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Key factors of structural change in North Rhine-Westphalia

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1. Introduction and objectives

Recent years have seen the re-emergence of industrial policies and policies for the promotion of economic activity in both industrialised and developing countries, flanked by regional and national strategies for enhanced integration into increasingly globalised international markets, improved competitiveness and sustainably dynamic economic growth. The growing popularity of these policies is also a reflection of recent currents in international economic debate, notably the argument that the recipes for stability staunchly championed by neo-liberals, which gave rise to the Washington Consensus in the early eighties, need to be complemented by more committed policies designed to strengthen international competitiveness.

A number of international bodies, such as the OECD, the ILO, the UN institutions, the WTO and the World Bank itself, are currently pushing more emphatically for frameworks of exchange and promoting comparisons of experience and best practice in matters such as attracting investment and business, promoting R&D and technological transfer, stimulating clusters and business networks, incentives for start-ups and entrepreneurship. There is a recognition that the success of particular policies will inevitably depend on the economic, political and social context in which they are applied, and also on the structural challenges which the national or regional economy concerned should be or has been confronting.

The German Federal State of North Rhine-Westphalia (henceforth NRW) is a particularly interesting case for at least three reasons. First, huge areas within this territory – such as the Ruhr and Aachen – have undergone radical industrial conversion over the last decades, thereby responding to a need for new competitive products and services to counter the definitive decline of the formerly hegemonic cluster consisting of coal, steel and mechanical engineering which had powered the economy in these areas from the mid-19th century until the early 1960s.

The second reason is that over the last thirty years the State government, drawing on resources of its own boosted by local, Federal and European funds, has actively promoted the restructuring of the regional economy by means of a sweeping communication strategy, a broad range of instruments and initiatives to promote industry, subsidies, and political and financial support for the creation of public-private institutions which have enriched the region's "meso-economic"[1] framework, generating exchanges with the public apparatus at state, regional and local levels but also with employers' associations and trade unions, and furthermore providing a new spectrum of support services adapted to the needs of business.

A third factor which makes NRW especially interesting as a case study is the

[1] Examples of the "meso-economic" framework include public institutions and back-up services to promote industrial development and workforce training, employers' associations, institutions devoted to R&D and technology transfer, management support centres, incubation parks, bodies designed to skill and upgrade human resources, etc. The meso-level also embraces forums for social dialogue, public policy co-ordination committees and public-private networks designed to inject momentum into economic development or stimulate debate on related issues. For further details see Esser, Hillebrand, Messner and Meyer-Stamer (1996).

degree and nature of decentralisation which has been achieved by these economic development policies. Due to the socio-cultural make-up of this territory[2], the process of conversion and economic stimulation has entailed vigorous dialogue between geographically dispersed players. Decentralisation from state to regional and local level is most obvious in relation to operational decision-making and the capacity to provide it, but these local structures have clearly acquired a status which goes well beyond the implementation of policies adopted and passed down by the state government. In addition, they have been endowed with various technical mechanisms of their own, such as forums where views are exchanged and projects prioritised, combined with a close-knit network of autonomous institutions able to provide the financial management and engineering to advance projects by drawing on funding from every administrative tier.

This does not mean that structural transformation within NRW is now complete and its success firmly established. There are still high rates of unemployment, notably in the Ruhr Area, home to a third of NRW's population. Indeed, most economic growth indicators are still below the national average. Coal mining still receives considerable subsidies enabling it to survive, even though it has lost its competitive edge and has been cut back dramatically. Likewise, some of the policies and initiatives pursued in recent years are debatable, both conceptually and empirically, in terms of their efficiency and effectiveness.

This article will not attempt to describe in detail the industrial promotion policies pursued by the State within the framework of its strategy for structural change. Rather, it will present the author's impressions from the perspective of a visitor with a certain expertise in the field of industrial policy, but nevertheless a total stranger to the territorial, economic and socio-cultural context of structural transformation in NRW. I shall try to systematise these impressions, to identify the fundamental features, and to formulate some questions and reflections which may help us to understand more precisely how this strategy has progressed, what results it has achieved to date, how it is likely to continue and what challenges remain unsolved.

To these purposes I have divided the paper into four sections. To begin, I shall briefly explain the causes and principal economic effects of the decline in the traditional industries and describe the strategies adopted by the leading companies in this coal/steel/metalworking cluster, hoping thereby to convey the magnitude of the structural crisis which arose in the regional economy and the categorical need for conversion.

In the second section I shall summarise the main thrust of the ensuing strategy for structural change, highlighting three factors which, in my view, can be regarded as the constituent elements of this strategy: the sheer magnitude of the challenge, the active leadership role assumed by the State

[2] One distinctive feature of this federal state is a marked presence of social organisations, employers' associations and trade unions at local or sub-State level, a relatively homogenous, polycentric population distribution, and a relatively high level of functional specialisation within the territory, based on municipalities or districts (*Kreise*).

government and how this has evolved over the years, and the impact which globalisation and Europeanisation have had or are likely to have in future on the internal and external conditions of transformation.

The third section raises some lines of argument with regard to as yet unresolved aspects of the strategy for structural change in NRW. These relate first and foremost to the activation of a meso-economic network within a highly decentralised environment with open institutional redundancies which affect the dynamics and intensity of the whole process and, secondly, to the need to allocate new roles and initiate mechanisms and communication channels aimed at monitoring and evaluating the impact of the structural policies adopted, with a view to ensuring their relevance and optimising the volume of resources mobilised towards this goal, given the complex weave of institutions involved in implementation.

Finally, in the fourth section I will outline the principal lessons which I believe can be drawn from the NRW experience, both in consolidating the future strategy and in designing and implementing economic development policies in countries facing the challenge of industrial modernisation and competitive credentials, with particular reference to Chile.

2. The decline of productive sectors dominant until the 1950s: the crisis in coal and steel

2.1 Structural crisis in the Ruhr Area

The Ruhr Area (Ruhrgebiet) accounts for almost a third of NRW's population, with 5.4 million people distributed across 53 urban communities. In the second half of the 19th century, the Ruhrgebiet began to emerge as a powerful production nucleus centred around the coal industry, reinforced several decades later by the rise of the iron and steel sector and the appearance of a ferrous metalworking cluster.

There is a wealth of literature on the characteristics and the evolution of these traditional Ruhrgebiet industries. I shall not, therefore, repeat the analysis of history and trends so ably presented in those studies, but confine myself to mentioning some key characteristics in the process of expansion and, subsequently, decline which these productive sectors underwent in the region.[3]

The coal, steel and related industries took root and expanded between the latter half of the 19th century and the 1950s, a decade marked by post-war conditions. One of the salient elements defining the pattern of industry in this area was the presence and leadership of major groups and consortia

[3] The analysis below is based on Heinze, R.G., Hilbert, J. et al. (1996 and 1998) and Fulde, M. (1996).

which pursued concentrated production strategies in the region in order to benefit from logistic advantages and structures of transport and distribution, notably along a chain of coal–energy–steel–derivative products.

Around these companies/consortia, such as Thyssen, Krupp and Mannesmann, many small and medium-sized businesses sprouted, mainly in derivative fields of metalworking and related services. The big enterprises, however, retained their "core competences" in process and product engineering, and as a result outsourcing or the creation of new rivals was never a real threat in this region throughout the period in question.

Production began to decline in the Ruhrgebiet in response to various market and technological factors. The first emerged in the late 1950s with cost pressures on the coal industry due to global competition. A similar phenomenon was to hit the steel industry twenty years later.

Whereas market factors directly affected the output of the Ruhr's "anchor" industries, rooted in the primary processing sector, technological factors also had an impact on the productive cluster in their orbit, and this encouraged vertical disintegration, given that productive and logistic bundling exerted less influence on the competitive performance of these industries. Among the technological factors, the following are particularly relevant:

- the introduction of new production technologies for steel and its derivatives permitting the physical separation of processes which had previously been spatially integrated;

- a technological shift from the coal-based chemicals industry towards petrochemicals;

- the dwindling importance of coal in iron and steel production;

- the use of new components in mining processes, such as optical and microelectronic sensors, which were not supplied from within the area;

- the absolute and relative decrease of the transport factor within cost structures, permitting the import of components from different points of origin.

Finally, the dominant companies in the Ruhrgebiet responded directly to changes in international market conditions for coal and steel by adopting a multinational strategy, including the relocation of iron and steel capacity to developing countries, with the creation of foreign subsidiaries. This phenomenon, combined with a corporate diversification whereby new activities were established outside the Ruhr, resulted in a substantial exodus of capital from the area, so that ultimately corporate aims became increasingly detached from regional interests.

These changes had a dramatic effect on productive activity and employment in the Ruhrgebiet. The following indicators serve to reflect the magnitude of the process:[4]

[4] Data taken from Heinze, Hilbert et al. (1996) and Danielzyk (1992).

- the Ruhr's contribution to Germany GDP fell from 12.2% in 1957 to 8.2% in 1987;

- jobs in coal-mining were pruned from 400,000 in 1962 to 85,000 in 1994;

- over the same period coal output decreased from somewhat over 120 million tonnes to 50 million tonnes a year, which at the same time meant a major increase in productivity;

- employment in the iron and steel industry was cut back from 230,000 jobs in 1965 to 80,000 in 1994;

- taking 1960 as index year (= 100), industrial employment tumbled to around 45 in the Ruhr in 1992, compared with 65 for NRW as a whole and 80 for Germany (excluding the new eastern states);

- from 1980 to 1994 accumulated growth rates in employment for the Ruhrgebiet were as follows (in parentheses the figure for NRW as a whole): agriculture, energy and mining –36.3% (–8.2%); manufacturing industry –28.6% (–10.7%); construction –20.8% (–6.2%); manufacturing services 47.3% (50.6%); consumer services 6.9% (21.0%); social services 48.0% (54.2%). In other words, the loss of jobs in the industrial primary sector was much greater in the Ruhr, in both relative and absolute terms, than in the rest of NRW, while the compensating effects of employment generated in the tertiary sector (services) were smaller in the Ruhrgebiet, especially in the case of consumer services;

- given the lack of new sources of industrial employment in the area until the 1980s, in spite of this dramatic loss of jobs, the coal–steel–related industries chain still accounted for half the industrial workforce in the Ruhr in the early half of the nineties.

