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RUHR

New Impulses From Startups
And Their Ecosystem



FOREWORD

Armin Laschet

Minister-President of the State
of North Rhine-Westphalia

Innovations often arise out of challenges. And often a good idea can sow the seed for a large company. The Ruhr area has a lot of experience in this field, not only with technological innovations in steel production or coal extraction, but in connection with social progress, for example company health insurance funds or workers' housing estates.

Challenge, innovation, company foundations - this triad is nothing new for the region and its people. But a few years ago it was given a new distinct name: Startup. Of course, the startups of the digital age differ from the companies founded by enterprising people in earlier times: Today's founders use digital communication and analysis techniques to assess the marketability and scalability of their business idea, collect capital for it and market it directly. They seek the immediate proximity to other developers in business incubators. And their customers are frequently other companies because they have not developed a complete end product but only a component.

The RAG-Stiftung's Ruhr Innovation Report therefore rightly speaks of an "ecosystem" as being essential to startups if they are to thrive. This term is also very appropriate because an ecosystem always describes the entire habitat. And this is precisely why, at the



Ruhr Conference, we have incorporated all areas of life into the five fields of action "Networked mobility - short distances", "Successful economy - good work", "Living diversity - stronger solidarity", "Safe energy - healthy environment" and "Best education - excellent research". If we want to attract more founders and investors to the Ruhr and if we want to persuade graduates at our universities to stay, then we have to score points in all areas. And that is exactly what the Ruhr area can do. We have affordable rents, open-minded, cosmopolitan people, an extensive and varied offering of cultural events and exciting urban places as well as an abundance of nature.

Above all, we can develop real innovations here. We have the capacities to build the products needed and we have the market for them. We have bright minds in research, a powerful industry, and over five million potential customers.

Metropolitan regions like the Ruhr have always been engines of innovation. For this reason alone the Ruhr is a region of opportunity. The future belongs to metropolitan regions when it comes to living sustainably in a world with growing populations and dwindling resources. Short distances and a high population density mean that a lot of people share essential services

in the areas of health, education, culture and leisure. The highest standards of quality and efficiency thus go hand in hand.

Many challenges still lie ahead. Let's just take one example: If metropolitan regions strive to be climate-neutral eventually, they have to use every available ray of sunshine and every last bit of waste heat. Their industrial production needs to work without CO₂ emissions. Their inhabitants need mobility and short distances. They need open green spaces where they can enjoy their recreation time and preserve our natural resources. They need a water management system that provides cooling during heatwaves and prevents flooding during heavy rainfall. And they need a society that shows solidarity even in difficult situations. The Ruhr area has the best prerequisites for all this.

The Ruhr Conference projects will play their part in exploiting the opportunities of the Ruhr metropolitan area. The challenges of our time will again be the fuel for innovation. This innovation report therefore comes at just the right time. And the best time for the Ruhr area is still to come.



F O R E W O R D

Bernd Tönjes

Chairman of the Board of Executives
of the RAG-Stiftung



@ Fassbender

When I think about the Ruhr area in 2030, I feel optimistic. I believe that in the coming years the Ruhr will succeed in establishing itself as a sought-after location for young founders, as an internationally renowned place of digital innovation and as an attractive conurbation for young people from other regions, who hitherto now have tended towards cities such as Berlin or Hamburg. The prerequisite is that the region offers not only attractive university courses and jobs but also affordable housing, a good transport network and a wide range of cultural, sports and other leisure activities.

The Ruhr is today a region of opportunities. With innovative potential that should be promoted, but also with problems that need to be solved. Traditionally the area has produced a long line of founders. This entrepreneurial spirit must be revived if the Ruhr is to be successfully transformed into a region of the future. Not just with a few large corporations, as in the heyday of the coal and steel industry, but also with lots of small and medium-sized innovative companies that focus on merging the analogue and digital worlds and creating attractive jobs. We have already achieved a lot to be proud of. The densest university landscape

in Europe, for example, with 270,000 students and 22 attractive universities, from which numerous startups have emerged.

Equally important for the positive development of the region are associations like the "Initiativkreis Ruhr" together with "Junge Initiativkreis Ruhr", „Gründerallianz Ruhr" and the "Data Hub Ruhr". The Initiativkreis Ruhr has been a motor of change for 30 years. The RAG-Stiftung is also making its contribution to the transformation process. In addition to our core task of financing the perpetual obligations of the German hard coal mining industry, we promote education, science and culture in the region. And we are investing in the future, for example through Innovations GmbH, which we founded at the end of 2019 in order to encourage even more entrepreneurial spirit and help startups get off the ground.

The Ruhr Innovation Report shows where the Ruhr area currently stands, where its potentials lie and what challenges need to be tackled. It is an analysis of the status quo and a call for people to become involved. And it demonstrates that innovation is not only an opportunity, but a necessity.

F O R E W O R D

Lea-Sophie Cramer

Founder of Amorelie and member of the board of the German Startups Association



The German Startups Association is committed to creating a founder-friendly environment and carries the startup mentality into society. As a founder myself, I am very aware of the importance of personal experience and exchange with like-minded people. When I met Oliver Samwer after graduating in 2009, for example, I was impressed by his enthusiasm for new ideas. A short time later, in my early 20s, I decided to leave my job at a leading management consultancy and start at the online deal marketplace Groupon. My desire to start my own business dates back to this period. And so it was in 2013 that my co-founder Sebastian Pollok and I decided to start Amorelie.

On the one hand, it is a matter of personality as to whether you give up a secure career and risk something new. On the other, it's an enormous help to be surrounded by founders who lead the way with enthusiasm and vision. A well-functioning startup scene needs both the right personalities and networks. And if the will to found a company together with business acumen hit on good local conditions, it may lead to something really big that is of benefit to the whole region and its population. So I am delighted that the Ruhr Innovation Report now gives us a clear overview of how a startup ecosystem works.

As with Berlin in the 2000s, the Ruhr area has enormous potential in terms of startups and digitisation. Structural change, after all, also means green fields, and we all know that this is where founders feel most at home. Whenever old paths have been worn down and new technologies are broadening the horizon, there is scope for startups to develop.

So I am calling out to everyone in the Ruhr: Seize the opportunity, do your thing and think big! What could be more exciting than being able to help shape the future with your ideas? And my appeal is especially directed at women: Network, talk to the relevant players and don't get discouraged by setbacks! For we need more courageous female founders in order to leverage our innovative potential and create an open and diverse working world.

The startup scene in the Ruhr is in the process of developing and has the chance of having a lasting impact on the region. I am certainly looking forward to it and hope everyone else enjoys reading the report, too.





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R E S U L T S A T A G L A N C E

The Ruhr, Germany's largest metropolitan area and for a long time the centre of industrialisation, is undergoing a fundamental process of change. Digitisation and rapidly changing markets are also creating new challenges. Against this background, it is important to make optimum use of the region's innovative potential and to increase it in the long term. This report looks at an increasingly important indicator of economic progress: startup companies that, within the context of a functioning ecosystem of investors, scientific institutions and established companies create new business models and transform existing industries. The Ruhr Innovation Report provides valid data on the development status of the startup landscape and points out the associated challenges and, above all, the opportunities.

