Phoenix from the Ashes: Dortmund’s Cluster Policy and Urban Development Since 2000

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Abstract
This paper discusses Dortmund’s municipal economic development policy, in particular during the period 2000-2010 in the context of the “Dortmund-project”, a strategic concept designed at the end of the last millennium. Its core elements and key projects are presented in the following. We draw much attention to the interplay of cluster policy and urban development.

In an earlier paper, Becker and Hermann (2013) had discussed some of other important milestones reached in the context of structural change in Dortmund, with a particular focus on the development of the TechnologieZentrum (=Technology Center) and the TechnologiePark (=Technology Park) Dortmund from its beginning in 1984. The “dortmund-project” was not addressed in detail. This present article and their paper are complementing one another.

Keywords
Cluster policy, Dortmund project, Technology park

1. THE “DORTMUND TRIO”: COAL, STEEL AND BEER; ITS DECLINE AND NEW OPTIONS

Dortmund is a city on the eastern edge of the Ruhr Region in North Rhine-Westphalia, Germany, and today boasts almost 600,000 inhabitants\(^1\). Over a period of many decades and until the relatively recent past, the image of the city was dominated by the backbone of its industry: coal mining, steel industry and beer production and the ancillary production and service processes. In 1970, 28,000 people were still employed in the steel industry with several thousand more jobs in related sectors such as mining, coke plants and local transport businesses. As coaling moved northwards, the local pits began to disappear with the last pit in Dortmund closing in 1987. From then onwards, the local steelworks obtained most of their coke from other towns, and this often included cheap imported coal. In the course of this far-reaching structural change, Dortmund lost around 80,000 jobs from 1960 onwards.

From 1970, Dortmund’s most successful economic year since the Second World War, employment dropped from 275,000 to reach 225,000 in the year 1999, with the job gap (including both the unemployed and hidden unemployed) estimated at around 60,000 in 1998, when the unemployment rate briefly reached around 18%. In spite of considerable gains in the tertiary sector it was not possible to compensate for the massive job losses sustained in Dortmund’s traditional core sectors. Dortmund’s economy certainly seemed to be on its last legs at the end of the last century. The city’s long and suc-
cessful history of steel production came to a definite end when the ThyssenKrupp Steel Corporation in the year 1997 decided to close Dortmund’s last steel factory.

As the steel and coal industry declined, huge industrial sites in Dortmund fell into disuse (approx. 600 hectares). This provided, and still provides, a lot of potential for economic development, particularly for re-positioning the city according to a cluster approach with a focus on new cutting edge sectors in dedicated locations. In addition to the two PHOENIX sub-sites in the district of Hörde, these were, and still are, mainly the sites at Westfalenhütte, the harbour and Stadtkrone Ost, which then underwent, and are still undergoing, development for new economic uses (see map Fig. 2, red areas).

The story behind the origins and development of the strategic Dortmund-project has always been closely interlinked with the development of the ThyssenKrupp Steel Corporation at the Dortmund sites, and in particular with the decision by ThyssenKrupp in the year 1997 to end steel production in Dortmund. However, far-sighted corporate and local policy’s decisions marked a provisional end to this downward economic spiral. A very appealing sample is given by the former industrial site “Phoenix East” (Fig. 3).

This site is turned into an attractive residential area around a lake, only 10 years after the plant had been demolished there. Nowadays, it greatly enhances the quality of life in Dortmund. More details will be presented later on.

2. STRUCTURAL CHANGES IN DORTMUND THROUGH TECHNOLOGY AND SCIENCE

Founded in 1968, the University of Dortmund with its technical orientation became a significant source of impetus for structural change, which initially went practically unnoticed. This was complemented by the University of Applied Science in the 1970s. Dortmund now (2016) boasts 6 universities and 16 scientific establishments with a total of more than 50,000 students; approximately 10,000 employees now work in Dortmund’s scientific institutions. One of the region’s strengths was recognized at the beginning of the 1980s: the specific and above all technological orientation at the teaching and research institutions at the University and University of Applied Science as well as at the various affiliated scientific institutes. Primarily through university spin-offs and technology transfer, Dortmund found ways to exploit this potential more strongly.
for the good of the region’s economy. In the year 2007, the University of Dortmund was renamed as the Technical University (TU) Dortmund.

