to lose the advantages related to innovation may prevail, and this may induce “free-riding” and under-investments in innovation;
- Clusters may be technologically “locked in” and unable to radically innovate;
- Specialisation can invoke vulnerability for a region

Clusters in the global networks

Figure 4: Global cluster networks

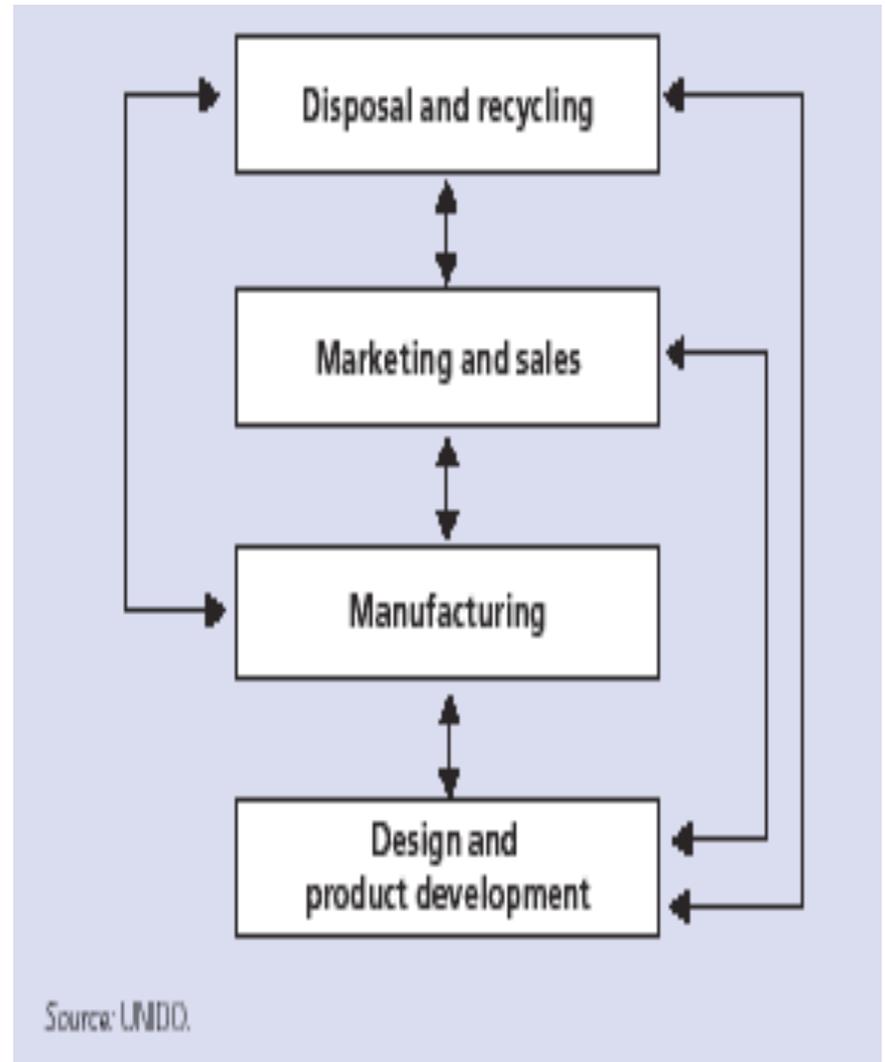


Source: IKED

Value Chains

The simple value chain

- The value chain describes the full range of activities which are required to bring a product or service, through the different phases of production, delivery to final consumers and final disposal after use;



The extended value chain: an example from the forestry, timber and furniture industry