The challenge of restructuring the Ruhr's productive economy has not only entailed technological and economic aspects. The type of industrialisation which replaced agriculture as the region's main economic activity, and the nature of the companies which led that process, defined a labour and social structure over the years which narrowly reflected the requirements of the dominant sectors, with a distinctly "polycentric"[5] pattern of urban development and a certain functional specialisation for each town. This has been one factor determining the area's ability to restructure its economy in recent years.[6]

The logistical supply and distribution requirements of industries based in the area encouraged the development of excellent roads, rail and inward waterways which are still a distinctive regional feature offering business advantages. The broad industrial base also influenced the pattern of urban settlement. Towns grew rapidly as workers flowed in from eastern Germany, Poland and elsewhere. As a result, several fairly big towns – Essen, Dortmund and Duisburg – exist side by side with their own productive profiles, accompanied by several slightly smaller ones – Bochum, Gelsenkirchen, Oberhausen and Mülheim. The joint population of these seven

[5] Danielzyk, R. (1992).

[6] Cf. Blotevogel, H. (1998)

communities currently amounts to 3.5 million, or about two thirds of the inhabitants of the Ruhrgebiet.

The huge presence of low- and medium-skilled workers in large-scale production facilities also prompted the formation of labour organisations with a substantial membership, which has complicated the process of industrial restructuring in that the trade unions have campaigned to contain the economic and political impact of change, for example, on employment and social protection, among other critical issues.

2.2 Some impressions of the competitive strategies adopted by corporate leaders in the Ruhr coal and steel cluster

The leading players in the Ruhr cluster of coal, steel and metalworking opted long ago for internationalisation by setting up distribution companies in the main markets for their products in Europe, the United States, Asia and Latin America. Later, as competitive pressure grew from the late 1950s in the coal sector and from the mid-1970s in the international steel markets, these players began relocating towards places which offered cost advantages. Parallel to this, they entered on a strategy of corporate diversification, acquiring or constructing most of the new facilities they required in other parts of Germany and abroad.

This product diversification meant that from the mid-1980s onwards iron and steel accounted for less than 50% of global business of each of the five leading corporate players in the Ruhr. In the case of Thyssen, steel – which constituted over 60% of global sales in the early seventies – fell to 36% of annual sales in 1986. That same year, steel contributed 25.1% to Mannesmann's business and 49.5% to turnover at Klöckner. As for Krupp, data from 1994 suggests that iron and steel production only represented 28% of annual sales. The coal giant Ruhrkohle AG, whose non-mining business accounted for less than 2% of its global activities in the early 1970s, had increased this share to more than half by 1994. [7]

As factories in the Ruhrgebiet saw their profitability decline between the late 1960s and the first half of the 1980s, they tended to adopt strategies of a defensive nature, with priorities such as streamlining costs and the outsourcing of processes and services. One logical consequence of this was the loss of jobs, directly but also indirectly through material suppliers and service providers within the traditional cluster. The failure of Krupp in 1986 was a milestone in this development. The situation now turned critical, as did prospects for the local economy, traditionally geared to the leadership of these key companies, and as a result unused to autonomous entrepreneurship and deficient in innovative capacity.

The present picture reflects a trend towards corporate restructuring, alliances and even mergers, as illustrated by the consolidation of Thyssen Krupp Stahl AG which, since 1997, has positioned itself as Europe's biggest manufacturer of flat steel, and the third largest in the world. The region's

[7] Data compiled from Danielzyk, R. (1992) and Funder, M. (1996).

traditional key players are now setting up highly globalised, competitive transnational groups covering a broad spectrum of industries, including commerce and services, telecommunications and capital goods with a high input of cutting-edge technology.

As Table 1 shows, in spite of this geographical diversification, most of these companies still have their headquarters in the Rhine-Ruhr region. This is also the preferred German location for commercial distribution companies.

In terms of both number of companies and also their global turnover, the Rhine-Ruhr region (i.e. the Ruhrgebiet plus the Dusseldorf–Cologne–Bonn axis) ranks first in Germany and third in Europe, behind London and Paris. Nevertheless, although Dusseldorf, Cologne and Bonn are geographically so close to the Ruhr, differences in history, production and economic structure make it impossible to set up common criteria beyond these aggregate statistics.

Table 1: Key industrial groups in the present-day Ruhr: Product diversification (% of total revenues) and location of production facilities

Group Field of business	Thyssen-Krupp (1995)	Krupp (1996)	Mannesmann (1997)	Ruhrkohle RAG (1997)
Coal				40%
Steel	33%	29%		
Capital goods	27%	31%	10%	7%
Cars and spare parts		21%	21%	
Engineering, infrastructure projects and civil works		12%	42%	
Energy, environment				12%
Trade and commercial services	40%	6%	10%	25%
Telecommunications			17%	
Chemicals				15%
Countries where production is located with no. of facilities (in parentheses those located in the Ruhr Area)	Germany 27(16); Abroad 7: Netherlands 3; Spain, Italy, UK, Brazil 1	Germany 68(38); Abroad 65: USA 13; Italy 8; UK 7; France 6; Netherlands 5; Mexico, Brazil 4; Spain 3; Australia, Canada, India, South Africa 2; Others (7) 1	Germany 21 (4); Abroad 16: USA 8; France 2; Switzerland, Japan, Spain, Italy, Netherlands, Brazil 1	Germany 130 (70); Abroad 48: Neth., Italy 7; USA 6; Belg., Spain 5; UK 3; Australia, France, Switz., Brazil, Mexico 2; Others (5) 1
Facilities located in the Ruhr as a percentage of the total	47%	29%	11%	39%

Sources: Funder, M (1992); Krupp Annual Report 1997; RAG Annual Report 1997; Mannesmann in figures, executive report, 1998 and Annual Report 1997; Thyssen Annual Report 1996.

3. The strategy for structural transformation: priorities and components

3.1 Early days: policies to attract business (Standortpolitik)

At the end of the 1970s the depth of economic crisis which ensued as the traditional manufacturing cluster in the Ruhrgebiet became less and less competitive provoked a climate of rising social tension, in which the region's well-organised labour unions played a major role. The response of the public sector was to invest considerable government subsidies in reskilling the workforce, while at the same time encouraging new businesses to start up in the region. Measures towards industrial relocation, essentially taken by the government of NRW at the time, were supported by the other tiers of administration: national (Federal), regional (in the districts which made up the state) and local.

Since these early beginnings in the seventies, the strategy for structural transformation was determined around the central objective of attracting industry to the state, and above all to the regions hardest hit by the decline in traditional sectors, such as the Ruhr Area. As time passed, there was an evident tendency to shift away from instruments of an operational nature towards establishing regional levels of competence.

In 1979, during the Ruhr Conference in Castrop-Rauxel, the government of North Rhine–Westphalia announced an Action Plan for the Ruhr which envisaged a range of measures geared towards industrial conversion in the region and economic revitalisation. The key component of this Plan was the creation of a Ruhr Property Development Fund. From 1980 onwards this acquired about 150 industrial sites with a total surface areas of approx. 2,000 hectares.

The fund was administered by the LEG, the State Development Agency. After redevelopment, a significant proportion of these sites were resold for new industrial purposes. Others were reclaimed for urban functions as green spaces or recreation zones. A handful were used for residential development.

Although the Fund was originally set up to handle properties in the Ruhr, its remit was extended in 1984 to cover the entire State of NRW.

Following the Fund's relatively successful management by the LEG as a State agency, proposals began emerging at State level in the late 1980s for adopting action on a more decentralised basis. This met with a positive response from players with traditionally territorial roles, such as public administrations in the lower tiers (districts and municipalities), trade unions and chambers of industry. The dynamic process also embraced universities and bodies associated with the promotion of industry whose regional and local presence tends to be more recent, often deliberately triggered by the State in order to reinforce its meso-economic base.

As a number of authors have described, structural policy in NRW during the 1970s and the first half of the 1980s, which set a precedent in Germany, was defined by three distinctive features:[8]

- it centred on the Ruhr Area, a heartland of the declining coal, iron and steel industries;
- it was designed and implemented through public institutions at State level;
- all measures were based on the direct allocation of resources to activities and fields previously defined at State level with little influence from regional and local players.

A typical example of this phase was the creation of the Ruhr Property Development Fund, which called for substantial public subsidy and investment but nevertheless produced results. Certainly, any attempt at evaluating this instrument would need to confront the problem of ring-fencing and quantifying the various benefits on the basis of multiple impacts derived from the reinforcement of general and specific location factors either directly induced or indirectly encouraged by this measure. The following effects serve as illustrations:

- A wide demand for environmental services was generated by the rehabilitation of industrial sites. This demand functioned as a springboard for the environment industry in its "infancy", which then proceeded to consolidate a highly competitive performance targeted at both the region itself and external markets.[9]
- A range of competitive location factors evolved thanks to the mutual effects of, on the one hand, existing geographical and infrastructural advantages and, on the other, the large-scale redevelopment of sites suitable for industrial use.
- Some of these former industrial sites were purchased and rehabilitated for use as green spaces with a view to enhancing regional amenity value, thereby attracting new kinds of business and improving the quality of life for residents.
- Since that time a number of complementary measures have been implemented, such as business incubation parks and centres for technology development and transfer.

3.2 Phase two: encouraging new structures and forms of participation

1989 marked a watershed in the State's campaign to catalyse economic redevelopment. That year saw the introduction of two measures which, ten years later, have confirmed their valuable role as two seminal experiences in the evolution of NRW's policy for structural transformation towards increasingly participatory and decentralised mechanisms of decision-making and activity, although there are significant differences between them.

The first was the project to set up the International Exhibition of Architecture and Building (IBA) at Emscher Park, an ambitious contribution to the region's spatial redevelopment. Innovatively conceived as a competition for design ideas decided by juries with representatives from State and local authorities, industry, universities and the general public, the initiative has been co-ordinated by a private company, Emscher Park GmbH, which is 100%-owned by the government of NRW but fully autonomous. It is based in Gelsenkirchen and run on commercial lines by a staff of 25 (broadly recognised as highly competent) with an operating budget worth DM 35 million.

[8] Fürst and Kilper (1995); Noll and Scharfenorth (1997)

[9] Cf. Heinze, Hilbert et al. (1996)

By 1999, the date originally set for terminating its activities, the IBA had managed in its ten years of operation to initiate over one hundred projects with major impacts on urban design, architecture, the arts and the economy in the northern zone of the Ruhr Area, which accounts for about a third of the region's territory.

Through the Emscher Park company the IBA does not provide direct resources for project investment, but offers vital backing in tapping complementary sources of funding from the State, the Federal government or the European Union. Its portfolio currently includes 120 projects adopted to date, including a mega-project designed to drain and redevelop the region by rehabilitating the River Emscher, creating parks and museums in disused coal mines and industrial wastelands, and restoring and redeveloping buildings of particular architectural interest for new functions such as centres of technology, the arts or business incubation in emerging sectors, not to mention a plethora of related projects. It would have been difficult to acquire the significant investment sums now committed to all these ventures without co-operation between the various players from the business, political, research and artistic communities involved in this initiative.