The TechnologieZentrum Dortmund\(^2\) (TZDO) was set up in close proximity to the University in 1984/85. Since then, the development of the TechnologieZentrum Dortmund and the neighboring TechnologiePark\(^3\) have been characterized by growing companies, constant extensions to the space the center and the park provide, and the development of innovative technology products and services. Today, almost 35 years after it was founded, the TechnologieZentrum Dortmund and the TechnologiePark which surrounds it, have become highly renowned centers on both national and international levels. The occupancy rate is around 96%. In the meantime, around 280 companies and institutes providing more than 10,500 direct jobs have set up in the TZDO and the TechnologiePark, including companies like Elmos Semiconductor AG, Boehringer Ingelheim microParts, the Max-Planck-Institute for Molecular Physiology, and the Fraunhofer Institute for Material Flow and Logistics. At the celebrations for the TZDO’s 20\(^{th}\) anniversary in 2005, the 10,000 m\(^2\) BioMedizin- und ProteomKompetenz-zentrum (Biomedicine and Proteomics Centre of Excellence) was also opened (c.f. Becker and Hermann, 2013). More details about this can be found further below.

3. THE DORTMUND-PROJECT

In the year 1999, there was another significant factor impacting on the prospects of this location: the economic profile of the region and the image of the economic location were consistently negative and not forward-looking at all, and they were still dominated by the image of the declining steel and coal industry. Even though, as described above, there had already been some remarkable successes with the TechnologiePark Dortmund and the establishment of new research and development expertise, the overall view of the location of Dortmund continued to be particularly negative right up to the end of the last century. This was mainly noticeable for the companies that had enjoyed strong growth in new fields of technology in the 90s and were now looking to attract qualified staff from across the country. Dortmund’s profile as a location was generally not very positive and it was little known internationally.

In 1998, the ThyssenKrupp group’s decision to end steel production in Dortmund triggered a massive counter-reaction. This resulted in widespread and sometimes tumultuous protest demonstrations and government, on both municipal and state levels, had to get very much involved. In 1998, as a sort of strategic compensation measure based on the “Wolfsburg AG” (cooperation between the City of Wolfsburg, VW and McKinsey), the ThyssenKrupp group contracted corporate consultants McKinsey to develop a strategic action plan for the City of Dortmund with the aim of generating new growth and employment in the city by establishing and extending innovative fields of business expertise. In 1999 this led to nine months of cooperation between a team from McKinsey & Co., a team from the City of Dortmund Economic Development Agency as well as several members of staff seconded by Thyssen Krupp AG.

This work, organized as a public-private partnership project was accompanied by a project steering group which, in line with Dortmund’s well-proven tradition of consensus, included leading representatives from the local chambers of commerce, industry and crafts, from the unions and universities and employment market protagonists, in addition to those from Thyssen Krupp, the City of Dortmund Economic Development Agency and McKinsey & Co.. The result of this work, presented

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\(^2\) Dortmund Technology Center
\(^3\) Technology Park
to the Council of the City of Dortmund in the summer of 2000, was a comprehensive concept entitled: “Strengthening the economic performance capability of Dortmund by specifically setting up growth clusters from the year 2000 until 2010”, which in turn led to the birth of the Dortmund-project. To achieve this, 100 million DM were provided from the municipal budget for the years 2000 - 2010. This sum was intended to provide initial funding for the core projects and to attract co-funding from the state and companies.

With this action program, the City of Dortmund had set itself the target of replacing the employment lost due to the declining coal and steel industry since the 1970s with new industry and, in particular, with new service sectors, and above all by focusing on the technological fields of expertise already developing here. The future-oriented industries with high potential for growth in Dortmund were defined as microtechnology, the information and communications business, and logistics, with a special focus on “e-logistics” (as an interface between IT and logistics). The main emphasis of Dortmund-project’s strategic approach was not only aimed at improving the economic structure but also at consistently enhancing the urban qualities in the city, a factor of success that is becoming more and more important when it comes to increasing the number of jobs and promoting economic growth (e.g. PHOENIX Lake).

Right from the beginning, the Dortmund-project was never purely a cluster project because the immediate economic participation by companies and other network partners was too low throughout. In spite of that, the Dortmund-project has been the subject of much documentation and many studies (including McKinsey, 2002; Ziesemer, 2004; van den Berg, 2004; Küpper, 2005; Röllinghoff, 2008; Kiese, 2012; Jonas, 2014) and still today is considered to be an exemplary pioneering project in the field of strategic regional policy that has gained respect both nationally and internationally.