Figure 2: The forestry, timber and furniture value chain

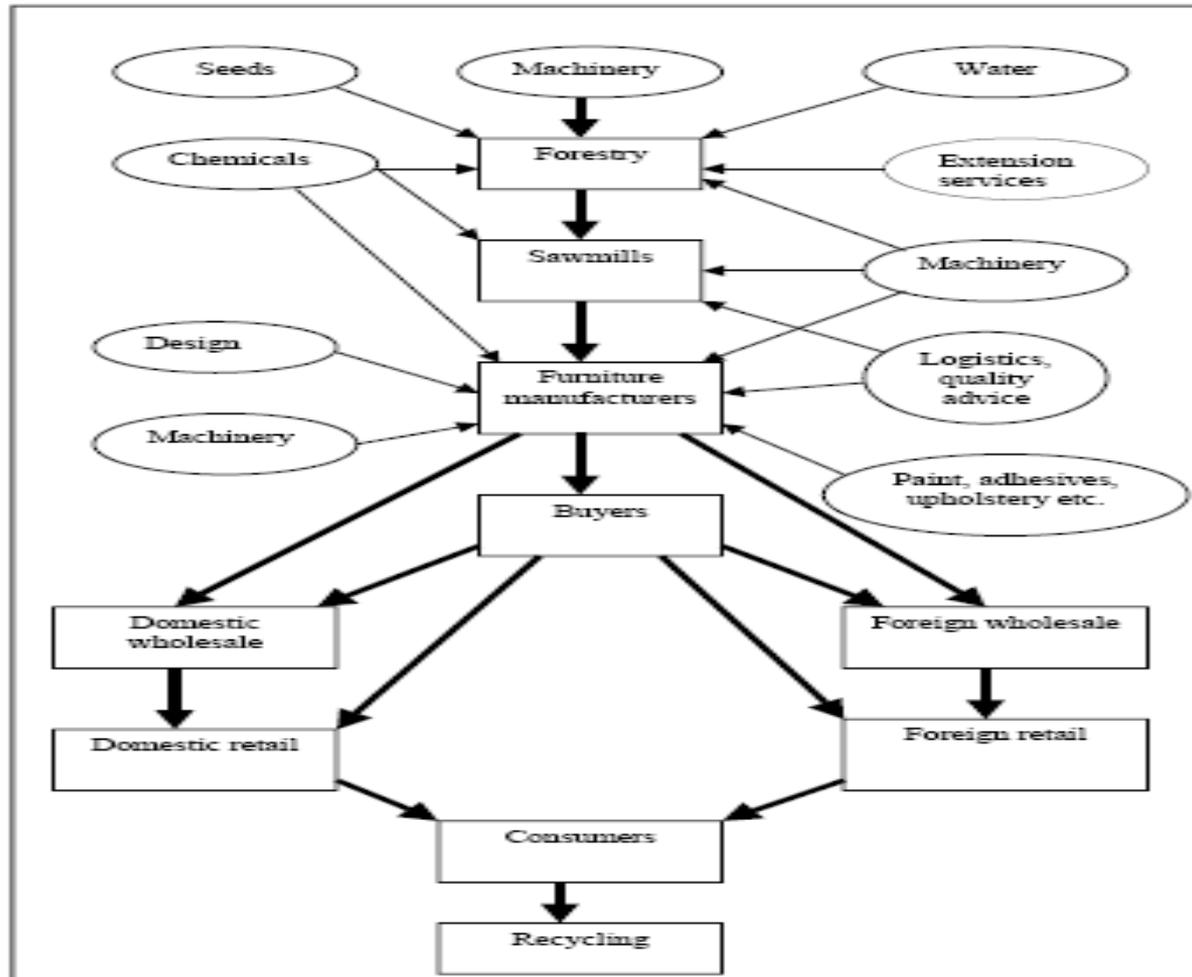
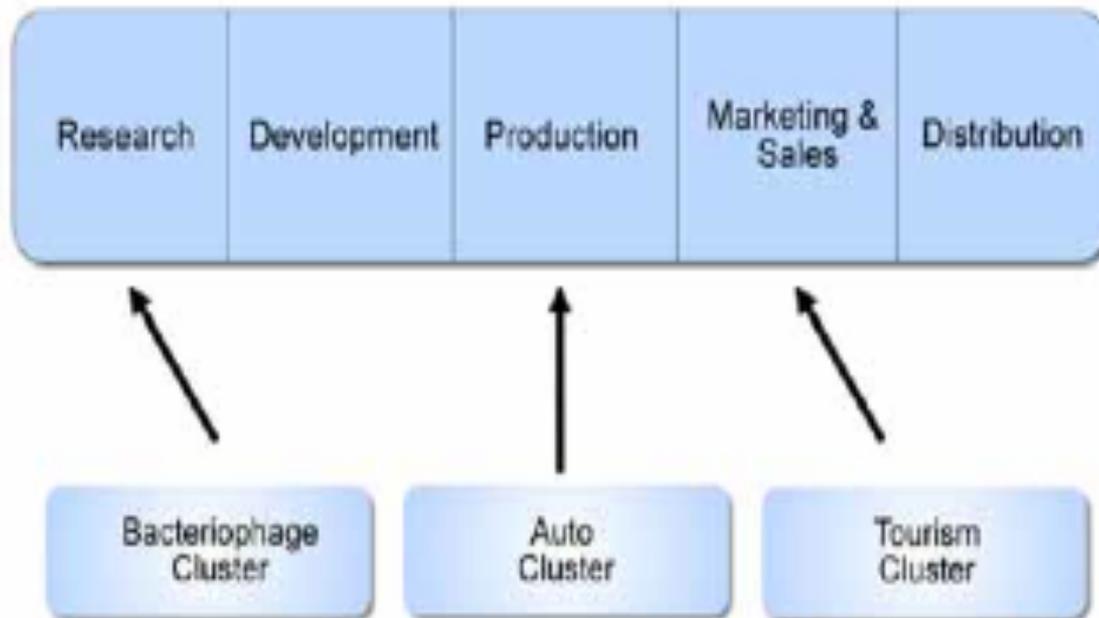


