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**Restructuring and innovation in a one-company town.  
The case of Ferrol**

**Summary:**

This report analysis the processes of restructuring and innovation in Ferrol, a one-company town. It is based on fourteen field reports developed by students of the Department of geography at the University of Bergen in spring 2001. The paper starts with a theory discussion focusing on the concepts of regional development, restructuring, and innovation. We analyse the main effects of the industrial restructuring process in the 1980s and 1990s and the potential of present regional development efforts. Ferrol has been characterised as a town in deep crisis. It has experienced many of the negative impacts of restructuring in the past decades. The naval sector has reduced its staff severely, and auxiliary industries have suffered. But, summing up our research results, Ferrol turns out to be a dynamic community characterised by people deeply involved in projects that set in motion promising processes of change.

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## **Restructuring and innovation in a one-company town The case of Ferrol<sup>1</sup>**

### **1 Introduction**

In April-May 2001 the University of Ferrol and the Chamber of Commerce of Ferrol<sup>2</sup> invited 30 Norwegian students and two professors from the University of Bergen to a two-week field course in economic geography. This report is based on fourteen field reports developed by the students and concentrates on discussing relations between globalisation processes, industrial restructuring and economic development in Ferrol.

Our research questions are:

- What were the main effects of the industrial restructuring process of Ferrol in the 1980s and 1990s?
- What are the main characteristics and potential of present regional development efforts of Ferrol?

The paper starts with a theory discussion focusing on theory of regional development, restructuring, and innovation (section 2). We then outline a model of restructuring and innovation based on a multi-level theoretical approach. In section 3 we discuss the restructuring of Ferrol in the 1980s and 1990s, concentrating on analysis of demographic change and employment patterns; the naval sector; and peoples conceptions of the labour market in Ferrol. We also discuss whether the young generation has lost its confidence in the place of Ferrol. In section 4 we discuss the relations between the present innovation capacity of Ferrol and strategy of restructuring in the Bazan company; the establishment of CIS (the innovation centre); wind-mill production; and the potential for development in the tourist and fishery sectors.

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<sup>1</sup> This article is based upon empirical data from 14 field reports referred to as Lindkvist, K.B. & Fløysand, A. (eds.) 2001. Ferrol – industriby i omstilling. Contributing authors are specified in References.

<sup>2</sup> We thank the following institutions and persons in Ferrol for all help: the University of La Coruña Campus Ferrol (Vicerector Manuel Recuero Astray and the Dean Victor Alonso Troncoso), the Ferrol Chamber of Commerce (Sr. Francisco Cruz Cenra), the Iszar company and the Escuela de energia y propulsion del Armada (Sr Alberto Lens Tuero). Also help from Bergen Chamber of Commerce (Helge Dyrnes and Torolf Rein) has been much appreciated.

## **2 Theory**

### **2.1 Theory of regional development and restructuring**

Throughout the last decades economic and regional geographers have analysed fundamental transitional processes on the global scene that have changed essential aspects of international economy (Gore 1984, Lee and Wills 1997, Dicken 1998, Knox & Agnew 1998). They have referred to the accelerated internationalisation of economic processes such as more offensive finance systems, new technologies of information and production, new modes of production, new forms of political regulations and increased influence of culture upon economy and production. The results of this internationalisation are compression of time and distance; increased integration of actors across borders; increased competition and the need for restructuring of industries and regions.

Peripheral regions are the first to be hit by the consequences of accelerating internationalisation. Many of these are dependent upon resource-based industries. If these industries experience difficulties their complementary economic base is often too weak to keep the region outside the pains of restructuring or closure of businesses. Regions characterised by economic concentration upon one or a few companies may also come into similar restructuring problems when facing increased internationalisation. The problems of such regions are also their lack of economic diversity. One-company towns can serve as examples. In such towns a single factory may dominate the industrial settlement, often as part of a larger externally controlled economic organisation. When the dominant industry goes through phases of expansion, moderation and decline (whatever the reason may be), the economic and everyday life of the town and region is influenced as well. One typical characteristic of one-company towns is the interdependence between occupational structure and demographic components. "In times of economic crisis, one-company towns would therefore be worse off than more diversified urban settlements" (Hansen 1995, 53). But, also in times of increased internationalisation in forms of more offensive finance systems, new technologies of information and production, the companies may experience that markets for their products are diminishing or that the former location advantages are turned into disadvantages for other reasons (Hansen 1995).

The process of accelerated internationalisation is also linked to new forms of political regulations. In recent years political power has been transferred to new institutions and administrative levels. This is especially the case with regulations executed through market transactions (Jessop 1990, Lash & Urry 1994, Sayer 1995). Thus, during the last years an endogenous strategy for regional development has received increased interest - i.e. a strategy where regional development is supposed to be based on natural and human resources of the regions in question. Politicians as well as social scientists (Simon 1990, Isaksen 1995, Morgan 1997, Hansen & Selstad 1999) have given this strategy considerable support. The argument is that successful processes of restructuring should focus on small- and medium sized firms; product innovation and diversification; and local values and beliefs (Hansen 1995). Unfortunately, the firm structure of one-company towns does not fit into this strategy, and the capacity for product innovation and diversification both within the dominant factory and in the manufacturing settlement outside the factory walls is normally very modest (Hansen 1995).