The Dortmund-project involved much more of a location management approach bringing strategic economic development and municipal development policy together, while combining them with different theoretical concepts, in particular Michael Porter’s cluster theory and the idea of the creative classes by Richard Florida. At its core, the Dortmund-project was based on the principle of “strengthening strengths”, a paradigm which, in the context of business management theory, was also widely discussed throughout the world as a “resource-based view” and today can be seen as an implicit basis for many fields of expertise or cluster-oriented economic development strategies. Barney (1991) put this paradigm in a nutshell:

“The Resource Based View holds that firms can earn sustainable supra-normal returns if and only if they have superior resources and those resources are protected by some form of isolating mechanism preventing their diffusion throughout industry”.

According to Ziesemer (2004), precise analysis of the Dortmund-project reveals three conceptual elements, or, to be more exact, normative theories, which formed the operative approach by McKinsey & Co. in Dortmund: a specific cluster approach, the “three horizons model of growth” and the “model of synergetic growth”. These concepts, which were borrowed from management consultancy practice, were combined to form a specific strategic approach tailored to the situation in Dortmund and were processed using McKinsey & Co.’s own classic techniques.

The Dortmund-project derived operative core elements and projects from that, which included (Röllinghoff, 2008):

1. Initiating the implementation of permanent, i.e. regular, sector-specific and open start-up and growth competitions and setting up a network of coaches for founders;
2. Setting up new business-relevant infrastructures (incubators, centers of excellence (competence centers), and venture-capital funds) in particular for the designated key sectors of IT/software, e-commerce and micro systems technology (MST);
3. Implementing national and international acquisition campaigns (“roadshows”) to attract spin-offs and companies to settle here, particularly in the field of IT, and setting up a scout network to identify opportunities for attracting companies;
4. Setting up a twin town partnership with Pittsburgh / USA, whose economic development in the context of structural change set an example for the Dortmund-project;
5. Setting up new training and education capacities to cover the fields of IT and microsystems technology in particular; personnel service agency and mobilization campaigns for IT and MST training and apprenticeship programs for IT and MST at schools;
6. Strategic development of the large brownfield conversion spaces (here in particular Phoenix West and East) with regard to creating technology clusters (Phoenix West) as well as improving quality of life and living (Phoenix East or Phoenix Lake).
Suggestions for a total of 25 individual projects were submitted and organized into five main topic areas. The “E-City” topic area covered the main aspects of the framework conditions as defined during the analysis phase. “The ‘E’ not only stands for electronic technologies, but also symbolizes a networked world of business and work strongly influenced by computers and electronic information and knowledge management and also stands for the location profiles developed for the main uses of the new economy.” (Ziesemer, 2004, S.185). Of the city’s six defined development areas and their designated usage profiles, this guiding principle was to be applied prototypically in the form of a pilot project to the strategic development of the brownfield site of the former blast furnace at Phoenix.

4. SITE DEVELOPMENT: THE EXAMPLE AT PHOENIX

In Dortmund, the PHOENIX site was, and still is, an exemplar of the spatial focus of this approach (Frank and Greiwe, 2012; Irle and Röllinghoff, 2008 u.a). The aim was to create a synergetic urban and economic space as a future-oriented location and trademark for the New Dortmund and the New Ruhr Region. Almost 200 hectares of former industrial sites were available for re-development (see Fig. 3 and Fig. 5, grey areas).

The former PHOENIX blast furnace works in Dortmund-Hörde, since 1999 a disused industrial brownfield site of approx. 100 hectares, 3.5 km south of Dortmund city center, was redeveloped as a modern technology park with funds from the state of NRW and the European Union from the year 2000 onwards. This site was redeveloped in three phases in cooperation with the Landes Entwicklungsgesellschaft (LEG (NRW State Development Company)) and the City of Dortmund, as a technology-oriented location complemented by cultural and leisure facilities.

The main development aim for this location was, and still is, to attract companies in the micro- and nanotechnology and production technology sectors to locate here. In addition to its central, accessible position close to the city center and its high standard urban development and environmental qualities, the PHOENIX West project is marked by its two start-up and competence centers (centers of excellence) which are both associated with the Dortmund TechnologieZentrum with its close contacts to Dortmund’s research and education institutions. Since the completion of the infrastructure in the core area of the site at the beginning of the year 2009, technology-oriented companies have also begun to settle at this new location in the areas around the start-up and competence centers.