Figure 7: The cluster in the value chain



Source: IKED

Why **Global** Value Chain?

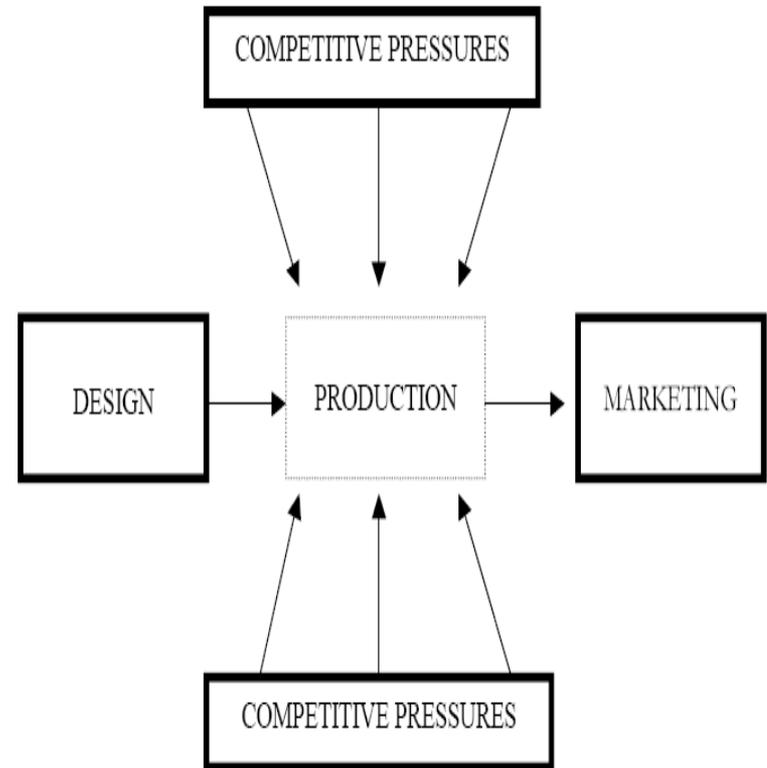
- Because the activities involved in a Value Chain are increasingly carried out in different parts of the world, hence the term **Global**.

Why the concept of GVC is useful?

- Emphasis on **non-production activities** (e.g. marketing; design, sale) for the creation of value added;
- Emphasis on **global buyers and producers as key drivers** in the formation of globally dispersed production and distribution networks;
- Emphasis on **external linkages** are **key channels of knowledge** for SMEs;
- Emphasis on the **nature of the relationships** (governance and power asymmetries) within the chains;
- Emphasis on the **activities that are more lucrative than others.**

Barriers to entry and rents

- Some activities add more value than others and therefore it becomes crucial to identify which activities are providing higher rents along the value chain;
- These differences among activities are relevant in order to understand opportunities open to firms' competitiveness and upgrading.



Who captures value in Apple's iPod?



- Apple captures the most of value (224 \$ over 299\$);
- Suppliers of key inputs also gain a good share of value:
 - 7 key inputs: 83 \$;
 - 444 remaining inputs: 28\$
- Trade statistics may lead to a wrong conclusion (is a made in China IPOD a chinese or a US product?).

Who is governing the chain?

- At any point in the chain **governance and coordination** of the following is required:
 - What is to be produced (design of products);
 - How is to be produced (definition of the production process: technology, quality standards);
 - How much has to be produced.