Our point is that accelerated internationalisation of economic processes and new forms of political regulation increase the influence of local conditions upon economy and production, but that such conditions can be advantageous as well as disadvantageous in a restructuring process. Together with the built environment and natural resources, systems of knowledge and institutional informal rules of conduct are part of the capabilities of a production milieu (Maskell et al.1998). Systems of knowledge and institutional informal rules of conduct can give firms in one-company towns, and natural resource regions competitive advantages in the market. However, the marginalisation of firms in one-company towns and natural resource regions in the internationalisation process, indicates that systems of knowledge and institutional informal rules of conduct can also be disadvantageous. Particularly in one-company towns there is a considerable risk of creating a "lock-in" situation (Grabher 1993). Intensive internal relation in the dominant company and group thinking can be responsible for processes of functional lock-in if the firms lack competitive pressure, stimulus from the outside and incentives for being vital (Hassink 1996). Processes of degradation can also take place if specific rules of conduct prevent regions from reorganising when the market and the technology are changing. In general, it is also difficult to un-learn traditional successful routines when they start to work against

future success (Maskell and Malmberg 1999). Thus, existing collective knowledge system and informal rules of conduct can direct development into special “trajectories” and become an obstacle for future development of a one-company town, but also function as a stimulus for innovation and regional development.

## 2.2 Theory of innovation and learning

Innovations are defined as the implementation of a new idea, a new product or a new principle of organising the production process (Schumpeter 1934). A successful restructuring depends upon innovations (Chapman and Walker 1992, Hayter 1997). Innovations increase efficiency in production and organisation by reducing labour costs; in implementation of new technologies; by reorganising the production process; or by introducing new design-intensive, higher quality products in new markets.

Table 1: Types of learning with relevance for innovation processes,

Learning by doing	(Arrow 1962)
Learning by using	(Rosenberg 1982)
Learning by operating; learning by changing; system performance feedback; learning by training; learning by hiring; learning by searching	(Bell 1984)
Learning by learning	(Stiglitz 1987)
Learning by trying	(Fleck 1994; Rosenbloom and Cusumamo 1987)
Learning by interacting	(Lundvall 1988)
Learning by selling	(Thomson 1989)
Learning from inter-industry-spillover	(Malerba 1992a)
Learning to borrow	(David 1993)
Learning by failing	(Bahrami and Evans 1995)

Source: Malecki 1997,59; Cooke 1998,13

Innovations are connected to the technology concept by the focus on new products, new production processes and new forms of organisation. The concept of technology includes all types of knowledge (Malecki 1997, 5). Thus, the capacity to create new knowledge is crucial for one-company towns challenging increased international competition. Table 1 shows different forms of learning discussed by social scientists. Actors and institutions with knowledge and power to govern the processes in certain directions can apply different types of learning.

Learning processes can be based on local initiatives, but normally the initiatives are developed through interactive networks of different geographical scales. Finally, authorities on different geographical levels may take measures to stimulate industries and districts to renew or restructure themselves or even put pressure on them for the same reasons.

### **2.3 A multi-level model of innovation**

The regional geographical level has been in focus when the spatiality of innovation systems has been discussed. The concept of ‘regional innovation system’ is part of the evolutionary economics tradition of the end of last century. An innovation system has normally been defined as a complex of interactive social institutions and actors limited by geographical proximity at regional level (Asheim & Isaksen 1997, Cooke 1998, Cooke, Boekholt & Tödling 2000). The concept refers to a system of social interactions between specific actors from different sectors of society in order to stimulate development and changes in economic organisations relating to products, processes and organisation. Participants in this innovation system range from universities, research laboratories, technology producers, training agencies and regional authorities. The concept of ‘system’ implies that relation flow freely between the different actors and sub-systems in order to solve innovation problems or fill up occurring lack of skills through the training agencies.

However, increasing internationalisation indicates that one should be careful of limiting innovation systems to a fixed geographical level. We suggest a multi-level spatial classification system consisting of three types of innovation systems that can all be related. We talk about a *local innovation system (LOCIS)* when the system is dependent on actors, institutions, events and processes at ‘community’ level; a *regional innovation systems (REGIS)* when the system is dependent on actors, institutions, events and processes at regional level; and a *global innovation system (GLOBIS)* when the system is dependent on actors, institutions, events and processes at international level.

Figure 1 describes LOCIS as a system consisting of many small and medium sized firms (with or without a dominating company) which interact both on a formal and informal basis. Local practices develop a local innovation culture and the local actors

take initiatives to technology transfer and innovations (Cooke 1998). In LOCIS, networks are characterised by trust between participants, a co-understanding of the benefits of collaboration and the practical exercise of collaboration in networks. Such factors *enhance the local innovative capability through synergetic and collective learning processes* (Camagni 1991,3). The principal actors who dominate the local environments may, however, suppress behaviour and expressions, which are not tolerated by acceptable norms and values. As a consequence *dissonance within the district becomes muted* (Cooke 1998, 9). The result may be that *institutional forms and ways of viewing the world that at one time were extremely relevant to a particular economic structure become a problem in seeking to adapt and move to a new structure and development path as the old economic rationale is destroyed* (Hudson 2000, 180). This is called a system weakness attached to the environment and the local production systems. This is not a problem, however, until the local system experiences an exogen chock like a decline of demand (Cooke 1998, 9).

