

# Clusters and institutions

## Towards a reassessment of the role played by local institutions in the transfer of knowledge and the setting of local networks

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# Introduction

- It is time for a critical assessment about:
  - clusters and other types of localized systems of production;
  - the role of geographical proximity in knowledge transfer
  - the role played by institutions in the clustering process

# Introduction

- The aim of the paper (based on an empirical study about optics activities in IDF Region)
  - to come back to the notion of cluster
  - to look for a possible optics cluster in the Paris Region (knowledge exchange between local firms???)
  - to assess the role of local institutions in the setting and functioning of clusters

# **I. A quick critical appraisal on clusters**

# I. A quick critical appraisal on clusters

- Definition

A rather vague notion... but successful...

The term cluster was firstly used for success stories (ex.: Silicon Valley, with high tech industries, or Nokia, a cluster dealing with technical complementarities and subcontracting relations)

A notion which has been expanded to various types of local systems of production

Nowadays, local or national policy tool (OECD)

# I. A quick critical appraisal on clusters

- The reasons of a success. Four major theoretical insights:
  - a system based on the notion of knowledge economy
  - a framework for collective action (network externalities)
  - vertical (quasi) integration between local firms
  - the crucial role given to the relations with other production systems or firms

# I. A quick critical appraisal on clusters

- Back to the clusters. A simple definition based on two key elements

## Organization of inter- firm relations

*Strong*

*Weak*

<b>Localisation of inter-firm relations</b>	<i>Strong</i>	<b>1. Cluster a la Porter</b>	<b>3. Cluster based on local resources /agglomeration due to the region's history</b>
	<i>Weak</i>	<b>2. Cluster without local foundations</b>	<b>4. Sparse activity</b>



# I. A quick critical appraisal on clusters

- And what about the role of institutions in the process of clusterization?
- Do clusters are “natural” regroupings of firms or individuals (embedded in the history of societies)?

## **II. Ile de France**

### **The main findings**

# II. Ile-de-France. Key figures of the optics industry

Region	Number of employees in the optics industry (2003)	Share of the « département/region » in 2003 (%)	Evolution of the number of employees in the optics industry (1992 – 2003)
Paris	880	4,2 %	- 57,4 %
Seine-et-Marne	2278	11 %	- 2,7 %
Yvelines	6653	32,3 %	+ 34,9 %
Essonne	3250	15,8 %	- 11,3 %
Hauts-de-Seine	2651	12,8 %	- 63,3 %
Seine-St-Denis	876	4,2 %	- 50 %
Val-de-Marne	2411	11,7 %	- 39,4 %
Val d'Oise	1591	7,7 %	- 53,2 %

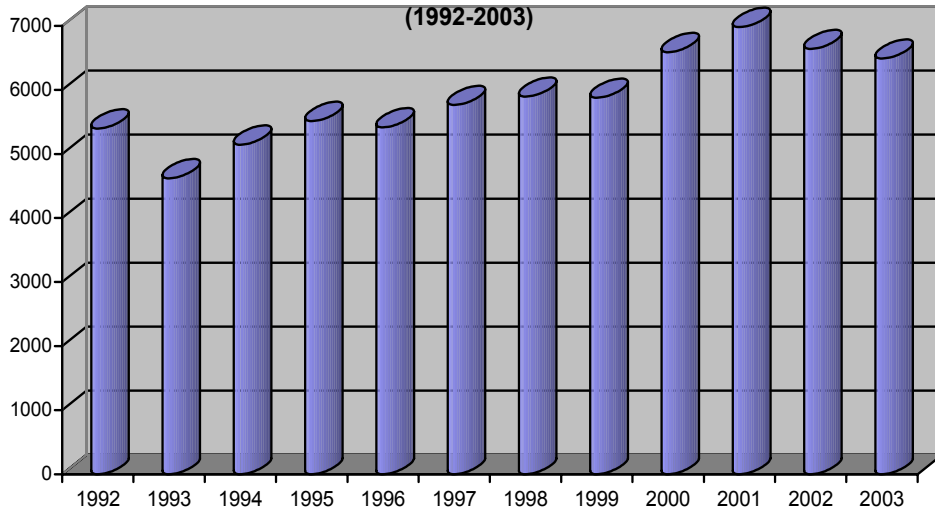
Source : Unistatis, 2006

The Ile-de-France region has experienced a very sharp decrease in the number of employees in the optics industry during the 90's (- 30% over the 1992-2003 period).