Different types of value chains according to governance

- **Market chain:** firms buy and sell products to one another with little interaction beyond exchanging goods and services for money,
- **Modular value chain:** when suppliers make products to a customer's specifications;
- **Relational value chain:** when there are complex interactions between buyers and sellers, which often creates mutual dependence and high levels of assets specificity (spatial proximity, family or ethnic ties);
- **Captive value chain:** when small suppliers are dependent on much larger buyers. Suppliers are 'captive' in the chain;
- **Hierarchy:** when there is vertical integration from headquarters to subsidiaries.

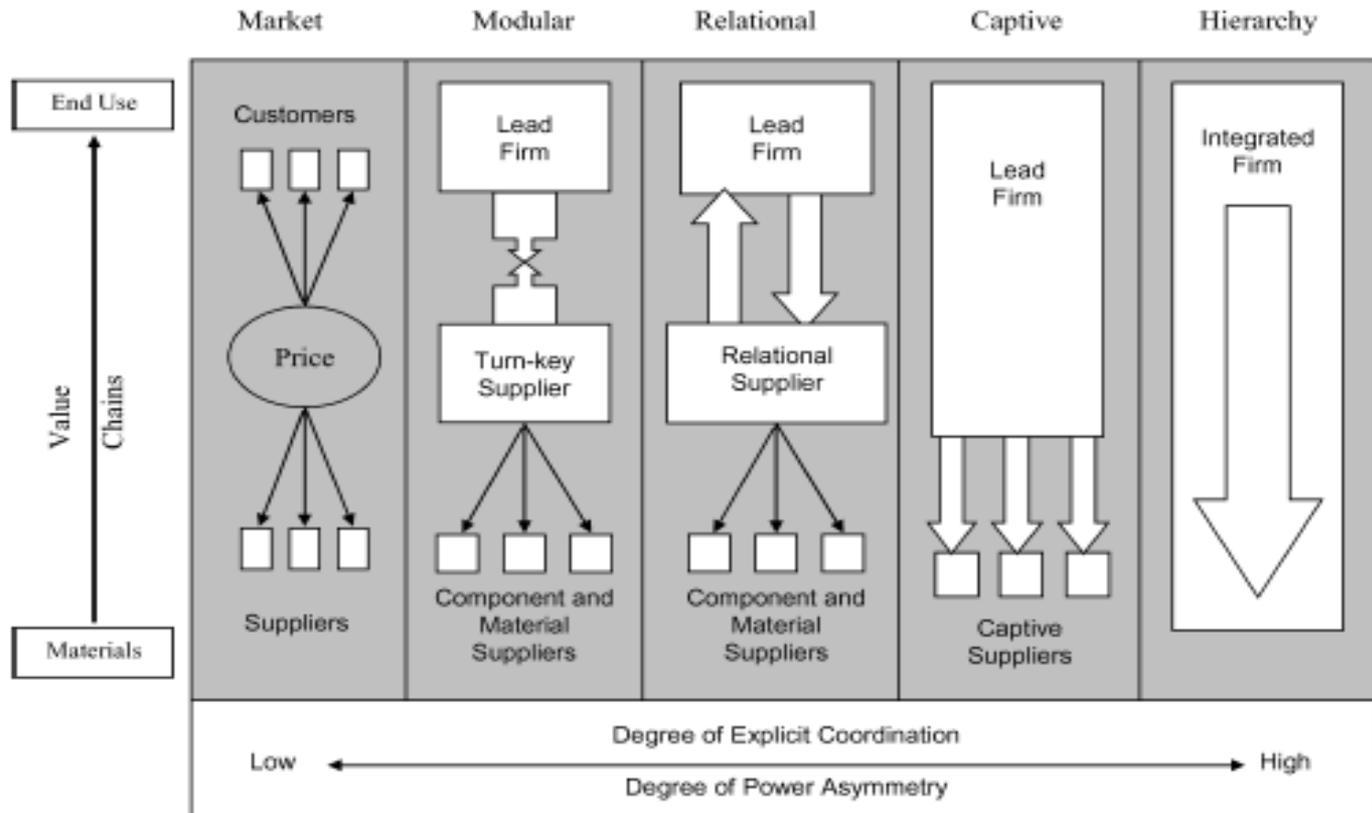


Figure 1 Five global value chain governance types.

Policy action to support SMEs in clusters and value chains: 'what works'

Thank you!

rabelotti@eco.unipmn.it

For related works visit

<http://sites.google.com/site/robertarabelotti/home>

The life cycle of clusters

Clusters are dynamic and the intervention that are appropriate at an early stage are likely to differ from those appropriate at later stages.