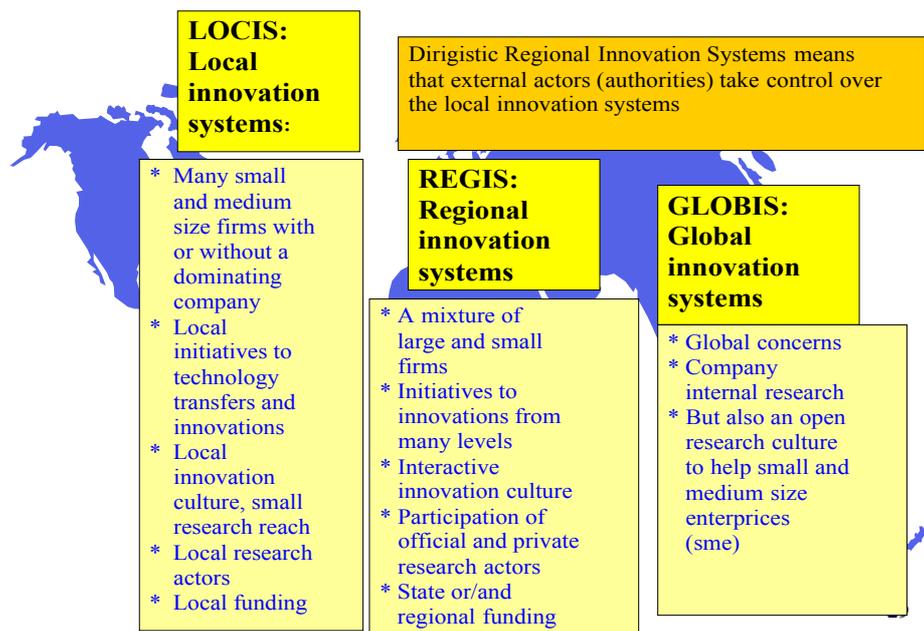


Figure 1: Regional Innovations Systems, a multilevel model

On the next geographical level the more authoritative regional innovation system, REGIS, is found. Here actors are included who contribute to the innovative processes, like participants from universities (regional or national), research laboratories,

technology producers and training agencies. Within an interactive system characterised by an innovation culture, initiatives to innovations come from many levels. The spatial action arena is regional, including relational fields stretching longer or smaller distances from or within the communities.

Large corporations dominate the GLOBIS. Their research functions are internalised and the companies have the necessary means to support their research staff to ensure their ability to innovate. According to Cooke (1998) such companies also include an open research culture to help small and medium size enterprises (SME). If a large company dominates a town, its relational fields may stretch to the regional or the national capital, and to universities in other parts of the country. But it may also be a member of a global innovation system. This specification of relational fields allows the large participant to be member of the LOCIS and the REGIS, as well as the GLOBIS. They are multi-level functioning.

### **3. The restructuring of Ferrol**

#### **3.1 Introduction**

The main concern of our visit in Ferrol (Figure 2) was to study relations between globalisation and industrial restructuring, characterised as “the global shift”, in the community of Ferrol. A main characteristic of this process is increased competition and internationalisation and, for older industrialised towns such as Ferrol, de-industrialisation. The people of Ferrol have experienced many of the negative impacts of this shift in the past decades. On this background Ferrol has been characterised as a town in deep crisis both by outsiders and insiders. This was reflected in the information we received about Ferrol before we left Norway. It painted a picture of a town marked by de-industrialisation, depopulation, unemployment and social disintegration. People were described as disillusioned and paralysed without prosperity in their town and future. In this section we look into some of the events and processes that can explain the constructions of such negative characteristics of Ferrol by asking the following question:

- What were the main effects of the industrial restructuring process of Ferrol in the 1980s and 1990s on demographic change and employment patterns; the naval sector; and people`s conceptions of the labour market in Ferrol?



Figure 2: The city of Ferrol

### **3.2 Demographic change and employment patterns**

The population of Ferrol increased from approximately 25000 in 1900 to more than 90000 in the 1980s, but decreased to approximately 80000 during the 1990s (figure 3). This reduction of population in Ferrol was mainly caused by the crisis in the naval sector (see 3.3). In the last five years the population rates have been relatively stable.

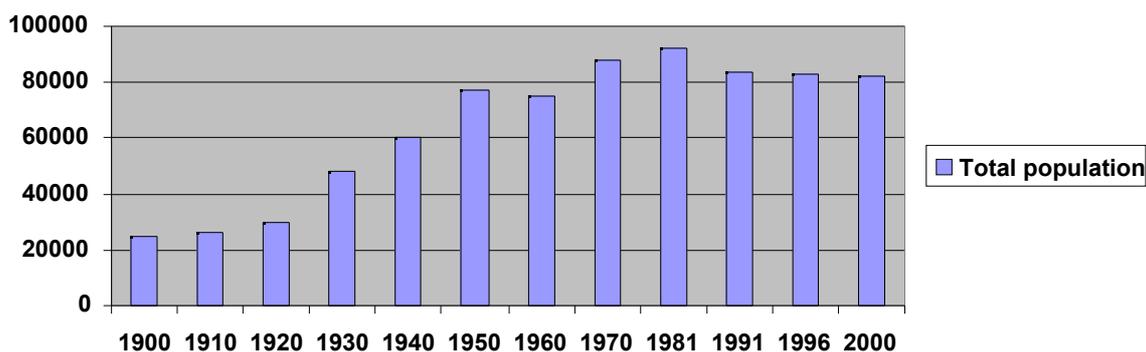


Figure 3: Population in Ferrol 1900-2000

Table 2 shows that the employment structure of Ferrol differs from the national structure in two aspects; the employment in primary sectors is lower than the national average, while the employment in secondary sectors is higher than the national average. The tertiary sector employs almost two thirds of the working population in Ferrol (as in Spain). Trade, hotels and wholesale commercial businesses account for approximately half of the tertiary employment. The primary activities in Ferrol are of little importance. Only 2 percent of all jobs are found within agriculture and fisheries.