This decrease has not affected in the same way all the “départements” of Ile de France

# II. Ile-de-France. Key figures of the optics industry

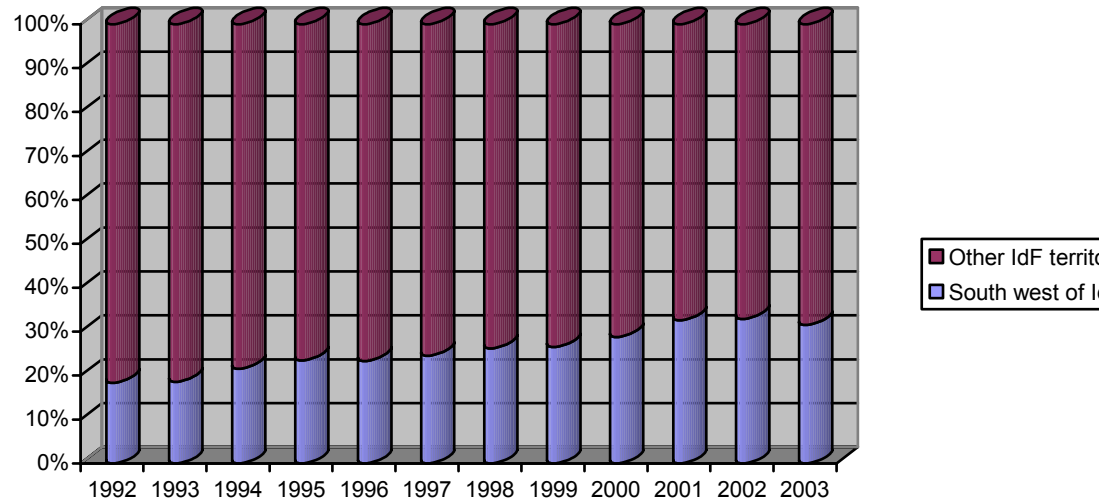
Number of employees of the optics industry localised in the south west of Ile-de-France (1992-2003)



The size of the optics industry in the south west of Ile-de-France has been growing between 1992 and 2003 (cluster effect?)

Source : Unistatis, 2006

Share of the south west of Ile-de-France in the regional optics industry (% of employees)



The share of the south west part of Ile-de-France has been constantly growing during this period (from 15% of the regional optics industry in 1992 to 30% in 2003)

# II. Ile-de-France. The main findings

## **Local optics med tech firms** maintain mostly simple client-supplier links

- Med tech sme's sell to large firms and public laboratories
- Most of the products sold have well known and stabilized technical specifications (mature products)
- Rather instable commercial links and with quite limited knowledge exchange.

## **Local optics high-tech firms and start-ups** have more intense local links with labs and large firms

- Necessity of important feedback in order to develop new products
- Face-to-face contact necessary to have successful interaction.
- Co-localization makes it easier for the firms to interact, but is not compulsory (use of temporary geographical proximity)

## **Existence of negative effects of geographical proximity**

- Periods of rapid growth reduces the availability of quality workforce for sme's.
- Existence of permanent congestion effects (Large city-region)