The second measure was the creation of the ZIN regions[10], which gave birth in 1990 and 1991 to Regional Conferences. These were based on the Initiatives for the Future of the Mining Regions (ZIM), launched in 1987 and extended across NRW as ZINs by a State government decision two years later.

[10] ZIN: "Initiative for the Future of NRW"

There are now 15 Regional Conferences in NRW, six of them making up the Ruhr Area. In most cases their boundaries reflect the geographical structure of the Chambers of Industry and Commerce (IHK).[11]

The Regional Conferences (RCs) were devised as forums for territorial development and social dialogue at district and municipal level. In order to set them up, the State government, through its Ministry of Economic Affairs, called upon the "relevant social players" in each ZIN region to agree upon "regional development strategies". Although the remit of RCs is closely linked to the dynamics of meso-economic processes and decentralisation, their function as "linchpins" between different and often divergent local interests, combined with the fact that decision-making powers are vested in the State level and with a limited capacity for resolving conflicts, has in some cases weakened their authority as a public force.[12]

It is interesting to note that not all the Conferences have achieved the same degree of authority and impact within their community in relation to the original aims and expectations. In general terms, some Conferences have a reputation for being very effective (such as Westfalen–Lippe and Aachen), others have evolved from their original form into a new structure (Emscher–Lippe), while others again have achieved little or are at least rated very differently by the players involved (usually these are based in regions with a distinctive "centre/periphery" pattern)[13].

[11] Cf. Fürst, D. (1999).

[12] Fürst and Kilper (1995).

[13] Portratz, W. (1997) supplies an excellent framework for analysis and a number of comparative aspects of the operation and scope

One personal impression which the author has gained from various visits and a number of interviews with industrial payers is that, regardless of their assessment by the organisers themselves in each region, the RCs have not yet established a firm, clear image among the local business community, especially entrepreneurs, when it comes to their potential achievements and actual relevance. My first hypothesis for explaining this "fuzzy picture" is that a certain bureaucratisation may have occurred within these frameworks, although we should not forget that the Conferences are convened around the meso-regional level, which does not necessarily require them to be acknowledged by players at the microeconomic level. One way to assess the true impact of the Regional Conferences at this level would be to survey the awareness and opinions of these actors with regard to specific measures initiated by the RCs.

of different regional conferences in NRW up to the first half of the 1990s.

After a decade of operation it is fair to state that both the RCs and the IBA are clear expressions that State government structural policy has evolved towards opening up frameworks for involving society's various actors in debating and prioritising projects and proposals while at the same time promoting dynamic decentralisation mechanisms for implementing policies of structural transformation.

Apart from concluding that these two measures grew over the nineties to become significant mechanisms in the structural transformation process at regional level, it would seem useful to mention some similarities and dissimilarities between them, with a view to identifying guiding threads for the operation and regulation of future measures which seek, like these, to involve a number of players in diverse territorial frameworks for action.

Perhaps the first similarity between the RCs and the IBA is the matrix which they provide for interaction between the different tiers of public administration (Federal, State, local) and other relevant players in each territory. Both measures were initiated at State government level in the conceptual phase, and autonomous bodies at this State level have played an active role, assuming operational responsibility, encouraging the participation of a wide range of players in the processes concerned, and setting up regular dialogue with the State level.

One major difference derives from the nature of decisions taken in these two environments. Whereas different bodies require co-ordination within the IBA in order to thrash out possible support for clearly demarcated projects, the RCs attempt to create consensus around regional development strategies and then convert this into priorities for action which can be very different in kind. Obviously potential conflicts may turn out to be far more complex in the case of the RCs because they are more abstract by nature. Moreover, the pluralist, round-table nature of the RCs imposes clear limits on their ability to resolve conflicts. In the case of the IBA, interaction with the State level is channelled through the Emscher Park company by means of processes and talks which are regular enough to generate a certain systematic approach over time. In the case of RCs, the formal channel to the State is the regional commission, usually with a remit for several RCs. Nevertheless, due to the diversity of substance matter and often fragile consensus, a number of secondary communication channels exist based on relationships between different social networks and the State.

The need to seek consensus between different players tends to introduce an anti-innovation touch to agreements generated at the RCs, by contrast with the IBA's explicit commitment to innovative projects. Another difference between the two concerns the evolution of mechanisms for dialogue and consultation: in the case of the RCs these are more or less fixed structures which are able to reflect "relevant regional forces"[14]; at the IBA, on the other hand, structures are temporary and respond to a logic of flexible geometry which depends on the nature and location of each project.

Summing up, although both measures are part of deliberate efforts at State level to strengthen territorial networks of players within the dynamics of structural transformation in NRW, given differences in their competence and in the nature of the decisions they confront it does not seem appropriate to set up models for comparing their performance.

That being said, in the specific case of certain RCs which commonly experience difficulties in resolving conflicts – by nature usually more complex ones – and adopting innovative visions, a need arises to complement the role played by the State and local authorities in managing and settling these conflicts, and also to foster comparative feedback from the RCs to provide incentives for overcoming conflicts and promote greater exchange of methods and practice, drawing especially on the experience of more successful and advanced RCs (which have achieved more dynamic integration and more visible progress on the regional development strategies around which they managed to build consensus) in order to assist those which have tended to stagnate or which have not asserted much authority locally. It should be recalled that the RCs were originally set up by the State government as learning processes, both for the regions, in bringing together the players, identifying regional needs and initiating a concrete response, and for the State as the catalyst and engineer of decentralised mechanisms towards a strategy for structural transformation.

[14] Noll and Scharfenorth, 1997.

3.2 Promoting institutionalised support for NRW's new competitive profile

One principal feature of the strategy adopted by the State and local authorities in order to promote investment and reactivate the regional economy was the technological profile created around sectors identified as keys to future development. The intention was to convey an image of industrial renewal and modernisation both at home and further afield. The region's industrial past had endowed it with a well-knit infrastructure of roads, rail and inland waterways. Besides, its relatively central position within Europe and the well-considered concentration of universities and centres of research, development and technology transfer in the area helped to sustain a pro-enterprise strategy attracting new business with a high technology content, be it in conventional fields of manufacturing and industrial services or in the new, knowledge-driven industries.

In the last two decades these new sectors have taken a strong hold, partly as a result of local conditions (location factors, local demand, basic services, specific incentives[15]), and partly due to the trends and opportunities presented by highly globalised markets. Among the highest growth sectors (in terms of number of companies) in the region over the last 15 years we find environmental technologies and services, biotechnology, alternative energies, telecommunications, information technology, and audiovisual/multimedia activities.

It is, however, the longer established industries in the region, such as chemicals, car manufacturing, electronics and engineering, which still account for 40% of NRW's industrial product and about 50% of exports from the state, although they are now far more complex and technologically dynamic.[16]

One interesting feature of new business in the region is its tendency to concentrate in territorial clusters, motivated either by the presence of strategic clients (like the State Development Agency in the case of the environment industry, or television broadcasting in the case of the audiovisual production companies around Cologne), or by major support provided by local administrations and institutions in order to attract companies to settle, with the help of State-backed measures such as industrial parks or business incubation centres.[17] Certainly, this functional differentiation within the territory of NRW had already been evident in the coal and steel cluster which developed in the Ruhr Area, driven by the needs of the big companies of yesteryear, and recently a similar phenomenon has been observed among parts suppliers for the car industry.[18]

One key element in the process of industrial restructuring undergone by NRW has been the creation, since the late

[15] One example is the start-up campaign called GO ("Grundungs-Offensive") launched by the regional administration in 1997.

[16] Data provided by the State Statistics Office of NRW, 1995 and 1998.

[17] One example of an industrial park is the Chemsite set up by the Emscher-Lippe Agency, while the many incubation centres offer "start-up packages", similar to the State GO campaign mentioned above.

[18] On this cf. Kilper, H., Latniak et al. (1994), ch.2.

1960s, of a large number of institutions devoted to development, the promotion of industry and technology transfer. They can be found throughout the state, but they are a little more concentrated in the Aachen and Ruhr areas. There is no doubt that a critical mass of services in support of business development, innovation and technology transfer has taken shape over the last thirty years as a deliberate feature of the industrial and technology policies pursued by the government of NRW.

NRW now has more institutions serving the productive sector than any other state in Germany. In 1996, for example, there were 119 *Gründerzentren*[19] in the whole of Germany, including the new states. Of these, NRW boasted the greatest number (35), followed by Baden-Württemberg with 17.

Most of these bodies were set up as private companies from public resources, in other words as public-private initiatives or PPPs (public-private partnerships). Public funding usually accounts for the bulk of financing during the construction or preparatory phase and the initial phase of operation. It is then reduced to cover at most 50% of operating costs, the rest being financed from revenues obtained by the sale of services.

Apart from the above-mentioned *Gründerzentren*, the following institutions, dispersed across the state, had been established by the early 1990s:[20]

- 49 consultancy and technology transfer points under the wing of universities, polytechnics, chambers of industry and trade unions;
- 29 R&D centres staffed by scientists;
- 26 technology transfer centres;
- 45 generic or specialised technology centres;
- Centres for innovation and technology consulting services (ZENIT in Mülheim, GIB in Bottrop, etc.)

Usually the initial investment required to set up these centres would be provided for the most part by public and private players at local level, that is, the district or municipality where the centre is based, the local savings bank (*Sparkasse*) and the local Chamber of Industry and Commerce (*IHK*). Occasionally there might be some input from the State or the European Union (via special funds for backward regions or those in the process of industrial restructuring).[21]

Whereas the investment structure is predominantly local, the operational funding for the great majority of these institutions usually includes public input from up to five different tiers: local, regional, State, Federal and European Community. The State Ministry of Economic Affairs, therefore, has established mechanisms for regular communication between the local, State and Federal levels to avoid duplication in the allocation of resources.

[19] Incubation and service centres for start-ups, usually with a technological character, source: Behrendt (1996), in Sternberg, Behrendt et al. (1996).

[20] Data from WMTM, NRW (1992). This does not include the 35 incubation centres, some of which are linked to technology centres.

[21] By way of example, the Technologie-Zentrum (TZ) in Dortmund was set up using funds from local government (City of Dortmund), 46.5%; local Chambers, 16%; the regional savings bank and other local banks, 25%; and a local private-law company founded specifically to implement and manage the TZ, 12.5%.