Table 2: Employment structure of Ferrol 2001 (N= 22000)

	Primary sectors	Secondary sectors	Tertiary sectors
Spain	8%	28%	64%
Ferrol	2%	34%	64%

Sources: [www.elferrol.com](http://www.elferrol.com) and [www.ferrol-concello.com](http://www.ferrol-concello.com)

In spite of the dominance of the tertiary sector, the manufactory industry is very important. Together with the adjacent towns of Narón and Fene, Ferrol is the third largest industrial centre of Galicia. The basic industry activities are shipbuilding and metal processing in companies such as Bazán, Astano, Talleres Cachaza or Hanafesa. These companies employ around 90 per cent of all industry workers. Textile production is increasing its activities in the town.

### 3.3 Restructuring and the naval sector

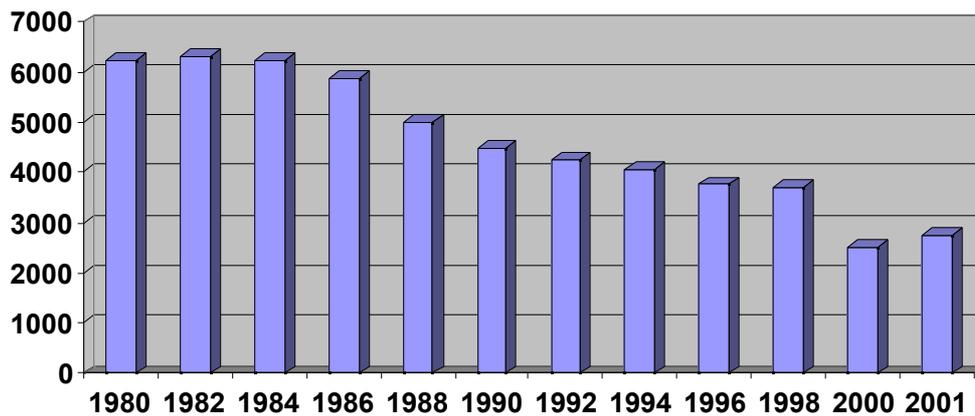
At present, the former Bazan (now Izar Company) is the most important company in Ferrol. Bazan has been located in Ferrol since 1726 and its main activity has been construction of military vessels. Both before and after privatisation in 1946 the company has been a cornerstone company for the Ferrol region. Later the State took over the shipbuilding enterprise, and up to 2001 the company has been allowed only to build military vessels, which has integrated the company even stronger into the military networks. As a harbour for the Spanish armada (the navy) the Ferrol military district has its own technical school and training school in the town. Ferrol is for this reason not only closely integrated with Bazan, but also with the navy.

After a period concentrating on production of civilian as well as military vessels Bazan specialised in construction of oil tankers during the 1960s and 1970s. This period was a golden age for the shipyard. But with this specialisation Bazan became very dependent on the oil sector. When the OPEC countries in 1973 decided to raise the oil price the demand for oil was dramatically reduced, the market for oil tankers reached a bottom level, and Bazan's order books ran dry. This event was the beginning of an extensive crisis in Ferrol and its surroundings. The crisis was notable in all shipbuilding regions of Spain, but Galicia was far more affected because of the important position held by the shipyards. Between 1980 and 2000 the people employed by Bazan was reduced from 6233 to 2524 (figure 4).

Another process on the international scene, which has affected Bazan, as well as Galicia and the Ferrol region, is the increased influence of the European Union after Spain became a full member in 1985. Galicia was responsible for almost 70 per cent of the Spanish ship building in the years 1965-1980; after 1980 this was reduced to 7 per cent. This reduction was, among other factors, influenced by regulation within EU that restricted Bazan to build only military vessels in the period 1985-2001, while Astano, the civil shipyard in Ferrol, was denied building ships after 1985. The functions of Ferrol as headquarters for the Spanish Navy and Bazan as a producer of military equipment also came to influence the development in a negative direction. When Spain became a member of NATO in 1980, Spain was given important responsibility for the protection of the Mediterranean Ocean, and the Navy headquarters was moved from Ferrol to Southern Spain. Naturally this affected the

navy town of Ferrol as well as Bazan in a negative way as attention and investment were channelled away from Ferrol. Finally the production of military vessels has been dependent on the international political situation. The political situation has been rather stable the last ten years, but this stability has not affected the order books of Bazan in a positive way.

Figure 4: Employees in the Bazan company 1980-april 2001



These influencing factors have not only created problems for Bazan. Astano was a significant shipyard based upon production for the ‘civilian’ markets. At the beginning of the 1980’s the employment in Astano was 6800 people, but by the middle of the 1990s more than 5400 of these had lost their job. Obviously, the negative consequences from the oil crisis, EU regulation and the restructuring of the Spanish Navy on the naval sector diffused to other sectors in the Ferrol region. One consequence was an increase in unemployment between 1970 and the 1990’s. At present the official unemployment rate in Ferrol is around 13 per cent. The loss of inhabitants has been noticeable in the city (cf. Figure 3). The city used to be the third largest in Galicia, at present it holds fifth position.