# II. Ile-de-France : Important local interactions between large firms and sme's

	Firms (Client)	SME1	SME2	SME3	SME4	SME5	SME6	SME7	SME8	SME9	SME10	SME11	SME12	SME13	Large firm 1	Large firm 2	Large firm 3	Large firm 4	Large firm 5	Large firm 6	Large firm 7	Large firm 8	Large firm 9	Large firm 10	Large firm 11
SME (Suppliers)																									
SME 1																				1A	1A			1A	
SME 2															1A	1A	1A							1A	
SME 3																		3B		2A					
SME 4															3B		2B								
SME 5																						2B	2B		
SME 6																			1A		1A				3C
SME 7															3C		2B								
SME 8																									
SME 9																									
SME 10																				3C					
SME 11																						3C			
SME 12																									
SME 13																									3C

1 = Occasional local relation

2= Weak but constant local relation

3 = Strong and constant local relation

A = simple client-supplier link

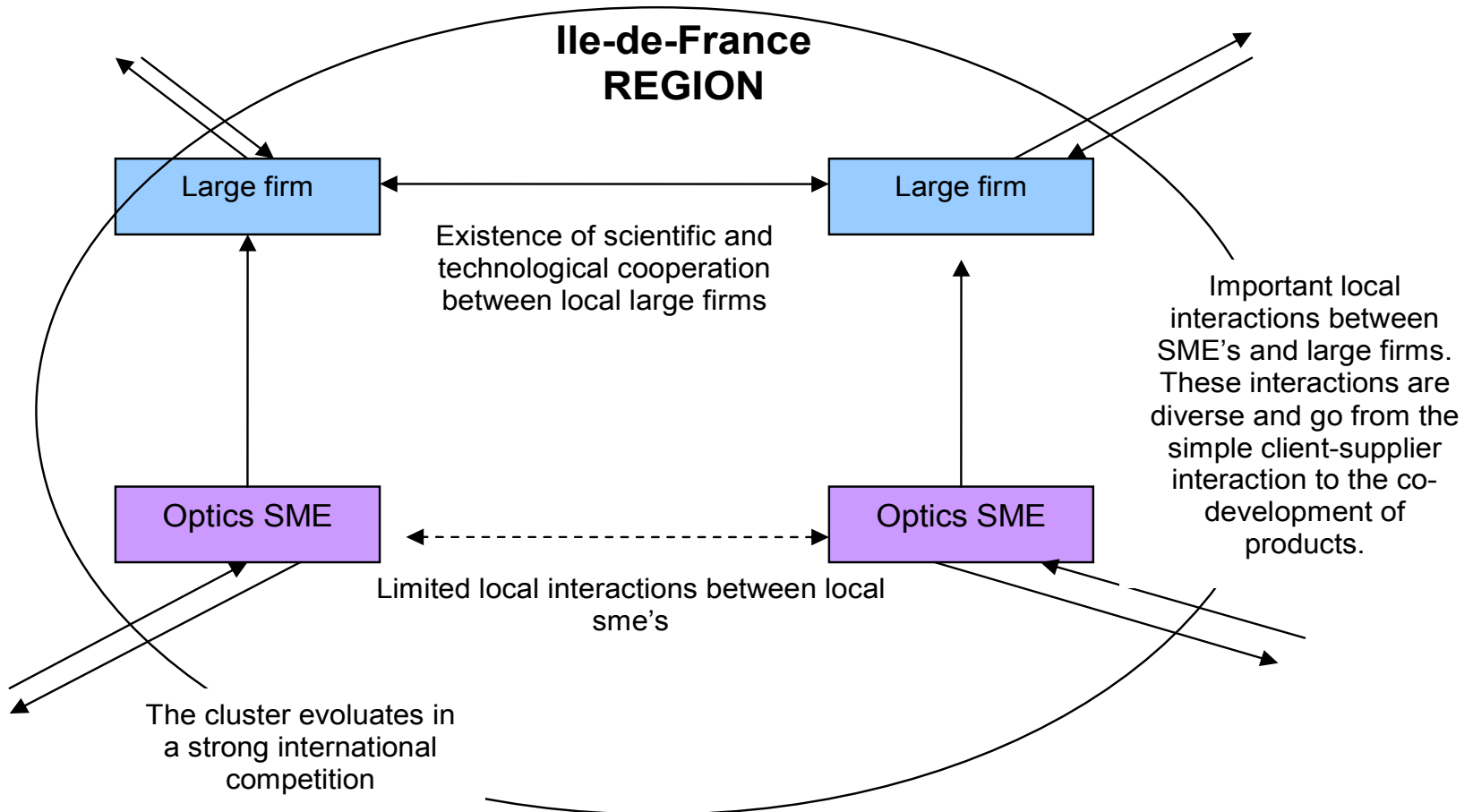
B = client-supplier link with limited feedback