According to figures from the Ministry of Economic Affairs in NRW, the State government made direct allocations worth DM 3,100 million to promoting industry in the period 1994-1999. Of this, 65% was spent through regular development programmes, 27% through programmes to generate employment, and 8% on other programmes. The aim for the period 2000-2006 is to increase the nominal budget by about 10%, but to restrict the share of regular development programmes to 55% of these resources in order to devote a greater proportion (about 43%) to creating jobs (preliminary estimates).[22]

For the purpose of promoting industry NRW has its own Economic Development Agency, the *GfW des Landes NRW*, which depends directly on the State government for its funding but has a company-type structure.[23] This Agency co-ordinates a whole range of programmes aimed at economic development and stimulating investment, and its network of offices includes representatives abroad. Nevertheless, at district level and in the bigger towns there are also economic development companies which not only co-ordinate the activities of the State GfW at local level, but also play an active part in the RCs and initiate their own development measures.

[22] This information was provided by Dr. H. Jakoby at the seminar "Die Neuausrichtung der Strukturfonds und ihre Bedeutung für die Strukturpolitik in NRW", Dortmund, August 1999.

[23] GfW: Gesellschaft für Wirtschaftsförderung GmbH.

In addition to the impressive number of institutions in existence, it is interesting to note that the State government frequently refers to an "institutional network" geared to technological development. Based on visits I have been able to make so far, it does seem that there are many institutions and that, broadly speaking, they display a high level of technical and professional qualifications, attractive project portfolios and diversified funding structures which draw on various sources of public money combined with payment for services to private companies. Nevertheless, there does not appear to be much sign of systematic interplay between these institutions, even when working on projects similar in content and reach. This observation raises the question of possible redundancies within the region's meso-framework.

Reviewing the allocation of public resources, one might argue that redundancies of this kind entail a degree of cost structure inefficiency in the region's efforts to promote industry and technology. On the other hand, if we take on board less orthodox considerations, such as imperfect information in technology markets, or the risk inherent in any innovation and R&D commitment, the fact that more than one player is carrying out pre-competitive work within the same field emerges, rather, as an advantage, because it boosts the odds of success for at least one project in a given field over the region as a whole.

Then again, geographical proximity, the informal links which exist and the forums for social and economic exchange (such as Regional Conferences) enable players at meso-level who are engaged in tasks involving a certain redundancy to maintain regular contact, even if they do not co-ordinate their activities formally, and this hinders the evolution of stagnant compartmentalisation. These links and periodic forums of encounter help to generate momentum and interaction at meso-level of the kind experienced in institutionalised networks, free of the exclusive moulds which characterise the market and hierarchical organisations.

Perhaps the biggest question-mark with regard to the wealth of actors in NRW's meso-economy concerns their real market performance. At present, the many incentives, grants and institutional demand which come from the public sector, and in particular the State government, have been key factors in their foundation and operation. However, what would happen if these incentives were to vanish dramatically, which is likely to happen in the medium term following the principle that industrial policies are transient affairs? Is there now enough private demand to absorb this supply of pre-competitive services? If there is no market for pre-competitive services, what can be done to discourage institutional self-reference on the supply side? What competitive elements (incentives, penalties, indications of demand) would stimulate processes of cost and quality optimisation for these services?

3.3 The "meso" map

The State of North Rhine–Westphalia is a perfect example of Germany's administrative and institutional structures including, for example, their considerable decentralisation. In pursuing industrial and technological promotion policies, public administration juggles with various decision-making tiers involved in the allocation of resources, from local authorities to the supranational organisms of the European Community. This necessitates channels of communication and co-ordination between the bodies concerned. By the same token, institutionalised support mechanisms are territorially dispersed.

There are two potential explanations for the decentralisation of NRW's meso-framework, and probably they complement one another. The first relates to the active process of decentralising public administration, which has been consolidated in recent years by reforms transferring tasks and responsibilities down to sub-regional and local levels (*Kommunalverband*, *Kreis* and *Stadtverwaltung*). Combined with a long tradition of institutional decentralisation in Germany, characteristically reflected in

Regional Associations (*Landschafts-verband*) and regional Chambers of Industry and Commerce (*IHK*) and Savings Banks (*Sparkasse*), the logical consequence has been for bodies arising from public-private initiatives to adopt a similar pattern of territorial dispersion.

The second hypothesis indicates a less deliberate process of devolution from the "centre" (in this instance the State government) to the "periphery" (local authorities), in that the former takes on the role of engineering policies and driving strategies, which can only be implemented with the support of meso-territorial players with a functional or sectoral focus, leaving it to channel more human resources towards negotiation with the Federal and European levels.

Within this meso-framework we must distinguish between, on the one hand, institutions with a local or regional scope, which inevitably are territorially dispersed and, on the other, bodies with a State or even Federal remit based in different cities as an expression of the region's polynuclear demographic structure. The first category includes the local economic development agencies, such as *Emscher Lippe Agentur* or Duisburg's GfW (*Gesellschaft für Wirtschaftsförderung mbH*), but also incubation centres for start-ups or technology transfer and development centres such as the environmentally-oriented TZU (*Technologiezentrum Umweltschutz*) in Oberhausen or the TZ (*Technologie Zentrum*) in Dortmund, and, in the other sub-category, the Chambers of Industry and Commerce (*IHK*) and trade unions (*Gewerkschaft*). In the second category we might, by way of example, single out such institutions as ZENIT (the *Zentrum für Innovation und Technik* dedicated to innovation technology in NRW), GIB (the *Gesellschaft für innovative Beschäf-tigungsförderung* which seeks to generate employment in innovative sectors) or the ILS (the *Institut für Landes- und Stadtentwicklungsforschung des Landes NRW*, engaged in research for town and country planning), all of which pursue state-wide objectives, but also Federal institutions of research such as the *Forschungszentrum Jülich*, the *Max Planck* institutes (10 in NRW, 3 of which in the Ruhr Area) and the *Fraunhofer* institutes (5 in NRW, 2 in the Ruhr).

NRW's meso-framework consists of so many disparate institutions that any serious attempt to analyse the role they play and to set up benchmarks for assessing their performance, perhaps as a guide to the allocation of resources, would need first of all to establish a typology based on at least three features: *1. organisational form* (public, PPP, private, profit-making or not); *2. territorial reach* (local, i.e. municipality or district, regional, State, national) and *3. mission statement and core competences* (basic research, R&D, consultancy for businesses or institutions, specific business services such as incubation, technological surveys, technology transfer, etc.).

The following table illustrates some features of this basic typology:

Organisational form Territorial reach	**Public**	**Public Private – P.ship (PPP)**	**Private**
Federal/national	**Basic research, R&D:** Max Planck GmbH (10); Fraunhofer GmbH (5); BFZ Jülich **Definition and regulation of policy programmes:** Federal government		**Advocacy:** Federation of Chambers Trade union federation **Financial services**: Private bank **Applied research, business consulting:** ISA Consult GmbH
State	**Definition, initiation and regulation of policy programmes:** State government **Policy promotion and coordination:** GfW NRW GmbH Zentralbank NRW **Applied research, business consulting:** IAT Gelsenkirchen ILS Dortmund Wuppertal Institut LEG	**Applied research, business consulting:** GIB Bottrop ZENIT Mülheim	**Advocacy:** State Fed. Of Chambers State trade union fed. **Financial services:** Private bank **Applied research, business consulting:** Agipla Consult GmbH
Regional	**Policy promotion and coordination.:** Landschaftsverbände R-W Regierungsbezirk Ruhr Association of Local Authorities (KVR);	**Initiation, coordination and prioritisation:** Regional Conferences; Emscher-Lippe Agency (ELA); IBA; Chemsite	**Advocacy:** Associations of private bodies
Local	**Policy promotion and coordination.:** District/municipal authority **Basic research, R&D:** Universities	**Coordination and service provision:** City`s Economic development Agencies; TZ and Gründerzentren (approx. 150) **Financial services:** Sparkasse	**Advocacy and service provision:** Chamber of Industry and Commerce Trade union

In terms of regional administration, we must distinguish between at least six different structures in NRW which have territorial powers positioned somewhere between State and local level. These structures, which may in cases overlap either each other's sphere of competence or those of other administrative tiers[24], are as follows:

a) *Regional associations (Landschaftsverband Rheinland* and *Westfalen-Lippe)*: These two organisms have historical roots dating back to the Associations of Prussian Provinces, which survived until the Second World War. After the war they continued to function as "natural" frameworks for local authorities to present their case within regional planning processes. They maintained this implicit role until the 1970s, when the new unitary administrations were formed. Today their primary task is to distribute social benefits and to exercise specific duties such as road construction, health provision and the organisation of regional arts activities. In 1998 the two Associations had an aggregate social assistance budget worth approximately DM 7,000 million.

b) *Regierungsbezirk*: In administrative terms, this is the main division in NRW. The state breaks down into 5 Regierungsbezirke: Düsseldorf (consisting of 15 districts or *Kreise*, 11 of them urban); Cologne (12 districts, 4 urban); Münster (8 districts, 3 urban); Detmold (6 districts, 1 urban), and Arnsberg (12 districts, 5 urban). The Ruhr Area straddles three of these unitary administrations: Dusseldorf, Arnsberg and Münster. Since 1976 these have been the "official" units of regional planning. To this end they each have a Legislative Council consisting of representatives from local councils.

c) *Ruhr Association of Local Authorities (Kommunalverband Ruhrgebiet–KVR*): This is an alliance of local authorities found exclusively in the Ruhr Area which has replaced the former Association of Coal Communities in the Ruhr[25]. The KVR is the largest and oldest association (*Verband*) of this type in Germany, and it possesses broad powers and functions. In 1998 the KVR had a staff of over 350 professional experts and administrative employees with information tasks in various fields (transport, tourism, structural planning, public administration, services to local citizens, arts and recreation, and others), or else engaged in projects in these fields, such as designing routes for cultural tourism, improving public services, helping to network regional public transport or supporting particular target populations such as women in business, young people, etc. The State government is contemplating a new status for this body in the near future. As the "Ruhr Agency" it would focus more effectively on strategic development projects for the region and would absorb the present executive office of the IBA.

d) *Regional Conferences*: As part of the Initiative for the Future of NRW (ZIN), 14 ZIN Regions were defined in 1989. These were groups of *Kreise* perceived as sharing certain interests and challenges. Each *Regierungsbezirk* was subdivided into at least 2 and at most 5

[24] Based on Blotevogel, H. (1998)

[25] Siedlungsverband Ruhrkohlenbezirk

ZIN Regions. The only exception was Ostwestfalen-Lippe, where the ZIN Region is congruent with the *Regierungsbezirk*. In 1990, the State government granted these entities official status and increased the number to 15. They were given the task of organising Regional Conferences and elaborating strategies for "regional development".