Thus, the people of Ferrol have experienced many of the negative impacts of restructuring in the past decades. The naval sector has reduced its staff severely, and auxiliary industries have suffered. Mass unemployment has been one result. The need for this restructuring of the industry in Ferrol was caused by international events such as changing markets; increased competition from newly industrialised countries (NIC)

and agreements about reduction of capacity in the naval sector in the European Union. Of the different strategies to meet such challenges the reduction of the workforce was an immediate consequence. The decline in business caused many of the auxiliary companies of Bazán and Astano to go bankrupt. Along with the economic decline all the other sectors in the area were affected as well.

#### **4. Regional development efforts in Ferrol**

##### **4.1 Introduction**

Bazan is still important for Ferrol. The work force of Bazan represented in April 2001 13 per cent of total employment (2800 employees out of 22000 in total), and 47 per cent of total industry employment in the municipality. The direct and indirect multiplier effects of Bazan on other economic activities are so important that Ferrol still must be classified as a one-company town. As many other one-company towns it has to face accelerated internationalisation, increased competition and new forms of political regulations. These forces have to be challenged through different forms of restructuring.

To get Ferrol industries out of the crisis, the Galician government came up with several emergency measures. One measure was to create new industry to absorb the unemployment. This measure had only limited effect, but it resulted in a new climate of negotiation between labour unions, companies and political parties that stimulated the development of networks in Ferrol. At present the inhabitants of Ferrol collaborate across traditional borders to achieve industrial development. Globalisation seems to have increased their awareness of local and regional mobilisation as a tool for development. This has forced them to enter a negotiation system that challenges traditional ideologies, but stimulates the development of innovations systems. Thus, in this section we take a closer look at

- the main characteristic and potential of present regional development efforts of Ferrol by discussing the relations between the innovation capacity of Ferrol and Bazan's restructuring strategy;
- the establishment of CIS;
- wind-mill production;
- the potential for development in the tourist and fishery sectors.

#### **4.2 Bazan's restructuring strategy**

During the 1980s Bazan underwent a radical organisational innovation that involved changes in products, organisation and production. The development of a System Integration Model (SIM) is the most important example of technological and organisational innovation. SIM has led to important changes in the way Bazan produces ships. SIM supports the efforts of the company of producing "just-in-time". The implementation of SIM has made Bazan more efficient and flexible as it leaves more room for tailoring products to the special needs of a customer. SIM has also led to organisational changes that permits people to work together in teams, and changes in the production process.

Networking is another strategy of importance to Bazan. The company spent approximately 36 million Euros on innovation efforts during a five years period. This made it possible for the company to participate in transactions with other specialists and receive a more free flow of information, products and services. Through a new network organisation Bazan tries to become more competitive in increasing quality and innovation capability, by using knowledge which comes up during interactions. Another part of this strategy is to establish stronger contacts with external institutions of innovation and learning. Returning to the theory discussion and the model of networking presented in section 2, Bazan can be seen as an example of a multilevel functioning economic actor working on local, regional, national and international levels. Through its military production Bazan is an integrated part of a REGIS as well as a GLOBIS. The REGIS consists of Bazan and several universities and research institutions in Spain, among them the Polytechnical Universities in Ferrol, Vigo, Madrid and Barcelona. Bazan is also integrated in a GLOBIS by focusing on collaboration in international networks such as NATO programmes for engineers. Bazan's contract with the Norwegian Navy to co-operate with a Norwegian companies in the construction of five frigates is another outcome of their GLOBIS integration efforts.

But does Bazan promote establishment of a LOCIS in Ferrol? Our study demonstrates that local companies do not have the required capacities to fulfil Bazan's standards for product quality and security. Processes of innovation and entrepreneurship demand

supporting institutional capacities, or what is called “institutional thickness” (Amin and Thrift 1994). Such institutional capacities refer to formal institutions like banks, industrial research and development institutions, education institutions, and to informal institutions containing a preferred competence, value and meaning systems. It is important that there is local contact and co-operation between these institutions to create an institutional thickness. We experienced that such institutions are located in the area of Ferrol, but they do not participate in a network that takes care of shared interests.

The fact that Bazan is a military company is a major reason why Bazan is unable to build a LOCIS and promote interactive learning and innovations in local networks in Ferrol. When Bazan use local sub-contractors the collaboration is asymmetrical. Bazan provide local suppliers with both materials and detailed drawings that leave little room for sub-contractors to contribute to the process. Still, the most developed economic network structures in Ferrol are those between Bazan and its local suppliers. This network is characterised by a relation of dependency. The network is contractual and stable, which means limited options for new enterprises to enter it. Between other industry firms the collaboration network and the trust is limited. In the present Bazan-dominated innovation system, Bazan seems to hamper development of a LOCIS. The company is a conservative agent characterised by secrecy and demand for long lasting reliable products. It is restrictive with information. It is important to produce vessels and other equipment which function perfectly in critical situations. The demand for information secrecy limits the networking with local companies to a restricted group of reliable collaborators. Such reliability develops out of long and stable relations and the accumulation of mutual trust. The existing local network of Bazan represents an entry barrier for the rest of the maritime industry in Ferrol, but within the network Bazan is a dynamo and even an initiator of new firms. This can be observed in the period of 1984-1990 when the outsourcing of functions from Bazan resulted in establishment of new firms. In spite of this, Bazan turns out to be a relatively poor incubator of new economic activities in Ferrol.