In recent years a vibrant startup ecosystem has developed in the Ruhr and North-Rhine Westphalia as a whole, arousing great inter-

est among the public, politicians and business. However, this study also shows that startup activities in the Ruhr as a whole still lag behind the demands and opportunities of the region. The density of innovative growth companies is significantly lower than in the large German cities especially when compared with the hotspot Berlin. Furthermore, at the moment there are relatively few startups of any significant size in the Ruhr, a fact that is closely linked to the limited capital resources hitherto made available.

The metropolitan region offers enormous market opportunities for startups, however, especially in the B2B sector. There are also a number of other location advantages, including a good pool of IT and engineering talent, the availability of affordable business premises and great opportunities for cooperation with established companies. This report marks the starting point of a long-term monitoring process of the startup

ecosystem in the Ruhr taking all these opportunities and the still dormant potential into account.

The Ruhr can boast a particular strength as an innovative location when it comes to the development of industry-specific clusters. The cybersecurity, logistics and healthcare sectors stand out in particular. Apart from promoting a startup mentality and entrepreneurship in general, it would seem to be a promising strategy for the region to focus on its own strengths. In further reports, the editors will therefore take a closer look at the cybersecurity cluster and the conditions for successful business growth.

F I V E

key results



- 1 As a metropolitan region, the Ruhr offers innovative companies huge market prospects. The strong medium-sized business sector and the great many large corporations open up a wide range of opportunities for cooperation and, above all, **high potential for B2B business**.
- 2 At the moment, however, the density of startup companies in the region is much lower than in the major German cities of Berlin, Hamburg, Munich and Cologne. In the future it is key to exploit the crucial **locational advantage of the urban agglomeration** and to make the associated opportunities more visible.
- 3 **Startups in the Ruhr show a clear focus on the areas of software and technology** development, which is partly reflected in the university backgrounds of the founders. This in turn indicates the importance of the dense university landscape.
- 4 **Overall, there is a considerable backlog when it comes to growth funding.** Startups in the Ruhr rarely receive any financing and if at all, usually only small amounts. Since technology-intensive solutions are generally highly complex and require a longer development period, the need for appropriate programmes and financing instruments is clearly apparent.
- 5 There is **great potential for the region in the development of sector-specific clusters** at the interface between universities, the established economy and startups. The best-developed and most comprehensive startup ecosystem is found in the field of cybersecurity. Analogous trends can be identified in the fields of healthcare and logistics.

1 . B A C K G R O U N D

1.1 Objective of the report

As the largest German metropolitan area, the Ruhr has always been of enormous importance for the economic development of the entire country. At the beginning of the 18th century, one of the most important economic centres in Europe developed here. Today, the Ruhr is undergoing a radical process of change, mainly as a result of the decline of the coal and steel industry over recent decades: Economic globalisation, technological progress and ecological challenges are putting established companies under pressure and the current structural change, where digital business models are increasingly replacing the industrial sector, can be seen with particular intensity in the Ruhr.

This transitional phase gives the region a unique opportunity to capitalise on its industrial strength and tight infrastructure and to ensure long-term sustainability by creating a true culture of innovation. For if one thing has become clear in recent decades, it is that structural change is not a definable period of time, but an ongoing task where ever new questions require ever new answers (Kilper 1994). By continually improving the conditions for young growth companies, the dynamics and flexibility that are so urgently needed can be created.

The aim of this report is to take a closer look at the capacity for continuous change: Where do things stand as regards the innovative potential in the Ruhr? How can we

cultivate it and get the most out of it? Where are the most promising opportunities and what is the region's unique selling point?

1.2 Innovation through startups

The term innovation covers qualitative innovations in both an economic and social context - i.e. the development of new products, processes, markets and social practices. The important thing is to focus on the result: It is not just a question of having ideas, but also about diffusing them and implementing them in practice (Schallmo 2014). We are following this practical approach to innovation and putting the focus on startup companies and their ecosystem.

The most important feature of the business models developed here is their innovative character, which enables them to address existing needs in a different way or even to create completely new markets.

In view of the focus on scalability, i.e. the ability to grow quickly and cost-effectively, startups have already become a relevant economic factor in many parts of Germany. The digital sector that developed in Berlin in the 1990s, for example, comprising a multitude of plat-

forms, online trade and software as a service solutions, has played a key role in the capital's positive economic dynamism over recent years. The Ruhr also has enormous potential in this field - especially in industry-oriented B2B business.

Assessments by businessmen and women in particular show that focussing on startups and their ecosystem makes a lot of sense considering the future economic development. For example, concerns about a renewed recession

have been clearly reflected in the ifo business climate index since the beginning of 2019. The crisis in the automotive industry and uncertainties in the context of ongoing trade disputes, in particular, are affecting medium-sized companies and large corporations alike. In contrast, the consistently positive business climate in the startup environment indicates that new market opportunities are emerging here outside existing structures and dependencies (see Figure 1).

Fig. 1: Business climate in the old and new economy

Source: Ifo Institute for Economic Research (2019) & Kollmann (2018 & 2019)