The pioneer and anchor user at PHOENIX West was the
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"MST.factory Dortmund" (cf. Fig. 6), a center of excellence and start-up center for companies in the field of micro systems technology. The "MST.factory Dortmund" was opened in April 2005 and was full to capacity even before the opening. A second construction phase with an additional 4,500 m$^2$ was completed in May 2007. Currently there are 16 companies at the MST.factory sharing a total of 9,400 m$^2$. The MST.factory, one of Dortmund-project’s key projects, was awarded by the Eurocities European cities network with the EUROCITIES AWARD in 2006 for the most innovative city in Europe “as a unique example for public-private-partnership, which should serve as a model for other cities” (see Becker and Hermann, 2013).

In close proximity to the MST.factory, the Zentrum für Produktionstechnik (ZfP Dortmund Production Technology Centre, see Fig. 6) was soon to follow. In addition to the MST.factory, the ZIP was completed as a further infrastructure project at Phoenix West at the end of the year 2012. It was constructed in two phases, with the investment decision made in August 2005 initiating the first construction phase.

In total, the special TechnologieZentrum Dortmund investment fund, a specific City of Dortmund budget item, invested 20 million Euros in the land, buildings and technology for this center of excellence.

The project followed the following structural policy aims:
- To strengthen local companies with innovative impetus and increased productivity;
- To develop and utilize the opportunities presented by the growing international plant and mechanical engineering sector;
- To secure jobs by preventing orders being moved elsewhere;
- To create new jobs through follow-on investments;
- Forward-looking training and personnel development;
- To develop new lead industries and to market specific applications for these future-oriented markets, to foster the formation of clusters by creating an innovative environment;
- To develop a regional culture of innovation and cooperation.

The ZIP places a focus on the following topics:
- Materials technology and surface technology;
- Robotics and automation technology;
- Sensors, signal processing and measurement technology;
- Manufacturing processes in metal-forming and machining technology;
- Production-related services including corporate logistics and quality assurance.

The management of the center comprises comprehensive start-up consulting services, which have a key focus on advising small and medium-sized companies, and start-ups in particular. Another task is to develop services, which help companies to secure financial support from sources of venture capital and public funding.

Currently the occupancy rate at the ZIP is at more than 90% of the rentable space. The companies located there cooperate in various research programs with the universities as well as with external companies in Germany and other countries. This dynamic development goes hand in hand with the need to extend this center of excellence, because other companies are keen to locate close to the center so as to benefit from the innovative potential to be gained through cooperation and partnerships in joint research and development processes.

The PHOENIX West technology park and the PHOENIX Lake (PHOENIX East) are linked by the renatured Emscher River (Fig. 7) that now runs above ground. At the peak of the coal and steel industry the Emscher used to be known as the “dirtiest river” in Europe. PHOENIX as a whole is now part of the extended Emscher Landscape Park and is an important component of the Emscher Lippe ecology program. The PHOENIX Lake is the new lakeside location for living, working and recreation in Dortmund. Located in close proximity to the city center and integrated in the Emscher Landscape Park, modern residential and office complexes with shopping, gastronomy and service facilities are being developed around the 24-hectare lake.

The southern banks of the PHOENIX Lake are predominantly for offices and working by the lakeside. At the eastern end further plots are being developed for residential pur-
poses. The process of filling the lake with water was begun on 1 October 2010. Terraced slopes were prepared on the northern and southern banks of the lake for high quality housing and approximately 1,000 new homes are being constructed around the lake. A full range of restaurants, cafés and bars located around the “harbor” end of the lake, adjoining the district center of Hörde, are another component of the new recreation facilities on offer.

5. NEW BUSINESS-RELATED INFRASTRUCTURES

A significant role in promoting the key lead sectors in the context of the Dortmund-project was played by the development of new, business-related infrastructures. The MST.facto-ry has already been referred to briefly above. New business- and knowledge-related infrastructures, so-called incubators, i.e. start-up and technology centers of excellence, were to be set up as private limited companies, which were—according to the concept—not to include the participation of the City of Dortmund. However, the preliminary financing and funding management are processed through a special City of Dortmund budget fund. As a basic principle, private partners were looked for, who receive support through the participation of a dopro-Beteiligungs -GmbH (a limited liability investment company), which in turn is in the possession of a Dortmund foundation (cf. www.dortmund-stiftung.de) that was equipped with funds of over two million Euros foundation.
capital by 120 benefactors (private people).