The situation of Ferrol demonstrates the difficulties a one company town can meet when a company of long tradition and a production system based on secrecy has dominated it. Still, events and processes in organisations like Xunta de Galicia,

Cluster de Naval, Camero de Comercio and CIS could pave the way for a LOCIS in the future.

### 4.3 The establishment of CIS

The regional government of Galicia (Xunta de Galicia) has seen the necessity of establishing local institutions and networks. The Centre of Innovation (CIS) belongs to the Foundation for the Promotion of Industrial Quality and Technological Development in Galicia, which is a part of the regional Ministry of Trade. CIS was established to strengthen the economy in Galicia by improving industrial competitiveness and positioning of small and medium sized enterprises (SME) in the market. The CIS centre in Ferrol opened in June 1995. The Galician government decided to locate the Centre of innovation to Ferrol for two main reasons. First, Ferrol had a high competence in technology and was the residence of a high number of engineers. It had the necessary human capital that an innovation centre needs to rely on. Second, the industrial firms in Ferrol bought technology from other firms elsewhere; an innovation centre might change this situation.

The CIS centre is especially involved in technological innovations, and has specialised in 9 different fields of technology. It assists the SME in research and development and disseminates innovative technology and design. To promote its services and to make SMEs aware of its services, the centre participates in different industrial conferences and fairs. The majority of the economic actors we interviewed claimed that CIS was not advertising the centre the right way, and was reluctant to take direct contact with SME. CIS agreed with this criticism, but even if CIS as a new institution has much to learn about promoting its services, the real problem is not how to promote innovation. The question is how to solve the collective action problem:

*... the conventions and relations which develop in association with particular production systems in a given region may affect the long-term evolution of technologies and organisations in those sectors.....In addition, the ensemble of conventions and relations that come into existence in a territorially defined economy may cut across the array of production systems and activities found there....(Storper (1997:41).*

SMEs are not very concerned about innovation (Brusco 1986, 1989). In addition, Ferrol has a special industrial structure. The innovation processes are taking place inside the large shipyards of Ferrol where the SMEs are playing a minor role as sub-

suppliers. To build an innovation culture in the case of Ferrol means that the SME must learn to collaborate in local networks. This means that CIS so far has been unable to support the establishment of a LOCIS in Ferrol. Instead CIS has become an actor supporting the development of a REGIS. While they are waiting for more SMEs to show up, the centre assists larger firms with innovation. These firms operate on a regional scale and are aware of how important innovation is for the future.

#### **4.4 The wind-mill production**

The high average of annual wind speed in Galicia makes the region convenient for windmill installations. Located on the northwestern corner on the Iberian Peninsula, the coastline faces the Atlantic Ocean in the north and the west. Galicia's climate is windy. The take-off for windmill installations in Galicia started when Xunta de Galicia launched its wind power plan in 1997. In 1996 the installed capacity of wind power was only 10 MW, by the end of 2000 this capacity had increased to 663 MW. This constitutes almost 10 per cent of the Galician demand for electricity. The most important reason for this boom was subsidies from the Galician government. The companies that produce wind power are subsidised. This incentive made it profitable for private companies to invest in electricity production and wind power development.

In the wind power plan, Xunta de Galicia claims that 70 per cent of all wind park equipment should be developed on the basis of machinery production in Galicia. Since most of the wind mill producers were foreign companies, they had to establish factories in Galicia or partnerships with Galician factories. And this has initiated a new industrial sector in Galicia, the windmill industry. The investment in wind power in Galicia has accumulated approx. NOK 5 billion (ESP102 thousand million) by the year 2000. Of this, NOK 4 billion has been spent in Galicia, which is around 80% of the total investment. The future of the industry looks bright, with more windmill parks under construction and approved projects, the installed capacity of wind power will amount to 3465 MW in Galicia, and cover 40 per cent of the region's need for electricity in the years to come. Total investments will increase at least five times.

The innovation capacity of Ferrol is also affected by this development in the windmill sector, but once again the events and processes seem to support the construction of a REGIS rather than a LOCIS. The Galician wind power sector has all the necessary

agents to develop a REGIS: windmill producers, their customers and subcontractor, one R&D windmill park, and universities involved in development of wind power technology. In such systems, innovation processes are developed through collaboration and the interactive learning process between firms, firms and their customers, and firms and R&D institutions (Cooke 1998). One of the important actors within this system is the Bazan-Turbinas windmill factory in Ferrol. Bazan Turbinas did co-operate with their subcontractors, but the relationship with other windmill factories was based on competition. They also did very little R&D. It is therefore not appropriate to use the term regional innovation system to describe the windmill sector in Galicia. But based on the presence of the agents and institutions needed to form such a system it is possible that it may develop into one in the future.

#### **4.5 The potential for development in the fishery and tourist sectors.**

In the past Ferrol was an important fishery town. Ferrol used to have a fish processing factory and 4-5 ship owners operated deep sea-going fishing boats. The importance of the fisheries has decreased over time. Today the fishery in Ferrol is dominated by mussel collection from small open boats (a male activity) and from the shore in the tidal zones (a female activity). Around 520 people are registered as fishermen and about the same number of families acquire their main income from the fishery sector that in addition to small boats includes of cold-storage chambers, packing stations and auction halls.

At present this small-scale fishery experiences difficult conditions. The mussel resources are threatened by overfishing, pollution and by competition from capital intensive fisheries. The question is whether these type of fishery activities have the potential to modernise along with environmental influences, cultural changes and new regulations of the industry and markets.