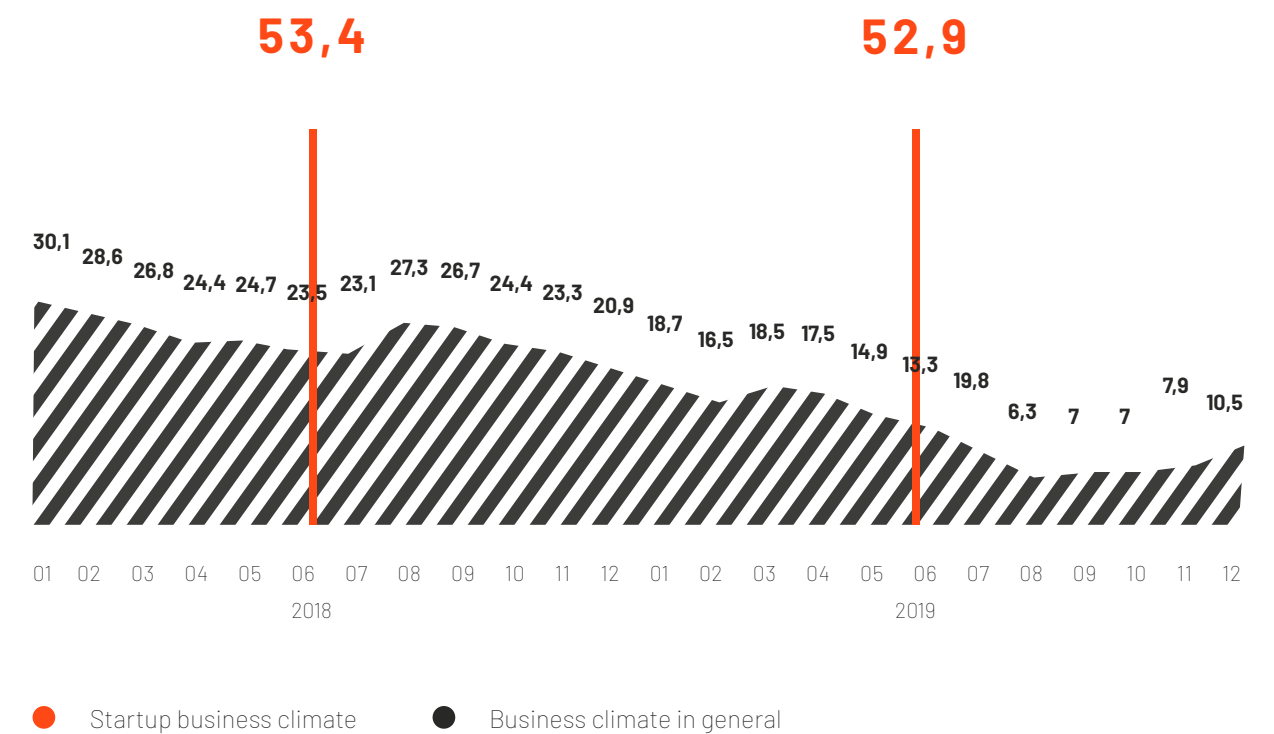
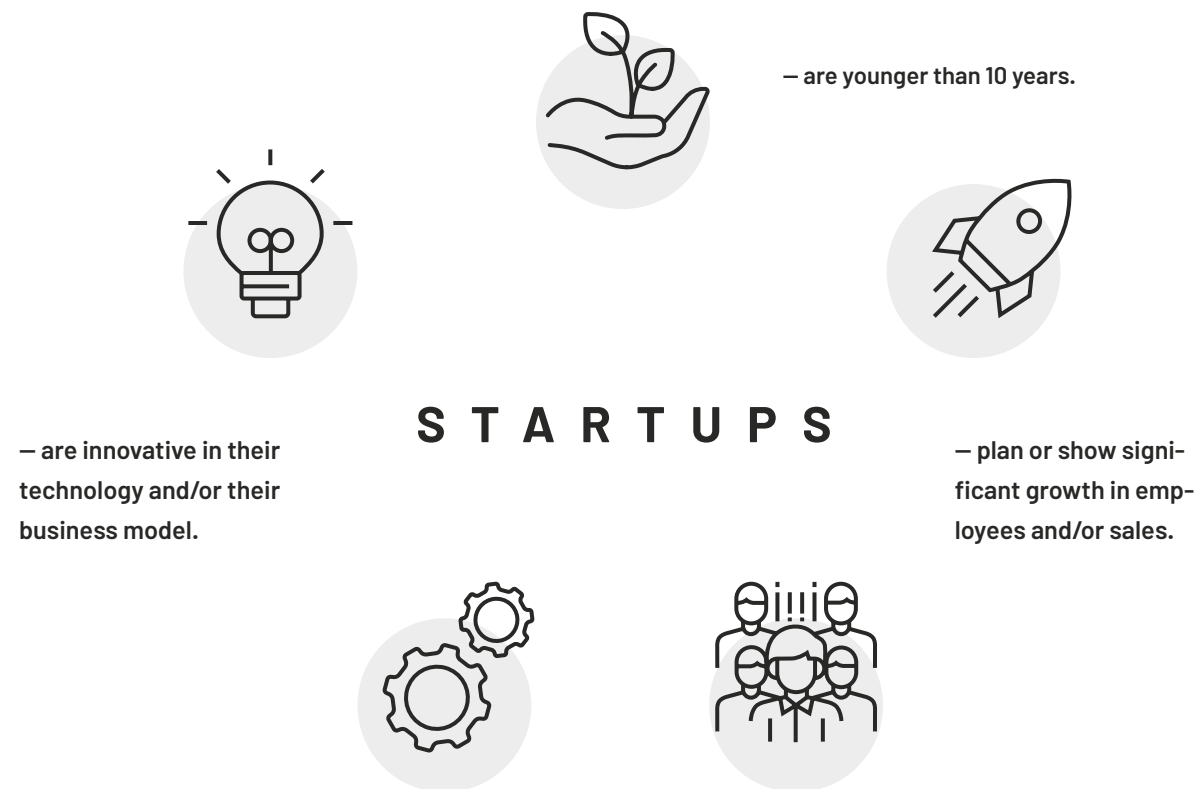


Fig. 2: Startup definition Source: Kollmann et al. (2019)



1.3 Approach and concept

The Ruhr Innovation Report is the first systematic in-depth analysis of the startup ecosystem in the region. The starting point is the definition provided by the German Startup Monitor (Kollmann et al. 2019): Startups...

- are younger than 10 years
- planning or show significant growth in employees and/or sales and
- are innovative in their technology and/or their business model

These innovative growth compa-

nies are a special type of newly founded businesses. Whereas there has been a decline in the overall number of company foundations in Germany for years, representative figures from the KfW point to an opposite trend in the startup sector (Metzger 2020).

This study therefore focuses on startup activities in the Ruhr area which are considered to be part of a broader ecosystem (Isenberg 2011 & Kollmann 2019). This ecosystem comprises players in the public and private sectors such as startup centres, universities, accelerators and investors. The

report draws on a range of different data and sources: Firstly, extensive research into active startups in the region, including relevant information on sectors, business models and customer groups. Secondly, a total of eight 30-minute interviews with founders from the Ruhr, where, among other things, the opportunities and challenges of the location were discussed. Thirdly, data from the German Startup Monitor. The report is rounded off with assessments from experts who put the results into context on the basis of their regional, national and international experience.

The structure of the report is designed to provide a comprehensive insight into the relationship between location factors and the needs of young growth companies in the Ruhr area. The following

chapter focuses on the innovative potential of the region, followed by a more detailed description of startup activity. Taking the key areas identified as a basis, the fourth section maps out particu-

larly promising industry clusters. Finally, the last chapter looks at the question of how the identified strengths can be best used and how the innovative capacity of the Ruhr area can be increased.

Innovative 2 . P O T E N T I A L

2.1 Opportunity as a metropolitan area

With more than five million inhabitants from over 150 nations in 53 towns and cities, the Ruhr is one of the largest metropolitan regions in Europe after London, Paris and Madrid. It is also one of the most densely populated regions in Germany with over 1,100 inhabitants per square kilometre. As part of the Rhine-Ruhr metropolitan region, both people and companies benefit from the excellent infrastructure. Paris in four hours by train, Amsterdam in just two and several (international) airports on top.

Around the world, metropolitan areas such as Silicon Valley, the Pearl River Delta around Hong Kong and Shenzhen, and the major

European cities London and Paris are seen as the new innovation centres of the digital economy. There can be no doubt that in Germany, too, it is of the utmost importance for the country's future viability that this potential is fully tapped. Traditional industries – whether automotive or financial – and with them entire regions are facing enormous pressure to change. We can by no means assume with any certainty that in future cars will still be associated with Ingolstadt, Wolfsburg and Munich or banks with Frankfurt am Main. On the one hand, this period of upheaval offers the Ruhr the opportunity to gain enormous economic importance in international competition. At the same time, however, there is also a risk that the agglomeration, with its strong industrial character, will be

left behind in the transformation process. It is therefore quite appropriate to describe the decade that has just begun as a „crucial decade“ for the region, as described in the RAG-Stiftung's future study (RAG-Stiftung 2016).