The idea for starting this foundation came from the McKinsey team after they had looked into and then rejected the idea of forming a public limited company according to the example of the Wolfsburg AG. The Dortmund Foundation is a citizens' initiative in which the institution the City of Dortmund does not participate.

The following infrastructure companies have emerged within the context of the Dortmund-project over the years:

- IT-Center Dortmund GmbH (works with company scholarships and awards a university degree after two years as an IT Professional, “the fastest informatics degree course in Germany”): www.itc-dortmund.de;
- e-port Dortmund GmbH (founders' center for e-logistics companies in Dortmund harbor): www.e-port-dortmund.de;
- MST.factory Dortmund GmbH (start-up and cooperation center for micro-structure companies as an anchor project at Phoenix West): www.mst-factory.com and www.mikrotechnik-dortmund.de;
- B1st, software factory, start-up center for new ITC companies http://www.software-factory-dortmund.de;
- LEAD GmbH (Personnel services and agency finding qualified staff for the key sectors): www.lead-me-up.de;
- BioMedizinZentrum Dortmund (in the TechnologiePark) http://www.bmz-do.de;
- Zentrum für Produktionstechnologie (Production Technology Centre (at PHOENIX West)) http://www.zfp-do.de/;
- Kinder- und Jugendtechnologie-Zentrum (Children’s and Youth Technology Centre (KITZ-Do)): http://kitzdo.de/.

**New infrastructures: the BioMedizinZentrum Dortmund as an example**

At the same time as the Dortmund-project was being developed, the BioMedizinZentrum Dortmund (BMZ) was being set up in various stages and opened officially in 2005. It now provides around 10,000 m² of space. This was a remarkable step to take, mainly because Dortmund has no medical faculty of its own and biomedicine had not been identified as a key topic for the Dortmund-project. However, the BMZ emerged - almost in the slipstream of the Dortmund-project - with a focus on the interface between biotechnology and microstructure technology in combination with bio- and medical-informatics. The BioMedizinZentrum positioned itself in Dortmund in one of the most rapidly growing application markets for these two future-oriented technologies.

The BioMedizinZentrum Dortmund (BMZ) now provides young companies and start-ups in the fields of biomedicine, bioinformatics, proteomics and bio-microstructure technology an attractive infrastructure to help them put their ideas and concepts into practice. As one of the TechnologieZentrum Dortmund’s centers of excellence it supports technology transfer from the scientific institutions in the region and promotes interdisciplinary exchange as well as cooperation between different fields of research and development.

With their focus on interfaces between biomedicine and other technologies, such as microstructure technology or information technology, the BMZ pools the strengths in the region. This sees the BMZ paying a contribution towards the development of new cutting edge technologies as well as innovative products and services at the location of Dortmund.

Because of Dortmund’s technological leadership in the field of microsystems technology, the BioMedizinZentrum had a competitive advantage over other regions — both nationally and internationally. Interlinking the knowledge of biologists, biochemists, medical experts etc. with the core expertise of microsystems technology companies was, and is, the fundamental basis for the development of new cutting edge technologies in the field of biomedical applications.

The objective of the center is to link up the results of research and development from these future-oriented technologies and to transform them quickly into commercial applications for the expanding biomedicine market. The BioMedizinZentrum Dortmund is not just an incubator for start-
ups and fast-growing young companies from the biomedical sector, much more than that, it is a location for a community of start-up companies who are bundling their strengths and balancing out their weaknesses together with the scientific establishments by means of interdisciplinary knowledge exchange. The main germ cells for the BioMedizinZentrum Dortmund are their cooperation partners such as the Max-Planck-Institute for Molecular Physiology and the Institute for Spectrochemistry and Applied Spectroscopy as well as the Technical University Dortmund and the University of Applied Science Dortmund.

Because of their strong growth and personnel intensity, biomedicine companies create a large number of new jobs, which require high levels of expertise. A technology-oriented start-up company employs 3-4 staff during the start-up phase and grows at an above average rate within the next few years. Statistically they grow to employ 10 members of staff within 5 years and to 12 members of staff within 7 years. According to scientific studies, for every job in a technology company, 2.5 to 3 additional jobs are created in the upstream and downstream value adding stages. As the start-up companies leave the BioMedizinZentrum Dortmund after approximately 4 years, the jobs created in the center lead to a total of approximately 3,700 jobs in the region within just 7 to 8 years.