The modernisation of the traditional fishery system consists of the introduction of new technology such as the radar, better machinery and better fishing gear in the fishery of mussels. New technology would make the fisheries more efficient fisheries and make work easier for the fishermen, but it would also put more pressure on the resources. The modernisation process has not come very far. The fishery sector seems to be very path dependent concentrating upon mussel resources, while the potential of

innovation seems to be found within the fish farming industry. In the Ferrol area one former employee of Astano started a fish farm in the beginning of the 1990s by activating his Astano network. According to him he had to approach to actors outside the traditional fishery system to get support for the project. Thus, restrictive traditions, norms and rules among the locals may explain the lack of modernisation of the fishery system.

Local traditions, norms and rules can not explain the very weak development of the tourist sector in Ferrol. Development projects within the tourism sector seemed to be more common in the countryside of Ferrol than in the town. This rural tourism, or at least most of the components of that type of tourism, is described in the government's national and regional plans. They present a very positive picture of how far Galicia has developed a nature and culture-based tourism in its rural areas. The PR material and the Internet portals on this theme are extensive and professionally done.

Our study demonstrated, however, that many of the activities in rural tourism were subsidised by the regional government and/or EU. It showed that eco-tourism - an important adaptation within rural tourism - hardly existed in pure form in Galicia.

The study also questioned the argument that farmers engage in tourism as an income supplement to spread economic risk. Tourism is a more important part of the economy generation of the farmers than farming activities. The farmers engaged could probably not survive without the off-farming tourism activity. As in the case of the fishery sector the production and organisation of the tourism sector has little effect upon the innovation capacity of Ferrol. The potential for developing a REGIS based in the region seem more likely.

## **5. Have the people of Ferrol lost its confidence in the place of Ferrol?**

### **5.1 Restructuring and peoples conceptions of the labour market in Ferrol**

When a single company has such a significant effect upon economic development in a given region, it also influences the social life and the meaning systems of actors in the

region (Storper 1997). Some of the field reports focus on the social consequences and formation of meaning related to restructuring among different generations in Ferrol.

The reports revealed that during the restructuring process, people from the age of 52 to 58 were forced into early retirement by the public companies Bazán and Astano. The decline in business also caused bankruptcy of many auxiliary companies of Bazán and Astano. With the economic decline all the other sectors in the area were affected as well. Many were forced to move to other places in Galicia, but also to more distant locations in Spain in search for a new job.

All people construct meaning about their surroundings based on interpretation of their environment and their own personal experience with these environments. This means that every generation has a different basis for constructing their meaning system. We asked what kind of meaning was created among the inhabitants of a one company town in a restructuring process? We found that the opinion about local job markets differed between the older generation and the younger. The older generation claimed that there was a positive trend in the economy and the labour market. The younger generation did not recognise this trend, and even thought the general trend in the labour market was negative. The older generation also viewed education as more important to get a job in Ferrol than the younger generation. Among the young generation an informant claims that “education is not important, what matters is good contacts and work experience”. Though there are changes to the better in the local labour market, still many of the young people seem to perceive the labour market in a pessimistic way. As long as Ferrol is a one company town with high unemployment and few alternatives in the labour market, then informants among the young generation seemed to believe that the alternatives in the local labour market are restricted. Even if they want to stay in Ferrol, they feel that they at some point will have to leave Ferrol in order to get a job. One respondent said “I want to stay here in Ferrol because I have all my relatives here, I study here and I would very much like to work here. But one does not have many choices, one is forced to leave, I would not like to do that, but I probably must do so”.

Why have then different generations formed different opinions about the labour market? A first answer is that our representatives of the young generation were

mainly students. Their experience of the labour market is limited in time. Second, the relations of this generation to the labour market are based on childhood experiences of an economic crisis. The parent generation on the other hand has experiences of the labour market and its fluctuations over time, and therefore their attitudes to recent changes in the labour market is more positive. Third, unemployment among young people is higher than among adults. At present, many people in Ferrol are influenced by unemployment. According to official statistics 9.45 percent of the workforce in Spain were unemployed in February 2001. In Galicia the number was 12.41 percent. At the same time approximately 15 percent of the workforce in Ferrol were without a job (Galicia Informe do Paro Rexistado 2001, 31-55). These estimates may be too low because unemployment statistics do not include people who have been in an unemployment situation for more than two years or young people prolonging their studies because of lack of job opportunities. The education explosion experienced by western countries in the last decades hides this problem. In 2000 there were 10,510 young people between 18 and 25 years old in Ferrol (Statistics from *Palacio Municipal* in Ferrol). Around 50 percent of the young move out of Ferrol to take higher education. Those who remain in the region may study at *Universidad de La Coruña* (Campus Ferrol), or at the military school *Escuela de Energía y Propulsión de La Armada*. Thus, the real unemployment rate in Ferrol may be as high as 20 per cent, and among the young generation as high as 40 per cent.

## **5.2 Has the young generation lost its confidence in the place of Ferrol?**

The field reports look at young people and their choice of education, work and place to live. Our point of departure was contradictory theories of modernity. One group of theories view internationalisation as a process of disconnection or de-coupling young people from place (Ziehe & Stubenrauch 1989). It implies that young people are less attached to their family, social class or religion than other groups of people (Fosso 1997). This is what Giddens's (1991) describes as spatial de-coupling; 'social systems and social relations are detached from local contexts and they are reborn in unlimited time and space' (Fosso 1997, 45). A feeling of belonging to a specific place counteracts, however, such place disconnecting tendencies. Massey (1995) uses the conception of 'a sense of place' to describe the importance of place for the feelings and identity of a person. 'Places are not objective realities, but something which affects the feelings and meaning systems of people' (Fosso 1997, 70). Every day

experiences and personal involvement in different places contributes to three types of person-place relations: identifying *with* a place, or *against* a place or *not* identifying (Rose 1995).