The OECD also describes the 21st century as the „The Metropolitan Century“ (OECD 2015). Urban areas are, in general, financially stronger than less densely populated regions. More specifically, doubling the population of a city increases its productivity by 2-5% (OECD 2015). This is due to more intense competition, a larger and therefore more efficient labour market and a more diverse intellectual and entrepreneurial environment. This makes agglomerations a magnet for creative minds and capital and thus a centre for innovation.

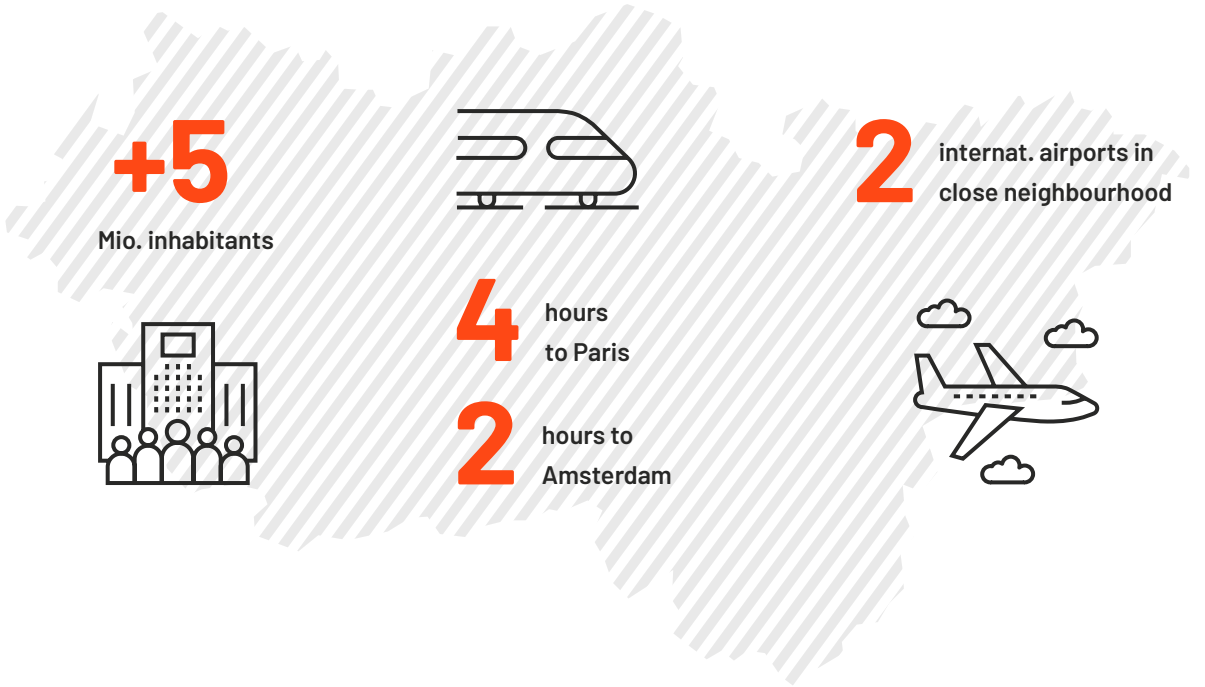
2.2 Technical expertise

Although the Ruhr area does not have a tradition of higher education going back centuries, since the

founding of the Ruhr University in Bochum (RUB) in 1962, the region has, in just a few decades, become a large and important centre of education. With 22 universities,

the Ruhr area has one of the highest concentrations of educational institutes in Europe today, including five universities and 17 universities of applied sciences.

Fig. 3: The Ruhr and its infrastructure / Own diagram



The academic landscape is not only impressive in terms of its scope, but with four Fraunhofer and four Max Planck Institutes as well as four Leibniz Association institutions, it is also well-positioned in the field of top-level non-university research. This dense

science and research landscape makes the Ruhr an ideal location for startups. A strong university network not only provides a good pool of specialised employees for industry, but also forms the basis for the creation of an innovative startup ecosystem (see Figure 4).

There are over 270,000 students¹ at the universities in the Ruhr - that means 38 students for every 1,000 inhabitants. In comparison to other regions, the locational advantage of the Ruhr area is very visible: in the financially strong states of Bavaria and Wuerttemberg, for exam-

¹ In the following calculations the FernUniversität in Hagen was not taken into account, as its students study independently of the location

Fig. 4: Proportion of university graduates in the working population and among startup founders

Source: Institute for Employment Research 2017 & Kollmann et al. 2019



ple, the proportion of students in the population is much lower. At the same time, in city states such as Berlin the proportion is significantly higher (see Figure 5).

The relative strength of the region in this indicator reflects its city character and in turn its potential as a metropolitan region. However, it must also be said that the

universities in the Ruhr area have so far failed to attract enough young people from other regions. An analysis of student numbers at universities in NRW outside the Ruhr area shows that 27.3% of them come from other federal states. 36.0% of students at RWTH Aachen University and 25.2% of students at Cologne University do not come from NRW, for example.

In the Ruhr, however, it is only 17.9%. The number of students from other federal states studying at TU Dortmund (15.5%) and the Ruhr University Bochum (17.0%) is significantly lower (State Statistical Office NRW 2020b). In other large and economically strong states such as Bavaria (31.5%), Baden-Wuerttemberg (35.0%) and Lower Saxony (40.9%), there is

Fig. 5: Students per 1,000 inhabitants

Source: Federal Statistical Office 2018 & State Statistical Office NRW 2020b



a far higher proportion of students from other states (Federal Statistical Office 2018). One of the tasks for the future therefore is to make young people from outside of the federal state more aware of the opportunities offered by the universities in the Ruhr. At the same time, the figures show how important it is to offer attractive opportunities so that the local talent stays in the area.

Specialised skills are especially relevant for the startup ecosystem, alongside a large pool of

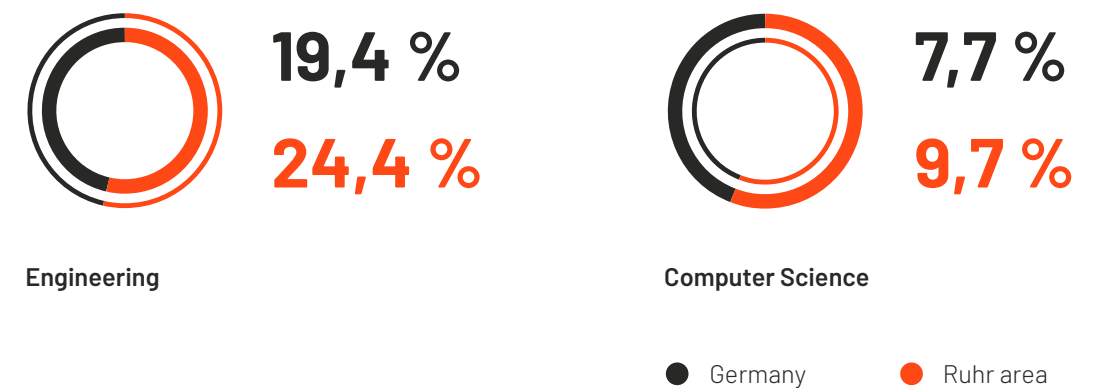
creative minds. In Germany, for example, four out of ten founders studied MINT subjects, which are particularly important for technical innovations - especially in the B2B sector (Kollmann et al. 2019). This is good news for the Ruhr area where a comparatively high number of students are studying the industry-oriented engineering sciences than at other universities in Germany. And in computer science, too, the proportion is higher than in Germany as a whole.