In order to implement their start-up ideas, the young scientists wanting to start companies out of these research institutions need high-investment technological infrastructure, consulting services and access to a range of scientific disciplines and applied knowledge. In accordance with the requirements of these biomedical users, the center was equipped with a high quality technology infrastructure and appropriate user-specific equipment.

The current space requirements for prospective founders and young biomedicine companies mean the BioMedizinZentrum Dortmund needs 6,000 m² of total floor space. The building was erected on a site in close proximity to the new Max-Planck-Institute. The total costs amounted to 45 million DM, of which 32 million DM was for the construction of laboratory buildings and infrastructure and 13 million DM for the procurement of technological equipment.

The European Lead Factory in the BMZ is clear evidence for the value of expanding Dortmund as a location for pharmaceutical research. This is an innovative European platform initiated by an international consortium of 30 Europe-wide organizations in the form of what is so far a unique public-private partnership. The aim of this is to substantially accelerate integrated substances research in Europe. The total project budget amounts to around 196 million Euros.

6. RESULTS AND TARGETS OF THE DORTMUND-PROJECT

Apart from the “E-lab” project (a regional venture capital fund and incubator for IT companies), which could not be carried out due to the way the IT market has developed since 2000, all of the projects suggested by the Dortmund-project have been implemented. Without support from the state of NRW or the EU with funds from the Target 2 Structural Funds, it would have been almost impossible to implement these and many other smaller associated projects. Including the funds for re-conditioning and developing the two Phoenix sites, funds amounting to more than 100 million Euros have been, and still are being, channeled to Dortmund, and the overall investment costs for all projects has come to more than 240 million Euros.

The original target for jobs set by the Dortmund-project was 300,000, which was the level of employment in the year 1970. Due to extensive changes among the workforce around the year 2000, the original figures that had been used initially had to be adjusted upwards. Without going into the statistical details at this point, the workforce was retrospectively determined as being 325,000 for 1970, and this was the figure that was designated as the new adjusted jobs target for the Dortmund-project. In the year 2015, the State Office for Information and Technology North Rhine-Westphalia declared that, in the year 2013, the number of people in employment in Dortmund had risen to 314,500. This growth was particularly apparent in the services sectors. Since the year 2000, the number of people working in Dortmund in the services sector rose by 18.9 percent to 267,400 employees. This sees Dortmund achieving excellent results, placing it among the top 3 independent towns in the state. For the first time since 1983, Dortmund succeeded in achieving the employment level it had had during the times of steel, coal and beer.

The results of the start2grow founders’ competitions, some of which are sector-specific, are particularly positive. The start2grow competitions which were conceived by McKinsey & Co. and which have also been started in other regions under different names have been run in a particularly intensive way in Dortmund and have had a strong influence on the public im-
In May 2005 the Sparkasse Dortmund, the NRW.Bank and the City of Dortmund Administration set up a new Venture-Capital-Fund amounting to 20 million Euros for founding technology-oriented companies in the seed phase. Along with Aachen, Dortmund was the first location to implement this so-called umbrella-funds model.

This is complemented by the successes achieved in attracting international network partners for the above-mentioned infrastructure projects. Also of great significance, are the contacts, partly provided by McKinsey & Co., made to specifically targeted research and technology establishments in Pittsburgh (USA), a city that has undergone a similar process of structural change to Dortmund and a city that is seen as an exemplar for the successful transformation of a former industrial location.

However, it is above all these long-term structural impacts, which account for the success of the Dortmund-project. Notwithstanding the direct impacts of the Dortmund-project (see above) a wide variety of structural foundations have been created through the Dortmund-project, which today, in the year 2016, are leading towards even more significant growth of knowledge-intensive services in the city. Dortmund is growing and in recent years it has transformed itself more and more from being an industrial location to become a modern center for services. This development is demonstrated clearly by the number of people in jobs. It is no exaggeration to say that over the last 15 years, Dortmund has become a model city for diverse technological and social trends as well as for theoretical debate about economic geography.

In the meantime, at the PHOENIX Lake people are not only living, sailing, eating and flirting, but there is also a lot of thinking, learning, writing and working going on there. All in all, about 120 companies are already at home here at the lakeside. They employ more than 1,100 members of staff and, together with their associated companies, achieve added value, measured according to their company turnovers, of around 200 million Euros. The turnover per head at the companies at the lake is about 180,000 Euros and clearly at the top end of the national employee productivity scale. As a comparison: In 2013, SAP achieved a turnover per head of 252,000 Euros. Another important factor is the tax revenues this achieves for the City, with local rates and business rates expected to approach or exceed ten million Euros in the next few years (Westphal, 2016).