The majority of our informants choose education from personal interest, but the “safest” studies were said to be within engineering, construction, naval and economic studies. Thus, to a certain degree our informants did link education plan with local job possibilities. A local job seemed to be attractive because of the possibilities of staying close to family and to live in Galicia. *Even the very few who say they would like to live somewhere else do not really want to live too far from their relatives.* The majority of the young people we interviewed hoped they could stay on in Ferrol, and if they would have to move, they would like to live at a place that is similar to their home, or at least in Galicia. The findings of our study supported Massey theory that feeling of belonging to a specific place counteracts processes of de-coupling young people from place. Young students seemed to be closely tied to their place and families. The feeling of belonging to Galicia and Galician culture was strong. Almost all the respondents were proud of Ferrol that was described as quiet and peaceful. People felt safe. Physical, as well as social distances were short. Thus, to our informants the push factors of the labour market are not strong enough to unbalance the positive attitudes towards Ferrol and the region of Galicia. They young people have not lost confidence in the place of Ferrol.

## **6. Conclusion**

In April-May 2001 the University of Ferrol and the Chamber of Commerce of Ferrol invited 30 Norwegian students and two Professors from the University of Bergen to a two-week field course in economic geography. During our stay we experienced the hospitality of Ferrol. The friendly attitudes of people, firms, governmental as well as non-governmental organizations were of invaluable support for our study concentrating on relations between globalisation and industrial restructuring in Ferrol.

Ferrol has experienced many of the negative impacts of globalisation and industrial restructuring in the past decades. The naval sector has reduced its staff severely. Mass unemployment has been one result. Ferrol has been characterised as a town in deep crisis by outsiders and insiders. After visiting the city we find it difficult to support

this view. Summing up the research results from 15 reports worked out by our students, Ferrol turns out to be a dynamic community characterised by people deeply involved in projects that set in motion promising processes of change.

The labour unions, the companies and the political parties are collaborating across traditional borders to achieve industrial development. Globalisation seems to have increased their awareness of local and regional mobilisation as a tool for development. This has forced them to enter a negotiation system that shakes the ground of their ideology, but stimulates communication and the possibility for building up innovations systems.

The relations between firms, political institutions, R&D institutions and markets, demonstrate a potential for developing competitive regional innovation system within the naval sector and the wind power sector in Ferrol. Bazan has responded to the crisis in the shipbuilding industry by outsourcing parts of its production, by introducing a system integration model for ship construction and by strengthening their position in the promising windmill sector. These innovations have made Bazan more flexible and competitive. One result is the frigate contract with Norway, another, the establishment of new companies in Ferrol working as subcontractors for Izar.

The location of the Centre of Innovation and Services (CIS) in Ferrol increases the possibility to integrate small and medium sized enterprises (SME) in regional innovation systems. Our study demonstrates that there is a long way to go to fulfil this goal. While CIS are waiting for more SMEs to show up, the centre has assisted the dominant large firms. However, the management of the centre is fully aware that new initiatives have to be taken both from CIS and the Ferrolian SMEs before the latter get fully integrated in the new economy. Our study also reveals potential for establishing REGIS both within the windmill industry and the tourism sector.

Finally, our study demonstrates that the young generations seem to be loyal to their place of origin. Their identification with Ferrol and the Galician culture is very strong. They reject the negative image of Ferrol in crisis. This makes them believe in, and plan for, a future in Ferrol. Together with the processes of change discussed above,

these positive attitudes towards Ferrol and Galicia make it reasonable to claim Ferrol as a city not in crisis, but in recovery.

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**And the following field reports in Lindkvist & Fløysand 2001 (Norwegian titles have been translated to English):**

- Elisabeth Jordahl & Catharina Konow Johannessen: Ferrol, the city and its demographic challenge
- Kjersti Moe & Tone Skeide: Young people and Ferrol
- Cato Dørmænen & Siri Pedersen: Employment patterns in Ferrol
- Hanne Næss Olsen & Maria Furseth Karlsen: Young people in Ferrol and their future choice of place to live
- Nina Sandvik, Steinar Onarheim, Torbjørg Raen & Cecilia Roberts: Bazan is meeting globalization

- Ida Wingren Rasmussen & Marry-Anne Karlsen: Global structures and local actors – ship building workers and restructuring in Ferrol
- Thomas Sørensen & Christian Lunde Nerø: Entrepreneurship in Ferrol –how is the maritime sector doing?
- Dag Kjetil Baakind & Halvor Dannevig: An industry in the air – ecologic and economic aspects of wind power in Galicia
- Ximena Salfatte & Maiken Lønnerød: Globalization and local industrial policy
- Inger Johanne Midtgaarden & CharlottenA.S. Meering: Political governance of innovation activities in Galicia, - a case study of ‘ Centre for Innovation and Services’ in Ferrol
- Laila Melkevoll: Is green tourism an effect of planning? A case study of tourism in Galicia, Spain.
- Ingvild Røed & Tonje F. Aase: Agrotourism in La Coruña – one way of surviving in rural districts
- Kristin Mjelstad, Kent Nilsen & Sissel Hoff: The fishing industry of Ferrol