This means that there is a pool

of well-educated people with the expertise needed for startups to push the region forward. The challenge now is to open students' eyes to the option of setting up their own company, since they are still potential employees for established companies that lure them with attractive salaries and job security. All too often, founders reported in the interviews that their idea initially met with astonishment and that starting up their own business continues to give rise to irritation.

Fig. 6: Proportion of students in selected subject groups in winter semester 2017/2018²

Source: Federal Statistical Office 2018 & State Statistical Office NRW 2020a



“Coal mining has made the Ruhr world-famous and has shaped the region and its people. The end of coal mining also marked the end of a long chapter in German industrial history. At the same time a new chapter is beginning. Today’s coal is knowledge and expertise. My experience from the projects funded by the RAG-Stiftung shows that we have a lot of young talent who want to use their knowledge to help shape the future of our region. I’m sure there are talented founders out there among them - we have to use this potential.”

– Bärbel Bergerhoff-Wodopia, Member of the Board of Executives of the RAG-Stiftung



@NikeIowski

2.3 Markets and investments

Alongside the right people, the development of an innovative ecosystem requires potential customers as well as investments geared to the expansion to new markets. In order to assess the chances of the Ruhr in this field, it makes sense to take a general look at the development of the startup sector in Germany as a whole in recent years. The funding amounts paid provide an important quantitative indicator of the current economic importance of the startup scene.

With the exception of companies such as SAP and United Internet, there were few innovative startups in Germany until the 1990s. It was

only shortly before the beginning of the new millennium that more people dared to take the risk of starting up a company. Many companies that are still successful today, such as Trivago in North Rhine-Westphalia, TeamViewer in Baden-Württemberg and Bigpoint in Hamburg, were founded in the phase following the bursting of the dotcom bubble. The awakening of Berlin during this period was particularly formative for today’s digital economy. Following the successful foundations of Alando and Jamba, the Samwer brothers again drew attention to the capital with their company Rocket Internet.

The trend triggered by this is now clearly reflected in the funding: in 2019, German startups were gran-

ted a total of over 6.2 billion euros – a new record (Ernst & Young 2020). Berlin has raced ahead of other regions with 59% of all investments in 2019 going to companies in the capital. Bavaria, with Munich as its hotspot, still accounts for around 25% of the funding volume, while North Rhine-Westphalia and Hamburg lag far behind with 4% each.

Internationally, digital platform companies such as Alphabet, Amazon, Facebook, Apple and Tencent have long since overtaken traditional industrial groups in terms of corporate value. Although most of them started off with B2C business models, many of these platform companies are increasingly expanding their acti-

² The share of engineering students does not include subjects in the field of computer science.

vities into the B2B sector. Some well-known German lighthouses have also emerged in recent years, mainly in the B2C sector. The so-called unicorns – i.e. startups with a market valuation of over one billion US dollars – include companies such as the online retailer Zalando, the delivery service Delivery Hero or the mobility provider Flixbus. The Munich-based B2B unicorn Celonis, on the other hand, active in the field of digital process optimisation, is still a rarity in Germany.

Now that there are only a few gaps in the B2C sector, people often talk about the second wave of digitalisation in the B2B sector. This second wave also includes the American B2B unicorn ThoughtSpot, which recently opened a branch in Duisburg:

The Ruhr region offers startups in the B2B sector a large number of customers in the immediate vicinity: today, the agglomeration is home to more than 150,000 companies – including medium-sized companies, family businesses and

large corporations – that together generate sales of over EUR 300 billion every year. In the three most important German stock market indices, eight of the companies listed come from the Ruhr area: with a market capitalisation of over EUR 125 billion (as of 13 January 2019), the Ruhr is well ahead of Hamburg, Berlin or Frankfurt am Main. Essen, for example, ranks fourth in the “Stock Exchange League of German Cities” study published by the global management consultancy firm Simon-Kucher & Partners (2019).

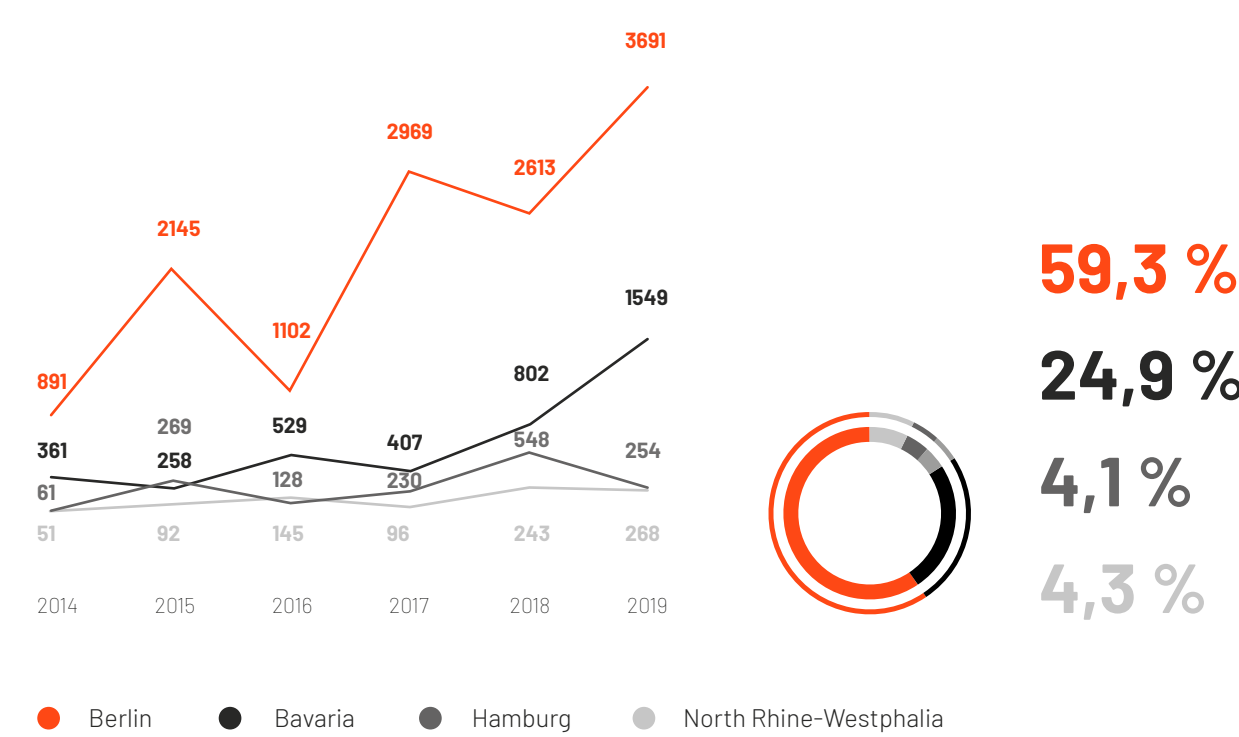
“As one of Europe’s major industrial regions, there are many companies in the Ruhr that want to use data insight to accelerate their digital transformation. Some of them are already ThoughtSpot customers, others have shown a strong interest in our search and AI-based analytics software. Our Duisburg office allows us to connect with our customers better. On top of this we benefit from the first-class infrastructure that startport offers us and the synergies of the startport ecosystem.”