The list of further important entrepreneurial developments in Dortmund over the last few years is long and clearly demonstrates Dortmund’s path towards becoming a service-oriented knowledge-metropolis. Since 2007 alone, companies have made and implemented more than 110 notable location decisions to settle or expand in Dortmund.

Here are a few examples to illustrate this:

The latest examples which enrich Dortmund as a knowledge metropolis include internet company Zalando locating their central development department here and the decision to set up the new Sparkassenakademie (a bank training center) for North Rhine-Westphalia — both of them at the PHOENIX Lake. To strengthen its world market position, pump manufacturer WILO SE is expanding the premises at its headquarters in Dortmund for production, logistics and administration.
tion to 50,000 m² by the year 2017 (“Wilo-Campus”) which will mean almost doubling its present capacity.

Since September 2013, the company Westnetz has been pooling the RWE’s network distribution business in Dortmund. Around 680 staff has been employed at the Westnetz headquarters in Dortmund since September 2013. This means an additional 300 jobs, strengthening Dortmund as a traditional location for the energy industry for the long term. From Dortmund, Westnetz is shaping energy transition in line with German government policies. Westnetz gains special benefits from Dortmund as a city of knowledge. Within the context of the EU-funded research project, RWE and Westnetz are working closely with the Technical University Dortmund (TU Dortmund). And in the Münsterland staff from RWE, Westnetz and the Institute for Energy Systems, Energy Efficiency and Energy Management at the TU Dortmund are researching into how intelligent power supply systems (smart grids) can contribute to achieving the EU’s core targets set for the field of climate change and sustainable energy management for the year 2020.

7. CONCLUSION AND PROSPECTS

Looking at the model case of Dortmund over the last 15 years provides us with a positive answer to the question facing all economic development activities: “Does (and how does) local policy matter?” So it is no surprise that there has been a clear increase in public and political sensitivity, and among researchers, for the economic “quality” of cities and regions and for comparative evaluations of regional living conditions, particularly in the large cities which normally only play in the “2nd league” (“second tier cities in Europe”). This is not just a German phenomenon, but can be observed throughout the world. This development was, and is, promoted by the large number of so-called “city and regional rankings” (Bettencourt et al., 2010) and by the growing influence of management and creatively-oriented consulting companies such as McKinsey, Roland Berger and Prognos, among others, in the context of regional and structural policies. Dortmund was a pioneer and model here, too.

This optimism with regard to creativity and governance is also supported by the influence of new regional economic theories. In this context it is important to mention Michael Porter’s “cluster theory”, the worldwide “creative debate” initiated above all as a result of publications by Richard Florida, “New Economic Geography” and other theoretical concepts which all emphasize geographical location factors (“location matters”). Ultimately it is certainly due to the global rediscovery of the city as an object for research and policies, and in particular for economic research (Glaeser, 2000; Hall et al., 2013). Moreover, cities are the creative space for what we now call knowledge economics, and are therefore a testing ground for technological and social innovations. The cities are growing everywhere in the world, and not only for economic reasons. And people in cities are also obviously happier, as shown by the latest studies (e.g. the “smart Urban Joy Index”). Recent studies also confirm that the people of Dortmund are much more satisfied with their lives, which in the end is also as a result of the Dortmund-project’s comprehensive approach.

REFERENCES

Barney, J.B. (1991) “Firm Resources and Sustained Competitive Advantage”, Journal of Management 17(1): 99-120.

Becker, E., and Hermann, S. (2013) “Changing Dark Coal into Illuminating High-Tech – Ways out of an Economic Crisis in Dortmund, Germany”, World Technopolis Review 1(4): 276–286.

Bettencourt, L.M.A., Lobo, J., Strumsky, D., and Geoffrey B.W. (2010) “Urban Scaling and Its Deviations: Revealing the Structure of Wealth, Innovation and Crime across Cities”, PLoS One 5(11): e13541. doi:10.1371/journal.pone.0013541

Florida, R. (2005) Cities and the Creative Class, New York, London: Routledge.