C = co-development of products

- 3 main types of “Hierarchical” local interactions (not all cluster type) :
  - Large firms buy products from local sme's (when they are competitive at a global level)
  - Local interactions between large firms and sme's imply quite weak knowledge exchange
  - Co-development of products between large firms, and between large firms and

# II. Ile-de-France OS: A hierarchical cluster

The Ile-de-France Optics cluster : a hierarchical cluster



## **III. Ile de France**

**The 'institutional cluster'**



# III. Ile de France. The ‘institutional cluster’

- Several institutions (regional and national) are involved in the regional innovation system :
  - **Pôles de compétitivité**: Impulse from the national level; financial support from national and local governments (Conseil Régional, Conseil Général, Communautés d’agglomérations, cities)
  - **Local cluster organizations**: Impulse from the regional level and « département ». Totally funded by regional government (Opticsvalley since 1999).
  - **Local innovation support institutions**: (CRITT, Comité d’expansion économiques...): Supported by the region or “départements”.
  - **National innovation support institutions**: (Oseo, ANR, All...) : created and financed by the national government, but support might have regional impact.

### III. Ile de France. The “institutional cluster”

- Major links between local institutions and firms :
  - Institutions that have subsidies or which can provide financial support to Sme’s (CRIF, CG, CRITT, OSEO...)
  - Local technical networks that can help sme’s solve problems (Réseau Mesure Val d’Oise)
  - Institutions that support knowledge transfer, mainly between public research and sme’s (CRITT).
  - Institutions that provide a specialized network and can facilitate the local interactions between Sme’s, large firms and public labs (Opticvalley, Genopole). (new policy since end 90’s)

# III. Ile de France. The “institutional cluster”

	CRITT	OSEO	Opticsvalley	Genopole	CCI	Comité d'expansion économique locale	Ile-de-France Développement	RMVO	Pôle de compétitivité	All	ANR
SME 1	X	X			X						
SME 2			X								
SME 3	X										
SME 4			X		X						
SME 5			X		X		X				
SME 6			X								
SME 7	X	X			X	X		X			
SME 8	X	X	X						X		
SME 9	X		X		X						
SME 10	X				X						
SME 11			X						X		
SME 12			X								
SME 13	X	X	X	X							
Large firm 1			X						X	X	X
Large firm 2									X	X	

- major and strong links between sme’s and local institutions that support economic development and innovation
- every firm has its own set of local relations with institutions, depending on their needs (exportation, innovation...)

# **Conclusions**

## **The role played by local institutions**

# Conclusions. The role played by local institutions

- They play the role of central organizers :
    - key role in the definition of cluster policies
    - they decide the location of the cluster and the technologies to support
- This role is obvious in several French regions (concerning the poles de compétitivité policy)

# Conclusions. The role played by local institutions

- They promote the image of the local system of production abroad
- They provide subsidies to support local innovation and to reinforce the local economy.
- They improve local entrepreneurship potential (creation of incubators, nurseries, support to the creation of start-ups, financing of venture capital funds)

# Conclusions. The role played by local institutions

- They help in building local networks and cooperation relations between local firms
  - they ease interactions between local economic actors
  - they organize meetings between the local actors
  - they reinforce learning mechanisms between local firms and institutions