The conference cartography is as follows:

Regierungsbezirk	**Regional Conference (no. of *Kreise*)**
Dusseldorf	Bergische Grossstädte (3) Dusseldorf / Mittlerer Niederrhein (6) Mülheim / Essen / Oberhausen (3*) Niederrhein (3*)
Cologne	Aachen (5) Bonn (2) Cologne (5)
Münster	Emscher – Lippe (3*) Münsterland (5)
Detmold	Ostwestfalen – Lippe (7)
Arnsberg	Arnsberg (2) Dortmund / Unna / Hamm (3*) Mittleres Ruhrgebiet / Bochum (3*) Hagen (3*) Siegen (2)

Source: Compiled from data in Heinze and Voelzkow (eds.) 1997
(*) : Indicates that part of the territory falls within the Ruhr Area

Although some criticisms could be levelled at the achievements of these various Regional Conferences and at the way they represent regional interests or organise participation (as an earlier section has described), there is no doubt that since their foundation they have provided a framework for strategic deliberation and dialogue within their territories, permitting local authorities to co-operate and sending out feelers between local, regional and State representatives. All in all, this has enriched the institutional meso-fabric in NRW from the perspective of these "regions" as natural arenas for enhanced co-ordination between different measures designed to promote the economy.

e) *Regional secretariats (Regionalsekretariate):* Administrative units set up to represent state policies in the field of labour matters and the employment market.

f) *Cultural regions (Kulturregionen):* A subdivision of the state serving the organisation and promotion of arts-related measures.

It is evident from this brief description of regional structures in NRW that very different subdivisions are at play, and that a region with such a strong historical, cultural and economic identity as the Ruhr Area is nevertheless fragmented across diverse entities at this level, except in the case of the KVR.

At the same time, we must distinguish between functioning structures (*Regierungsbezirk*, *Landschaftsverband*, *KVR*) with a corporate profile of their own, which can take decisions and implement measures without first achieving consensus between various players, and bodies devoted to specific purposes but without a permanent institutional structure, which require this consensus in order to adopt decisions (Regional Conferences, IBA). It is worth considering what might happen if certain tasks were transferred from one type of body to the other (for example, a second phase of the IBA under the aegis of the KVR).

The obvious superimposition of different structures, which can be explained in historical and political terms, generates high transaction costs in the field of policy co-ordination and co-operation between authorities with, moreover, different territorial boundaries.

From the public management perspective, the most appropriate question is probably: How can this institutional conglomeration be knitted together in a manner which enhances co-ordination and interplay with a view to creating synergies and preventing the fragmentation of effort or the duplication of tasks among bodies with different territories and scopes?

Again, it is the State which assumes responsibility for facilitating interaction and ongoing co-operation, ensuring some regulation and governance for network dynamics.

3.4 Opportunities and threats created by the new European scenario

As integration of the European Union proceeds, it brings in its wake a number of changes in the economic and techno-productive environment of member states and regions. This phenomenon, often referred to as "Europeanisation", opens up new options with various implications for location factors, trading relations, the integration of manufacturing and services, technology, labour, institutions – to mention only some of the more salient aspects. For the regions concerned, these options may present opportunities, but also threats, depending on their relative strengths and weaknesses and on the ability of regional players to recognise and seize opportunities before – or together with – other regions.

Drawing on Porter's competitive diamond[26], we can deduce that the new European scenario will affect the conditions for competition and co-operation between companies, the conditions governing components in and, therefore, the overall pattern of many value added chains, and also the institutional context, reinforcing the supranational plane in the meso-universe within which each economic player operates.

Within this new scenario NRW clearly boasts a number of advantages due to its geographical location, its infrastructure and the presence of companies who are "global players", or at least "European players".

[26] Cf. Porter (1999)

NRW's central location within the EU[27] is a key aspect, although certainly not the only one, within this scenario of integrated national markets. The Rhine-Ruhr axis from Cologne to Dortmund has Europe's third greatest concentration of Top 500 company headquarters (as a percentage of all productive companies) following the London and Paris regions. Its strengths in the fields of infrastructure, transport and communications, and its proximity to the Netherlands as Europe's leading distribution centre, promise tremendous potential within the new scenario for integrating and developing services to support the commercial sector, not a traditional strength of this region.[28]

With regard to the European institutions for economic development, NRW has set up its own specific channels of dialogue over the years, taking advantage of its critical mass of institutions and backed by the State government, which has made a priority of such efforts. Another strength which NRW has cultivated efficiently, therefore, is the relative autonomy which federal states in Germany have, compared with other member states, to establish their own links with the supranational, European tier.[29]

One interesting example of horizontal co-operation between regions in the present European scenario is Euregio, a territorial entity constituted by the regions Aachen, Maastricht (Netherlands) and Liège (Belgium) where institutions co-operate in the fields of R&D, technology and company exchange in order to boost competitive advantages in particular high added-value, high technology sectors such as telecommunications, car manufacturing processes, biotechnology and bio-engineering.

[27] At present 40% of the EU's population live within a radius of 300 miles from the capital of NRW, Dusseldorf.

[28] Cf. De Ligt, T. and Wever, E. (1998)

[29] Cf. Meise, T. (1997), ch. 3.2

It is interesting to note that the competitive prospects for companies in NRW within this European scenario are not equally shared throughout the state. Some areas, such as the districts of Aachen, Cologne, Dusseldorf, Dortmund, Essen and Detmold, have a well-advanced product and service nucleus and, in addition, are perceived as attractive locations for potential new companies. Others, including much of the Ruhr Area, seem well on the way to creating a profile of this kind, but have not yet shaken off their long-established image based on mining and heavy industry, in spite of the indisputable gains made in new sectors and the remaining potential. That is why initiatives to enhance and update the regional image, such as the spatial redevelopment undertaken by the IBA, are more far-reaching in impact than might be suggested by their direct achievements in the field or architecture and urban design. In fact, their economic impact cannot be evaluated in such direct terms as the number of jobs created. In this instance, it would seem more appropriate to apply contingent evaluation methods (i.e. to evaluate scenarios in which these projects do not feature, and contrast the findings with ex-post evidence of the projects). This would help to paint some picture of indirect effects, such as decisions to locate, investment and the preservation or creation of jobs.

Similarly, the incubation centres and the GO initiative cannot be reduced to direct effects, but have also enhanced communication and, in no small way, image.

In this context, the contribution made by the Regional Conferences is not so assured, especially when they tend to represent the traditionally dominant players in their territories. On the other hand, if they gear their structure and content more closely to region's future potential and opportunities, displaying enough flexibility to involve emerging players in this dynamic process, they may establish a role as key meso-economic players able to stimulate synergies between the inputs and priorities of European, Federal and State bodies in the interests of the region.

4. The strategy today: A "new agenda" for the State government?

4.1 Systematised impressions: constituent factors in the NRW experience

There are three constituent factors which help to understand NRW's experience of structural transformation and to venture some analysis of its future evolution and the hurdles it will need to surmount. The first concerns the *magnitude of the industrial challenge*. Vast areas of the state are affected. Their populations and socio-cultural patterns developed hand in glove with the consolidation of highly competitive industrial conglomerations in the international arena which, if we cannot entirely classify them as mono-productive, nevertheless revolved around a hegemonic cluster: coal–energy–steel–metalworking–heavy chemicals. Radical changes on both the supply and demand side deprived this cluster of viability within less than twenty years, necessitating transformation towards a socio-productive weave which echoed these earlier conditions but which was no match for a challenge of this magnitude. This factor is of major relevance in that it reveals how strengths in an environment of continuity and marginal change can become weaknesses against a backdrop of radical transformation, due to the inertia which a network or social system tends to display, and given the uncertainties and risks which this challenge initially presents. That is why the strategy for change initiated by the State government had to reflect the magnitude of that challenge, in order to overcome the established inertia and seek as a priority to attract new economic players through whom industrial restructuring could be linked to new job opportunities and dynamic socio-productive trends.

The second constituent factor relates to the type of leadership which evolved around the industrial restructuring process, notably on the part of the State government. The NRW experience illustrates a clear decision by the State to provide strategic direction for this transformation (primarily through the State government itself, but flanked by the Federal, local and, more recently, supranational tiers), given the relative retreat of several companies/consortia which had previously operated as natural and hegemonic leaders in NRW's principal industrial agglomerations. Direction was provided by means of three strategy components:

1) the progressive allocation of resources for "structural change" by means of (usually indirect) subsidies intended to stimulate new jobs in various ways: by attracting business, encouraging start-ups, improving the provision of pre-competitive services, supporting innovation and exports and, more recently, promoting clustering and closer links between productive companies;[30]
2) participatory assemblies created from the late 1980s with a view to formulating shared visions of the future (ZIM, ZIN and subsequently Regional Conferences) and providing orientation for regional and local action; and
3) an information strategy targeted at citizens and above all relevant economic and institutional players, combined with high-impact projects aimed at enhancing the state's image (IBA).

Without wishing to play down the role of market variables, which in no uncertain terms triggered the need for industrial conversion, I would maintain that the State government exercised an indisputable leadership function in structural transformation which clearly evolved over time: its earliest measures were more interventionist and centralised in character (including the strategy of the State Development Agency, or LEG, in the late 1970s, during the first phase of *Standortpolitik*), followed by the deliberate promotion of participatory arenas for strategic planning (Future Initiative for the Ruhr, ZIM, ZIN, Regional Conferences, etc.) with growing decentralisation. At the same time programmes were set up to encourage regular communication and interplay between players at different decision-making levels (IBA, GO, sectoral initiatives for energy, telecommunications, car suppliers, biotechnology), while PPP models were applied to found or reinforce a wide range of autonomous institutions at regional and local level within the meso-economic framework.