- Christian Werling, Regional Director D-A-CH at ThoughtSpot



Abb. 7: startup funding in certain German federal states 2014–2019 (in million €)

Source: EY Startup Barometer 2014–2019



“The Ruhr conurbation offers great opportunities for startups, because nowhere else do you have so many potential customers in the B2C sector and, more especially B2B, directly on your doorstep. This means short distances and direct feedback from the market as well as exciting cooperation opportunities between medium-sized companies and industry.”

- Prof. Tobias Kollmann, Chair for E-Business and E-Entrepreneurship at the University of Duisburg-Essen

I N T E R V I E W

with Christian Haub

CEO Tengermann



Startups association: *The Tengermann Group has a long tradition in the Ruhr and has accompanied the ongoing change. How do you assess the economic development and opportunities of the region today?*

Christian Haub: It's true, we have been rooted in the Ruhr area for a very long time and were also founded in Mülheim an der Ruhr. A lot of our key holdings such as KiK, Tedi and Babymarkt are located here. With Tengermann Ventures, we operate specifically in the Ruhr region in order to connect with founders from the region and to use our home advantage. I have returned after 30 years in the USA, and am now experiencing the Ruhr area anew and see things very positively: We have a strong concentration of German retail trade in the region with well-known companies.

Startups association: *Tengermann was one of the first major companies in Germany to recognise the growing importance of the e-commerce sector and invested in startups such as Zalando at an early stage. How did this happen?*

Christian Haub: About ten years ago, my brother and I observed the emergence of new models in the retail trade that were no longer based at one location but operated online. For a retail group, this was of course a threat that had to be dealt with. We wanted to know exactly what was happening. Then we got to know the Samwer brothers and invested in Zalando. That was the start of our VC business. At the beginning that wasn't necessarily our aim, but we noticed how fast the world was changing and new ideas appearing on the market. For us, venture capital was therefore a useful instrument for learning and taking advantage of the opportunities offered by such young companies. Looking back, it was of course a great decision.

Startups association: *Today, Tengermann Ventures is one of the best-known venture capital companies in Germany. Do you think this could also be a model for other established companies in the Ruhr area?*

Christian Haub: Our experience is very positive. Not only have we built up a functioning business field, but a whole new world has opened up for us. If a traditional company like ours can do it, then so can others. However, the goal shouldn't just be to make money, you should also be willing to learn in the interests of your own business. Currently, all sectors are being disrupted by young challengers and many companies are struggling with innovation. Operating in the field of venture capital can help to open your eyes to startups. And you may even come across teams or ideas that you would like to bring into your own company. One of our long-term successful investments is babymarkt.de, which is highly innovative, especially in the area of data analysis and dynamic pricing, and which continues to inspire us in other business areas.

Startups association: *You also lived and worked in the USA for a long time. What do you think the German startup scene can learn from the USA?*

Christian Haub: Basically, there are certain differences in mentality that can be evaluated both positively and negatively. American entrepreneurs in particular are bubbling over with optimism. And so they go out into the market and start collecting money. In Germany, on the other hand, the ideas are often more realistic, and in turn also trigger less enthusiasm among investors. We Germans should become more assertive in this respect. But we also need a culture of failure in Germany.

Startups association: *What do you wish for the Ruhr in 2030?*

Christian Haub: I would like to see the Ruhr area become one of the key German startup regions by 2030. And it should focus on specific industries where it is a leader. The region also has challenges of its own due to its high population density and startups can help to solve these - with mobility solutions, for example. What's more, established local businesses should not only be interested in startups, but actively promote them.



3 . T R A N S F O R M A T I O N P R O C E S S

3.1 Broad regional ecosystem

Within the context of the framework conditions described above, a broad and vibrant startup ecosystem has developed over recent years, not only in the Ruhr, but in North Rhine-Westphalia as a whole. In order to define the position of the region and see it in relation to general trends in North Rhine-Westphalia, it makes sense to have a look at current activities in the startup sector. All startups for one year have been projected onto a map of NRW, based on new company registrations (see below). In the period shown, virtually one in five startups in North Rhine-Westphalia was in Cologne (18.2%), while the Ruhr accounts for 17.3% of all startups;

Düsseldorf (10.6%) and Aachen (6.4%) also stand out. Overall, the data highlight the particular attractiveness of large cities for potential startups and the role of universities with a strong focus on research, such as RWTH Aachen University.

Startup activities in the Ruhr

In order to record the current level of development of the ecosystem in the Ruhr as well as current trends, a detailed startup map of the region has been created. The map is based on data from the Dealroom platform, information from the commercial register prepared by startupdetector and the list of members of the German startups

association. All information has been systematically checked and supplemented by detailed desk research. The distribution of the good 200 startups identified shows similar characteristics to the map above. For example, startup activity is concentrated in the four largest cities in the conurbation – three out of four startups have their headquarters either in Dortmund (28.4%), Bochum (24.9%), Essen (17.4%) or Duisburg (6.0%).

Ecosystem activities are also strongest in these four cities. In Duisburg, for example, startport was set up in 2017 specifically for startups in the logistics sector aiming to attract nationwide customers. With Europe's largest inland port now a logistics hub, too,

"The Ruhr area certainly has potential as a location for startups, but the local players must open up more to technological changes. Other regions in Germany and abroad have already made much more progress in this respect. On a positive note, I would particularly like to emphasize the fantastic support offered by startport; they helped us during the founding phase in a number of ways, but also left us crucial room for development."

- Felix Behrenbeck, co-founder RE:Charge

i RE:Charge develops flexible and decentralised charging points for electric mobility. The key feature is a high performance mobile rechargeable battery that can be used flexibly without incurring high infrastructure costs. RE:Charge thus solves one of the biggest challenges of the mobility turnaround, the lack of available charging points.



Fig. 8: Newly founded startups between September 2018 and September 2019

Own image based on data from Startup Detector

Fig. 9: Startup map Ruhr area / Own image



the project has further sharpened the city's profile. In the two largest cities, Dortmund and Essen, there are now some well-known initiatives on the startup scene: The Dortmund Economic Development Agency has been organising the nationwide startup competition start2grow since 2001. Essen is also home to two important players committed to improving supra-regional networking as a whole: ruhr:HUB, a central point of contact point for the ecosystem, and GründerAllianz Ruhr are both based here. In Bochum, too, a lot of activities are concentrated around the Ruhr University, but

other players such as the Bochum business development agency are also very active with initiatives like the local startup incubator WerkX.