Frank, S., and Greiwe, U. (2012) “Phoenix aus der Asche: Das „neue Dortmund“ baut sich seine „erste Adresse“”, Informationen zur Raumentwicklung Heft 11/12.2012: 575–587.

G.I.B. (2004) Clusterstrategien: Das Beispiel Dortmund (brsg), von: Gesellschaft für innovative Beschäftigungsförderung, Bottrop, G.I.B.-Info. 4-2004.

6 http://www.smart-city-survey.com/de (21July2015).
Glaeser, E. L. (2000) “The New Economics of Urban and Regional Growth”, in G. Clark, M. Feldman and M. Gertler (Hrsg.), Oxford Handbook of Economic Geography, Oxford 2000: Oxford University Press, pp. 83 – 97.

Hall, P.G., and Pfeiffer, U. (2013) Urban Future 21: A Global Agenda for Twenty-first Century Cities, London: Routledge.

Irle, C., and Röllinghoff, S. (2008) “Dortmund – Stadt im Aufbruch”, Informationen zur Raumentwicklung Heft 9/10: 639-650.

Jonas, M. (2014) “The Dortmund Case – On the Enactment of an Economic Imaginary”, International Journal of Urban and Regional Research 38(6): 2123-2140.

Kiese, M., and Hundt, C. (2014) “Cluster Policies, Organising Capacity and Regional Resilience: Evidence from German Case Studies", Raumforschung und Raumordnung 72(2): 117-131.

Küpper, Utz I. (2005) “Zwischenbilanz des dortmund-project aus der Sicht des kommunalen Wirtschaftsförderers", Informationen zur Raumentwicklung (9/10): 627-636.

Küpper, Utz I., and Röllinghoff, S. (2005) “Clustermanagement – Anforderungen an Städte und regionale Netzwerke", Deutsche Zeitschrift für Kommunalwissenschaften 44. Jg., 2005/1: 60-93. (in English: Cluster Management: Demands on Cities and Regional Networks, download: http://www.difu.de/publikationen/cluster-management-demands-on-cities-and-regional-networks.html. 03April2016)

Mager, U., and Röllinghoff, S. (2011) “Der Ort des Geschehens: Dortmund – PHOENIX aus der Asche, Wie eine Stadt sich neu erfindet”, in Krause-Hermann, Gabriele, Teilhabe am Wandel - Phoenix trifft Kürtelkämper, Dortmund: I. Lessing, pp. 15-19.

McKinsey Wissen (2002) Cluster. Available at: https://www.brandeins.de/wissen/mck-wissen/cluster/

Parkinson, M., Meegan, R., Karecha, J., Evans, R., and Jones, G. (2012) Second Tier Cities in Europe: In An Age of Austerity Why Invest Beyond the Capitals?, ESPON & European Institute of Urban Affairs, Liverpool John Moores University.

Porter, M. (2003) “The Economic Performance of Regions", Regional Studies 7(6-7): 549-578.

Röllinghoff, S. (2008) “Clusterpolitik im Strukturwandel: Das dortmund-project. Verlauf, Bewertung und Anfragen an die Forschung", in Matthias Kiese and Ludwig Schützl (Hrsg.), Cluster und Regionalentwicklung, Dortmund:

Rohn, S. 157-182.

Röllinghoff, S. (2015) “Regionalwirtschaftliche Bedeutung von Gründungen”, in Jörg Teichert, Roland Ofianka, and Annette Jendrosch (Hrsg.), Handbuch Universitätäre Gründungsförderung, Münster / New York: Waxmann.

van den Berg, L., Pol, P. M.J., van Winden, W., and Woets, P. (2004) European Cities in the Knowledge Economy: The Cases of Amsterdam, Dortmund, Eindhoven, Helsinki, Manchester, Munich, Münster, Rotterdam and Zaragoza, Rotterdam: Euricur.

Westphal, T. (2016) “Vom See ohne Boden zum westfälischen Bilbao-Effekt”, In Dieter Nellen, Christa Reicher, und Ludger Wilde (Hrsg. für die Stadt Dortmund und DSW21 Dortmuner Stadtwerke AG), PHOENIX - Eine neue Stadtlandschaft in Dortmund, Berlin: jovis.

Ziesemer, A. (2004) Strategische Stadtentwicklungsplanung im Ruhrgebiet: eine Analyse am Beispiel der Städte Duisburg und Dortmund, Dortmund: Dortmunder Vertrieb für Bau- und Planungsliteratur.