A third constituent element in the structural conversion of NRW's industry has been determined by the prevailing environment, and in particular two phenomena: globalisation and Europeanisation. The former has been displaying increased momentum since the 1980s and affects every company, region and country. Some aspects of this process have been reinforced by the increased flexibility of production technologies, dovetailed with a trend towards greater

[30] From 1990 to 1998 State spending targeted at structural transformation grew to overtake direct subsidies to the coal industry, reversing the trend observed between 1982 and 1989 (source: IAT, 1998).

specialisation – hence the term "flexible specialisation". A second feature is the unprecedented proliferation of "global mercantile chains“[31]. In a context of increasingly unregulated capital flows, these two trends are generating a series of impacts at local and global level, and NRW is no exception. Europeanisation has injected further conditions which complement those of globalisation, opening up a number of options for Europe's regions which will present opportunities or threats, depending on their strengths, weaknesses and strategies, as manufacturing and service structures attune to the competition. NRW offers an uneven panorama in this respect, as there are some regions within the state with functional profiles which fit the European scenario (Aachen, Cologne, Detmold) and others which have not defined their profile to the same degree (Düren, parts of the Ruhr Area).

4.2 The evolving role of State government

Ongoing momentum in the formation of new meso-players, creating new redundancies and complementarities, the clear trend towards decentralisation of public administration and industrial policy mechanisms, and the acknowledgement of powers vested in the local tier (municipalities and districts) are all factors which, among others, have gradually shifted the emphasis in the role played by the State government within its strategy for industrial restructuring, beginning as executive administrator (in the initial phase of *Standortpolitik*), then acting as developer and distributor of resources (*Gründerzentren*, *TZ*), and more recently as a partner in dialogue with the ability to co-ordinate a complex network while dispersing strategic (not merely operational) policy-making capacities and responsibilities across its territory.

Certainly, the State has consciously opted over the last ten years for this network logic rather than a *laissez faire* approach or a strategy based on centralised planning hierarchies[32]. This logic has drawn momentum from the Regional Conferences and measures encouraging broader participation in territorial redevelopment, like the IBA. Today, alongside the three constituent factors already described, the meso-economic framework is marked by an abundance of players displaying open task and role redundancies and by a strong and growing degree of functional and operational devolution down to regional and local bodies. This has been facilitated by the considerable professional and

[31] Cf. Dussel, E. (1999)

[32] Cf. Messner (1997), ch. 1.4 and III.2

technical capacity at the base of the existing institutional pyramid (Chambers, trade unions, local authorities), subsequently reinforced by new players (meso-institutions, local development agencies) and by the provision of resources for allocation and deployment at this level.

Nevertheless, the evolution of this huge meso-economic network raises a number of questions which are crucial to assessing recent performance and determining the next steps: What role should the state government assume following its "meso-activating" function in the development of this network? What should be done to facilitate and regulate interaction within the network between the various territorial levels? What more can be done to develop high-quality, cost-efficient support to businesses and management? Is there a danger that institutions become self-legitimating? Are incentives and "penalties" required to stimulate market-type competition within the network?

These questions suggest that it might be appropriate for the State government to adopt a new "post-activating" role. Its emphasis would be, first, to develop governance capacities by means of functions such as monitoring, impact assessment and incentive engineering and by promoting efficient channels for communication and feedback through the network and, second, to strengthen the network's capacity for external dialogue, that is, with the Federal, European and international levels.

Governance is by no means a trivial affair in complex networks. It is difficult to isolate the effects or results of specific policies and measures by means of monitoring and evaluation when myriad players are interacting with companies directly and indirectly, and when there are simultaneously exogenous factors influencing the competitive environment. Much the same applies to investment decisions. The performance of even a single company, organisation, industrial subsector or location is determined by multiple factors and dynamic processes which cannot easily be slotted into a linear scheme of case and effect.

The patent complexity of assessing performance in the meso-context and evaluating the efficiency of instruments inevitably infects the design of incentives, which calls for a delicate balance between specific relevance and clarity of indicators. Tools such as benchmarking and performance contracts for institutions also make a helpful contribution in the task of governance, although they need constant review and updating.

At institutional or meso-economic level, institutional redundancies might seem to be a regional advantage in the light of possible synergies and the inherent uncertainties of pre-competitive development. However, given the volume of resources injected by the State, Federal and European levels, more efforts should be made to monitor the performance and impact of these institutions in technology transfer, dissemination of technology, support for innovation and pre-competitive development, as this would permit some public resources to be re-allocated on the basis of performance indicators using systematised benchmarking models. Designing and implementing such models for the purpose of verification and monitoring is generally a highly complex task, mainly because the indicators defined do not entirely match the scope or results of specific projects and measures, many of which yield a wide range of by-products, synergies and indirect effects, or sow seeds which do not immediately germinate. Moreover, evaluating and auditing results is itself subject to pitfalls and inaccuracies.

Given that every institution is engaged in a multiplicity of tasks and operates in diverse contexts, it is difficult to adopt one standard set of indicators to assess all the institutions on which feedback is requested. This poses the option of performance contracts, linked wherever possible to quantifiable standards, which could be integrated into benchmarking systems in such a way that direct performance indicators are flexible enough to reflect the nature and specific context of the activity carried out by each entity concerned. [33]

Finally, there needs to be a consistent framework for the incentives associated with this type of system which will encourage its functional parts to maintain it, update it and systematically improve it.

In spite of the complexities described, the application of a few relatively basic indicators, enabling performance to be measured and establishing targets for the range, reach and quality of activities undertaken by the diverse meso-actors in the productive and technological fields as a first step towards benchmarking and performance contracts, would be an appropriate advance towards improving the present channels of feedback in line with government expectations.

One relevant, critical aspect in the light of the challenges posed by competitiveness and sustainability in NRW's new techno-productive model is the capacity of the meso-institutions and their public partners in this dialogue to react by adapting their offerings to changes in endogenous conditions and in the competitive environment of companies. In this respect, networks can generate dynamic mechanisms which actually result in inertia or place the brake on change. Another function which it seems appropriate for the State government to prioritise in defining its new role is to act as a catalyst for change and institutional innovation, constantly identifying and promoting "good practice" within the region and also elsewhere.

4.3 Notes for a "new agenda"

The industrial restructuring strategy originally triggered by the State government and subsequently supported by a close-knit "meso-economic network" has so far pursued clear goals, as described in the previous sections: private investment has gained momentum and diversified, new industries in emerging sectors have been established or attracted to NRW, social players have been mobilised locally and regionally to formulate visions of the future and identify priorities for action, integrating the energies and capacities already existent at these levels into the process of structural change, and there have been conscious efforts to consolidate clusters (car components, biotechnology, multimedia, environmental technologies and services) by means of supplier development programmes, institutional demand, business incubation, location incentives and other promotion measures.

[33] As a point of reference cf. Sabel, C. (1995)

Direct public resources of considerable magnitude have been allocated by the State, flanked by input from the other tiers, but this only reflects the huge scale of the challenge following the crisis which hit the traditionally dominant industrial and employment structures in vast areas of the state. The bulk of these resources, however, was targeted towards facilitating a range of promotional measures, firstly to attract business to the state, and then to provide pre-competitive services via support for the creation and deployment of a network of intermediate bodies, referred to throughout the present paper as the meso-economic network.

Nevertheless, although the phases described have been relatively successful, many of the structural problems affecting the regions most closely linked to the historical coal, iron and steel cluster – such as high levels of structural unemployment, low export-related activity and low growth in emerging sectors, compared with both the state and the Federal average – have not yet been definitively overcome, in spite of the preferential support given to meso-economic bodies and forums in these regions.

Be that as it may, public administration functions have increasingly been transferred to regional and local entities, as described in section 3.4, freeing the State to concentrate on new fronts determined by the more recent scenario in which NRW is externally engaged as a result of Europeanisation and globalisation and also by new domestic conditions which the State's own strategy for structural change has helped to create.

A preliminary and probably non-exhaustive attempt to identify components for a State government agenda in the years ahead in pursuit of its strategy to restructure the productive economy should begin by considering the following aspects:

- *Regulation and governance of the meso-economic network.* Development of decentralised monitoring systems, flexible benchmarking systems, transfer of resources based on performance contracts and development of carrot-and-stick schemes to encourage conduct which will maximise the value for money of services provided.
- *Development and fine-tuning of communication and feedback channels.* Development of arbitration capacity and powers to deal with conflicts, not only at State level; optimisation and de-bureaucratisation of co-ordination channels between different bodies by integrating new communication technologies with the support of local industry (intranets, virtual information portals, IC systems);
- *Prioritisation of improved communication with the upper territorial tiers.* Efficient transmission of State and regional priorities (from RCs upwards) to the Federal and European level in order to achieve the most effective input of subsidiary resources while avoiding a duplication of channels and funds; promotion of mechanisms for horizontal exchange within networks, identifying and disseminating good practice in different regions of Europe and promoting arenas for exchanging experience and institutional training.
- *Promotion of operational capacities at the intermediate (regional) level.* Modernisation of certain regional entities (KVR, Regierungsbezirk) to strengthen operational capacities; co-ordination with Regional Conferences to identify fields of synergy but also fragmentation and task duplication at local level.
- *Shift from a "capacity-building" to a "market-fostering" focus.* Gradual move away from direct transfer to offerings based on incentives to the demand for pre-competitive services; incorporation of "market" indicators in performance contracts; systematised surveys of demand by means of market research and focus groups; promotion of institutional best practice to keep abreast of new market orientations and global trends in competition.

- *Promotion of networking among users of pre-competitive services.* Promotion of collective efficiency and shared learning processes; differentiation between services offered in the meso-economic framework and services offered by private consultants, with the former able to absorb transaction costs associated with micro-economic networking.
- *Neutrality in the consultancy market.* Guarantee of fair competition and equal market access conditions for private consultancy services and meso-bodies of a PPP format; negative incentives for meso incursions into routine consultancy and business services provision.
- *Definition and monitoring of performance and quality in State management.* Inclusion of performance indicators in State management similar to those defined for meso-economic bodies in their performance contracts and monitoring systems.

One equally important question in considering the future tasks of State government is whether its present internal structure is conducive to the nature of leadership which it is called upon to offer.

In essence it does not seem likely that an organisation structured basically around vertical co-ordination within various divisions, with fairly rigid compartmentalisation on the horizontal plane, will be able to develop authentic institutional capabilities when it comes to network governance.

5. Lessons and future challenges for NRW; contrasts with the Chilean experience

This paper identifies a triad of constituent factors in the transformation process which NRW has undergone over the last twenty years: the depth and magnitude of the transformation challenge, the strategy and the leadership provided, and the ambient conditions. These factors have influenced the main thrust and priorities which largely explain the successes achieved from a contingent evaluation perspective or, in other words, compared with the direction which the state economy would have taken in a hypothetical scenario in which market forces had been left to function freely, given the structural (social, labour-related and cultural) characteristics which prevailed prior to the need for industrial restructuring which took vast areas of North Rhine-Westphalia by surprise much earlier than other regions of Germany. Compared with economic restructuring processes elsewhere, such as the Chilean experience during the same period, this strategy and the internal dynamics it unleashed is different in many respects. To some extent, Chile's path was the very antithesis of a strategy based on strengthening the meso-plane as adopted in NRW.