Data from the German Startup Monitor can be used as a benchmark for quantitative classification of startup activities in the Ruhr. In spite of its limited representativeness, the high number of cases and the research design ensure that any fundamental differences are made visible. In the chart below, the survey participants are compared with the overall population³. This makes it clear that the strong attraction of big cities for

startups has so far only had a limited effect in the Ruhr. Compared with the four German cities with over a million inhabitants, Berlin, Hamburg, Munich and Cologne, the Ruhr area is clearly lagging behind. At the same time, the high level of activity in the cities of Bochum, Dortmund, Duisburg and Essen indicates the great potential of the region.

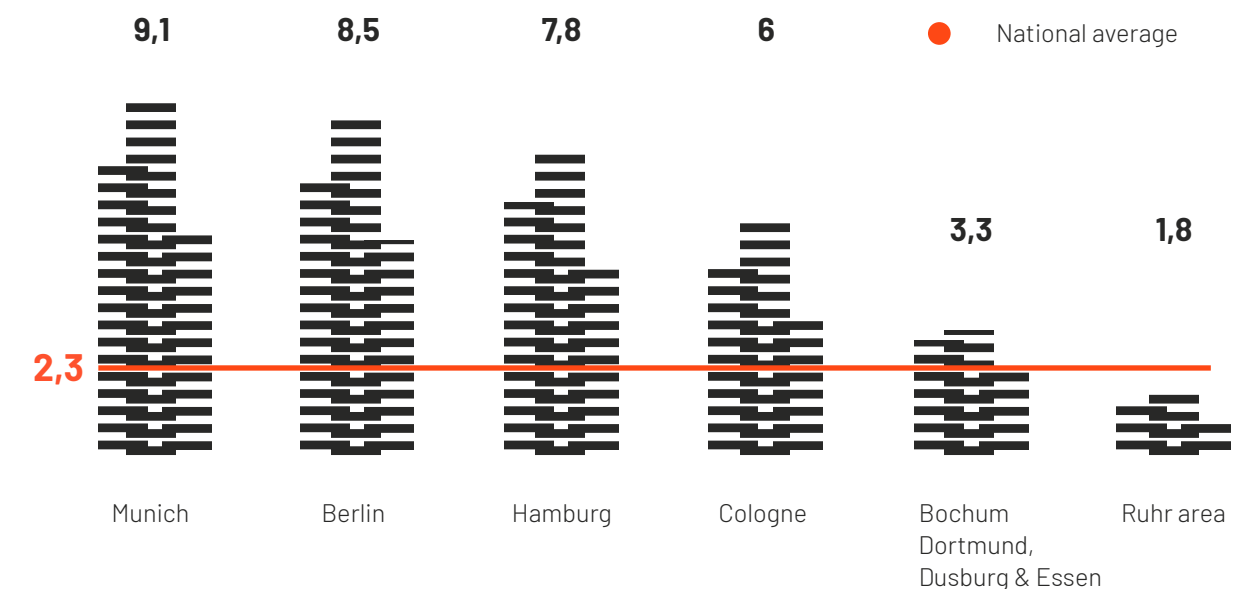
It is, in particular, thanks to the multitude of activities in the four major cities mentioned above that a promising startup ecosystem has emerged in the Ruhr region at all. Nevertheless, the opportunities

offered by the conurbation are not yet being exploited enough and the Duisburg-Essen-Bochum-Dortmund corridor in particular has plenty of room for improvement. It seems obvious that this is also partly a result of the competition between cities - for example in the area of universities or business incubators - a fact that was confirmed again and again in the interviews. In order to strengthen cooperation, supra-regional

initiatives such as the ruhr:HUB are needed on the one hand, but also a more intensive coordination among the regional programmes themselves. It is therefore important that local initiatives address the entire Ruhr area with their objectives and do not stop at administrative borders. It is worth taking a look at Berlin in this instance: Three Berlin universities, the FU, HU and TU Berlin, are planning to create uniform

contact points for anyone interested in setting up a company and to develop thematic clusters. This type of cooperation is in tune with the expectations of founders who do not think in terms of regional competition. A detailed analysis of existing programmes in the Ruhr area and the identification of best practices would be desirable for the future in order to develop concrete recommendations.

Fig. 10: DSM startups per 100,000 inhabitants in selected cities and regions in 2019 / Own calculations based on the German Startup Monitor (DSM) 2019



³ This figure refers to the participants in the DSM survey - the number of startups per 100,000 inhabitants is much higher.

Positive assessment by the startup scene

Founders assessed the Ruhr very positively in some areas, in spite of these still unexploited opportunities (see Figure 11)⁴. Political initiatives, in particular, stand out: The startup scene has taken note of the political focus

on the topic and views this very positively. However, the results so far – above all the comparatively low number of startups in the Ruhr area – indicate that there should be no let-up in programmes for the general promotion of the startup mentality and entrepreneurship. It is important to set up initiatives that put startups on the agen-

da for potential founders in the first place. So far, this has been successfully achieved mainly at universities: For example, the Cybersecurity Founder Meetups from Cube 5 in Bochum, where students and companies are provided with a space to connect. In addition, major events such as the RuhrSummit or the Ruhr FuckUp Nights ensure

that the requisite culture and entrepreneurial mindset is firmly anchored in the region.

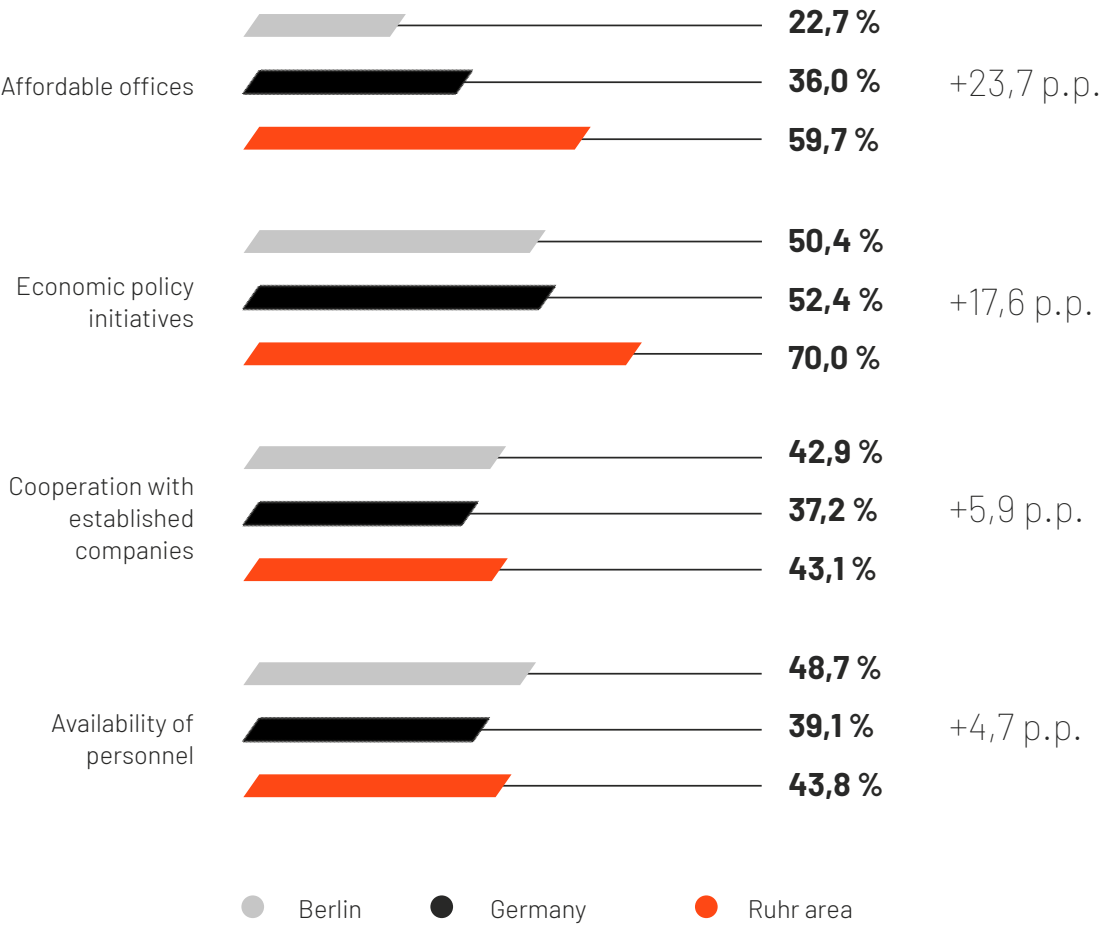
The three other indicators identify location advantages that are of huge relevance for medium-term development. Affordable office space is becoming a rare commodity everywhere and but there's