Chile's export sector, well rooted in the international arena due to the early opening and broad deregulation of its markets and consisting for the most part of products with a high natural resources content, was the driving force behind the national economy for two decades, and in consequence Chile boasted the fastest growing economy in Latin America between 1985 and 1998. This vigorous export activity had a number of positive effects, including the stimulation of a dynamic entrepreneurial sector accustomed to picking up signals from external markets and responding to them with supply-side adjustments, the evolution of a basic infrastructure and the provision of services to support the export business, granting the country a competitive advantage over customary Latin American standards, and the consolidation of back-up measures by public agencies, which not only contributed actively to the promotion of exports, but also exerted a favourable impact on the exporters' ability to develop competitive strategies and encouraged the collective efficiency of this business sector.

However, it is doubtful whether this model for growth can be truly incisive and sustainable when the overall context is fraught with institutional and social weaknesses. Chile has tended to develop competitive enclaves based, what is more, on advantages of a static nature. A "second exporting phase" based on dynamic competitive advantages was recently announced, but it is not advancing as fast as hoped. The weakness of intermediate players at the meso-economic level is restricting technological development and innovation towards more dynamic competitive advantages and improved co-ordination within the productive sector. In spite of the resources targeted since the early nineties at building pre-competitive capacities, the erosion of this asset which has taken place since the introduction of the neo-liberal model has not yet been reversed. At the same time, the slow pace of decentralisation, hampered less by a lack of political will at the centre than by an objective lack of regional capacity, acts as an additional brake on the declared aim of improving the systemic competitiveness, sustainability and proportionality of Chile's economy.

The case of NRW illustrates an abundance of elements which converge in a process of deep structural transformation. This paper has attempted to provide a succinct and generic description of a number of aspects which, in the author's opinion, exert a particular influence on this process and have proved to be determining factors when we come to take stock of the results, impacts and unresolved challenges, logically taking into account the learning curves of the most significant players and the evolution of their roles, both of which are themselves factors in a process of a complexity which should not be underestimated.

Before hazarding elements for comparison with a development model such as Chile's one must clearly embark on a number of prior considerations with regard to differences in the context, such as the predominant structure of the productive economy and how it has evolved in recent decades, the structure of administrative decentralisation, patterns of wealth creation and distribution and, logically, the relative level of economic development at the point in time when, in the one case, the neo-liberal model was implemented and, in the other, the strategy for structural transformation was adopted.

Nevertheless, from the perspective of competitiveness, in the sense of a capacity for sustainable growth in increasingly globalised markets, it is most interesting to note that both itineraries display indisputable achievements, even though they might be regarded as "diametrically opposite" in terms of their present strengths, weaknesses and future challenges. In Chile's case, the major challenge relates to the issue of capacity building at the meso-economic, micro-economic and regional or local levels. In NRW, the task for the future seems to be associated rather more with accountability and market fostering at the meso-economic and regional/local levels.

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ANNEX

Table A1

Milestones in the Structural Change Policy in North Rhine-Westphalia

Name	**Ruhr Property Development Fund** (administered by the LEG, the State Development Agency);
Starting year	1980;
Current status	Still operating.
Main targets/ features	The Fund has acquired more than 150 industrial sites with a total surface areas of approx. 2,400 hectares to be recovered and re-sold (by 1997 there were app. 1,000 ha. already sold) to industrial, recreational and residential uses.
Support scheme	EU/State: (22,5%); State (Real Estate-, Iron-, Montanregions Future-, and other Funds: 48%); Fund-revolving (18%); Local/district (10,5%). Estimated global investment (1980-1997): 2,300 Mio. DM.
Name	**Business Incubators (Gründerzentren)**;
Starting year	Since 1984, in Dortmund, Aachen and Bonn;
Current status	With a strong support of the State government, there are 36 GZ in NR-W (1997);
Main targets/ features	To promote: the setting up of firms in „areas of the future“, the so-called „spin-offs“, technology transfer projects; and to cooperate within the framework of regional and city development.
Support scheme	Estimated total investment in 19 GZ in NR-W: 416 Mio. DM (State subsidy: 302 Mio. DM): Holders of equities: Host city (75% of cases); Banks/building societies (45%); Chamber of Commerce: (35%).
Name	**EU Structural Funds Program (Objective 2)**;
Starting year	1989;
Current status	End of Phase IV (1997-1999);
Main targets/ features	To foster the economic restructuring in the State of NR-W. Main tasks (Phases I, II & III): recovering industrial sites (30% expenditure); Training (17%); Technology and Start-up Centers (15%); Tech. Innovation (12%); SME Promotion (3%);
Support scheme	EU (25%); NRW State (20%); Local/district (11%); Privates (44%). Operational Budget Phase III (1994-1996): 2000 Mio. DM

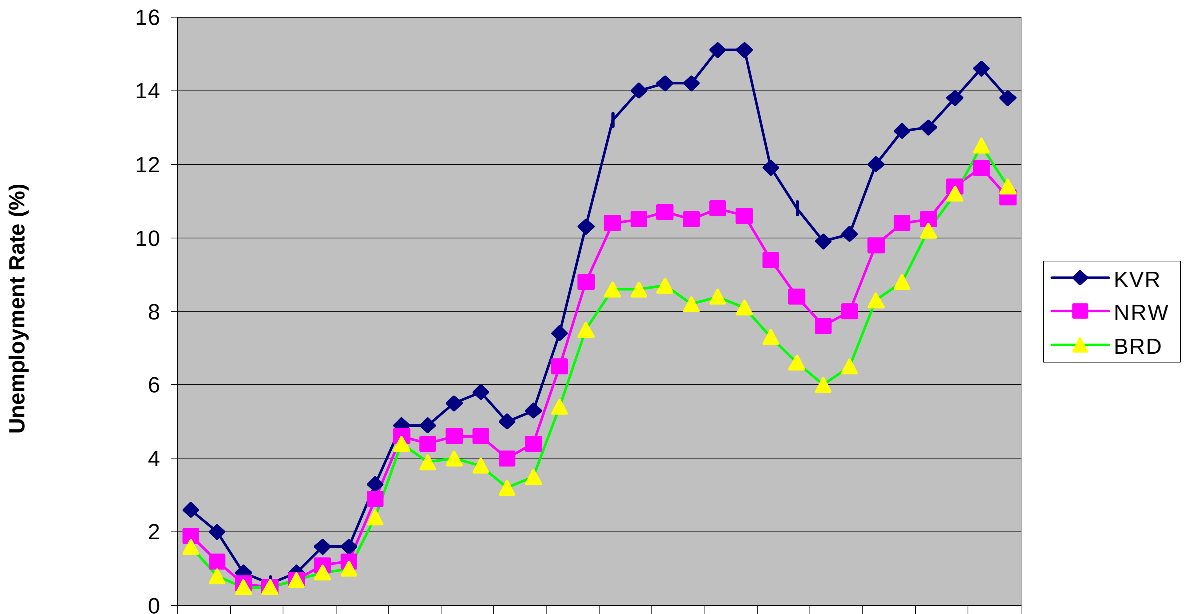
Name	**International Exhibition of Architecture and Building (IBA) at Emscher Park;**
Starting year	1989;
Current status	Finished in 1999. The Emscher Park GmbH (created by the State government to manage the IBA) has been traspassed to KVR (Ruhr Districts Association);
Main targets/ features	To contribute to the region's spatial redevelopment. Innovatively conceived as a competition for design ideas decided by juries with representatives from State and local authorities, industry, universities and the general public, the initiative has been co-ordinated by a private company, Emscher Park GmbH, which is 100%-owned by the government of NRW but fully autonomous;
Support scheme	Emscher Park GmbH´s operating budget: 35 Mio DM. Investment structure: State Operational Budget (35%); other EU/State Funds (Real Estate, urban renewal, others: 40%); Local and private (35%). Estimated Global Investment: 5200 Mio. DM.
Name	**Initiative for the Future of NRW: ZIN Regions and Regional Conferences(RC);**
Starting year	RCs: 1988 (Emscher-Lippe), 1989 (Ost Westfalen and Niederrhein), based on the Initiatives for the Future of the Mining Regions (ZIM), launched in 1987;
Current status	The ZIN Regions gave birth in 1990 and 1991 to most of Regional Conferences. There are now 15 Regional Conferences in NRW. In most cases their boundaries reflect the geographical structure of the Chambers of Industry and Commerce (IHK);
Main targets/ features	RCs were devised as forums for territorial development and social dialogue at district and municipal level;
Support scheme	State government, local and districts administrations.
Name	**Emscher-Lippe Agentur (ELA)**;
Starting year	1990, by 36 holders societies (18 private companies, 5 chambers of Industry, Commerce and Handcraft, 1 Bank, 12 City Administrations);
Current status	Still operating, with a staff of 11 professionals;
Main targets/ features	ELA carries on several permanent functions and specific iniciatives in the field of economic development and promotion of the Region of Emscher-Lippe: Investment promotion (Chemsite, Sites management, advisory to potential investors); sectoral iniciatives (real estate, energie, media, etc.); SME advisory; promotion of a regional network, among others;
Support scheme	Starting capital: 570,000 DM. Operational budget of 476,500 DM in 1998 that comes from contributions of chambers, cities, banks and private holders.

Name	**Meso-Institutional Activism and Networking;**
Starting year	Second half decade of 80s;
Current status	NRW's meso-framework in the field of economic development, consists of hundreds of different institutions with regard to their: *1. organisational form* (public, PPP, private, profit-making or not), *2. territorial reach* (local, i.e. municipality or district, regional, State, national) and *3. mission statement and core competences* (basic research, R&D, consultancy for business or institutions, specific services such as incubates, technological surveys, technology transfer, etc.); At the State´s level, it´s worth mentioning the GfW, *Gesellschaft für Wirtschaftsförderung NRW* (State Economic Development Corporation); the *GIB, Gesellschaft für innovative Beschäftigungsförderung* (Innovative Employment Corporation); the *IAT, Institut für Arbeit und Technik* (Institute for Work and Technique); the *ZENIT, Zentrum für Innovation und Technik NRW* (Center for Innovation and Technique); the *LEG Standort und Projecktentwicklung* (State Development Corporation, for industrial location and projects), and *the ILS, Institut für Landes und Stadtentwicklungsforschung NRW* (Institute for Regional and Urban Development);
Main targets/ features	At the beginning of the nineties, the goal were to foster such entities, and to put them closer to the industrial necessities (Industrial Chambers and Unions). Some years later, the emphasis moved to coordinate their tasks and services, in order to gain efficiency, relevance and to optimize the state financial contributions to them;
Support scheme	Most of meso institution combine financement of customers, state government, and other contributions from the federal, european and local sources.
Name	**Sectoral and „Future“ Initiatives**;
Starting year	Decade of 90s;
Current status	There are several sectoral initiatives currently going on;
Main targets/ features	The emphasis depend on the sector to be considered. In automobil (started 1993), textil (s. 1996), chemical (s.1996) and railways, the emphasis is on suppliers networking, in food processing and steel it is on competitive adjustments, in capital goods and mining on training, in info-comunications and biotechnology on innovation and start-up, in agriculture and energy on ecoefficiency;
Support scheme	The State government convokes and promotes them.
Name	**Cluster Promotion Iniciative: Project REKON**;
Starting year	1995
Current status	In operation.
Main targets/ features	To promote strategic cooperation plans between enterprises and institutional partners, in order to gain sinergies, improving the competitiveness of suppliers of some products or services, which are concentrated in specific locations. It has operated in sectors like cement, health care services, logistic, textile, funitures, energy-related firms, etc.

Support scheme	The State goverment support the basic studies and coaching activities. The program aims to leverage contributions from industries and institutional partners.
Name	**GO! Initiative (Start-up Offensive);**
Starting year	1996
Current status	In operation;
Main targets/ features	To provide a one-step point service in order to advice new and young business in financial, administrative and managerial matters. The iniciative aims to facilitate the access for new business to the Program „Gründungs- und Wachstumsfinanzierung“ which offer Start-up loans, and Equity Capital Assistance, from DtA (Deutsche Ausgleichsbank) and start-up credits from the State´s Investment Bank (IB-NRW). In addition, it provides financial and legal advisory, and it also promotes business partnerships
Support scheme	The State government is responsible for the design, promotion and communication strategy. The network of intermediary entities (most of them Local agencies and Industrial Chambers) provides the one-step services.

Figure A2

Evolution of Unemployment : Deutschland (BRD), NRW and Ruhr Region (KVR)



	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95	97
KVR	2,6	0,9	0,9	1,6	4,9	5,5	5	7,4	13,2	14,2	15,1	11,9	9,9	12	13	14,6
NRW	1,9	0,6	0,7	1,2	4,6	4,6	4	6,5	10,4	10,7	10,8	9,4	7,6	9,8	10,5	11,9
BRD	1,6	0,5	0,7	1	4,4	4	3,2	5,4	8,6	8,7	8,4	7,3	6	8,3	10,2	12,5

Year

Figure A3

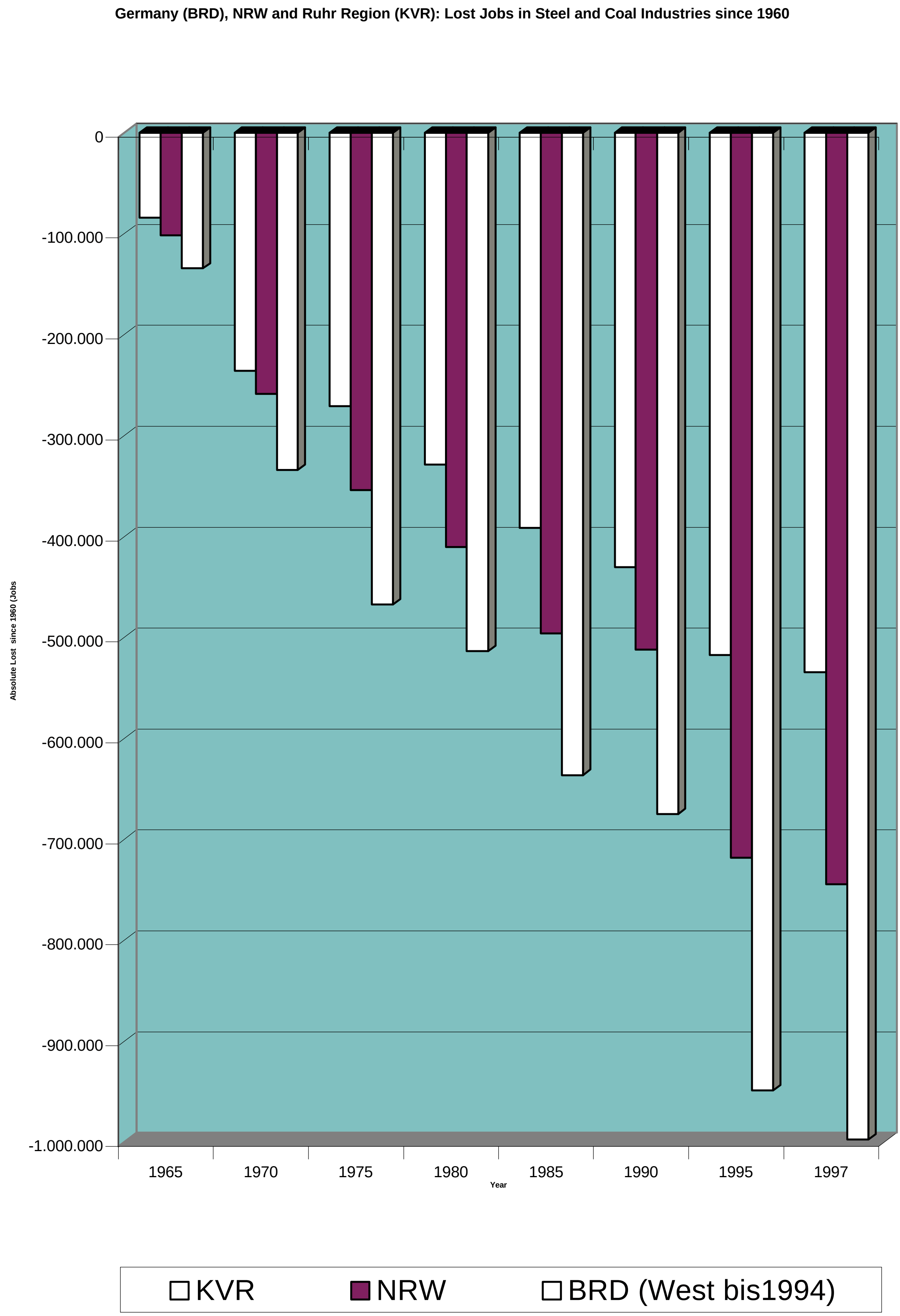
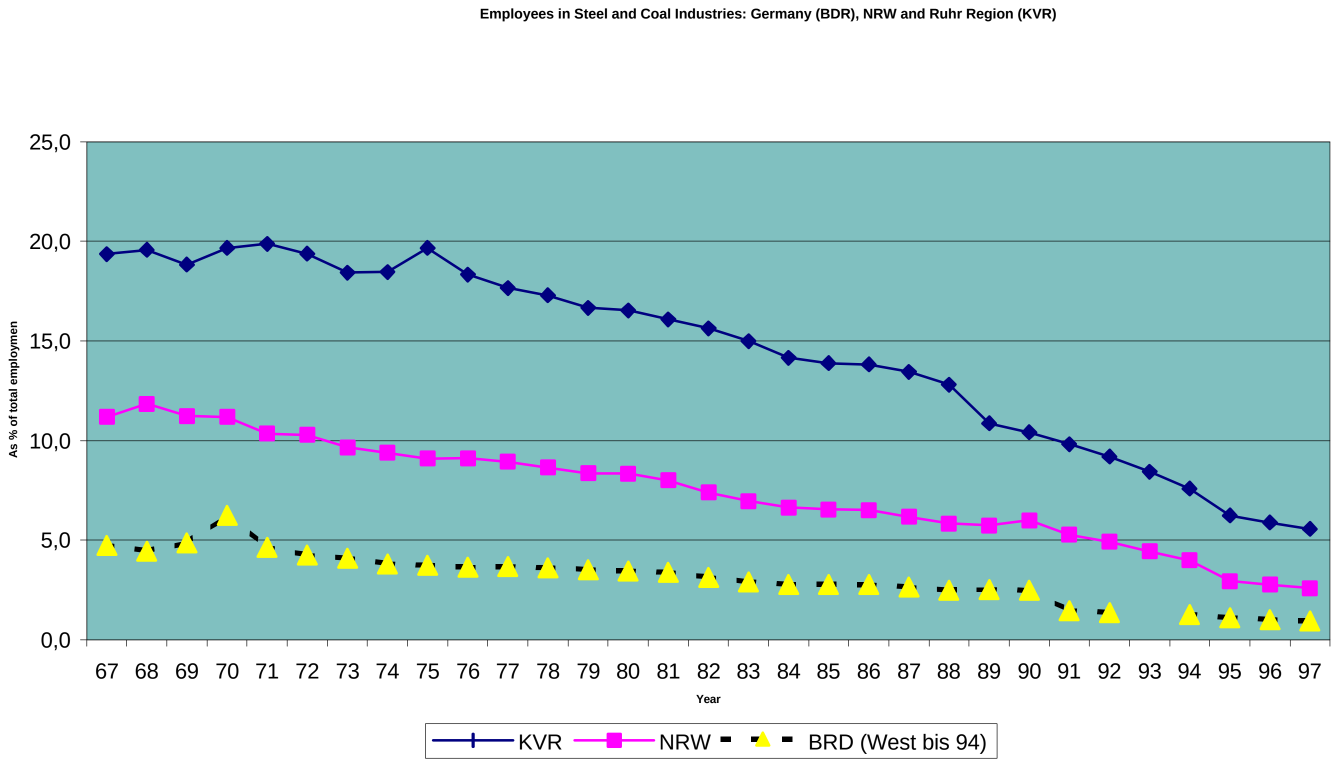

Germany (BRD), NRW and Ruhr Region (KVR): Lost Jobs in Steel and Coal Industries since 1960
0
-100.000
-200.000
-300.000
-400.000
-500.000
-600.000
-700.000
-800.000
-900.000
-1.000.000
Absolute Lost since 1960 (Jobs
1965
1970
1975
1980
1985
1990
1995
1997
Year
KVR
NRW
BRD (West bis1994)

Figure A4


Employees in Steel and Coal Industries: Germany (BDR), NRW and Ruhr Region (KVR)
As % of total employmen
25,0
20,0
15,0
10,0
5,0
0,0
67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97
Year
KVR
NRW
BRD (West bis 94)