plenty of it available in the Ruhr region. It is also good news that founders in the Ruhr feel that they are well positioned in terms of human resources and cooperation with established companies, even compared to Berlin. While in Berlin, joint ventures are possible because the startup hotspot is also very attractive for corporations,

the Ruhr with its strong tradition of industry offers good conditions for joint experimentation. An analysis of the Startup Map Ruhr shows that 73% of all startups offer their products and ideas to business customers.

Fig. 11: Assessment of the ecosystem for various factors in the Ruhr area, Berlin and Germany and an assessment of differences between the Ruhr and Germany

Own calculations based on the German Startup Monitor 2019



“We can all be very proud of what has happened in the Ruhr area in recent years in terms of startups - the startup scene is now a reality. In terms of cooperation between startups and established companies, a lot of effort is being made and really smart formats being developed (such as Corporate Challenge Pitches and Co). However, when it comes to putting it into practice, I frequently still sense a lack of entrepreneurial courage on the part of the established companies. All I can do is appeal to the entrepreneurs and managers: limit the risk of a project and then just try it out before you start discussing and thinking about it any further! And if you're not serious, then leave the startups alone and don't waste their time!”

- Oliver Weimann, Managing Director ruhr:HUB



⁴ In the figure below, the answer categories “good” and “very good” are combined.

I N T E R V I E W

with Dirk Opalka

Managing Director Initiativkreis Ruhr



@ Ralf Schultzeiß

Startups association: *The Ruhr industrial area was long considered the economic problem child of Germany, but in recent years the region has developed its own ecosystem for startups. What has driven this development?*

Dirk Opalka: This region has traditionally been dominated by large corporations. The job path was often already mapped out in the family. The first step, therefore, was to sharpen people's awareness of a new entrepreneurial spirit in the Ruhr - in companies, at universities, in politics and among potential founders. The aim was to highlight the possibilities and opportunities that this region has to offer.

Established companies in the Ruhr economy have recognised that startups can change existing structures rapidly in this age of digitalisation - the buzzword: disruption. Anyone who wants to secure economic success in the future must be open to new solutions.

So the economy itself is a motor. And the universities and colleges in the Ruhr, where the seeds of many

young startups are sown, are increasingly focusing on promoting entrepreneurship with new study programmes and business incubators. The federal state and local authorities are also important drivers with institutions such as the ruhr:HUB. And it is also the committed founders themselves who, in their search for networks, are pushing the development of this ecosystem forward. There's a new self-confidence: What Berlin, Munich or Hamburg can do, we can do too - and perhaps even better. Something is growing in the Ruhr area that has never been seen before.

Startups association: *The business models of startups in the Ruhr area are often addressed to business customers: 73% of the identified startups in the Ruhr have a clear B2B focus. The proportion of startups that develop software or work in technology development is also disproportionately high in the Ruhr area. What is the reason for this?*

Dirk Opalka: Our proximity to industry is a bonus. Companies are potent business partners for founders. This is why the Initiativkreis Ruhr is opening up its net-



work to founders as part of its startup initiative. The Smart am Start impulse project, for example, brings CEOs into direct contact with young entrepreneurs. In the Gründerallianz Ruhr Data Hub, we bring companies together with startups in order to develop concrete solutions for data-driven applications. The Initiativkreis is also a co-initiator of RuhrSummit, now the largest B2B startup conference in Germany. The first investments made by our seed fund "Gründerfonds Ruhr" also focused on B2B startups.

Startups association: *What needs to be done to ensure that the Ruhr is associated even more closely with innovation and startups in the future?*

Dirk Opalka: Innovation is at home in the Ruhr area. We all know that. But we need to let the others know as well. Thanks to a wealth of initiatives, the startup scene has developed an enormous dynamism of its own. Today the Ruhr area is a hotspot on the German startup map. But there's still plenty of room to the top. We have to push forward with internationalisation. And we have strong sectors that can achieve this:

Medical technology, for example, at Essen University Hospital, IT security in Bochum or logistics with the innovation platform startport in Duisburg. The Data Hub Ruhr has opened a gateway to the world. Other partners include the Ruhr Chambers of Industry and Commerce that have launched the Startup Germany Tour, or the Business Metropolis Ruhr with the Innovation Bridges to Israel and China. Alongside our support for the Salon des Créateurs, which brings startups together with designers and marketing and communication experts, and the FuckUp Nights Ruhr, which aims to encourage people to start their own businesses, we also particularly support the young format of the Female Founders Ruhr. Because we do need more female founders. And we need even more established companies, including small and medium-sized enterprises, who are willing to cooperate with startups.

So we are well under way while there's still a lot of hard work to be done. But that's something we're very good at in the Ruhr area.

3.2 Technology-driven startups

Chapter 2 described the enormous potential of the Ruhr in the field of technical innovations and its dense research landscape with an extensive pool of experts with relevant know-how. The figures of the German Startup Monitor show that this is also reflected in the founders. 44.4% of founders in the Ruhr have degrees in computer science, mathematics and engineering, while the national average is only 33.6%. The opposite is true, however, if we look at economic

sciences, by far the most important field for startups after the MINT subjects. This breakdown of academic backgrounds is also clearly reflected in the business models⁵. 38.1% of startups in the Ruhr operate in the fields of software and technology development, an above-average figure. This high proportion in an area that relies on a high level of research and technology points to the innovative potential that is to be found in the region's startup scene. While in some digital business fields - especially in the

highly competitive online trade and platform models - more and more companies are being set up using existing and already successful business ideas, there are opportunities here to create real innovations. Together with medium-sized enterprises and the large corporations headquartered here, the Ruhr has the opportunity to build on its strengths and create competitive advantages. Alongside a broad and high-quality pool of founders, this requires players in the established business world who are willing to take risks and try out new products and ideas as early adopters.

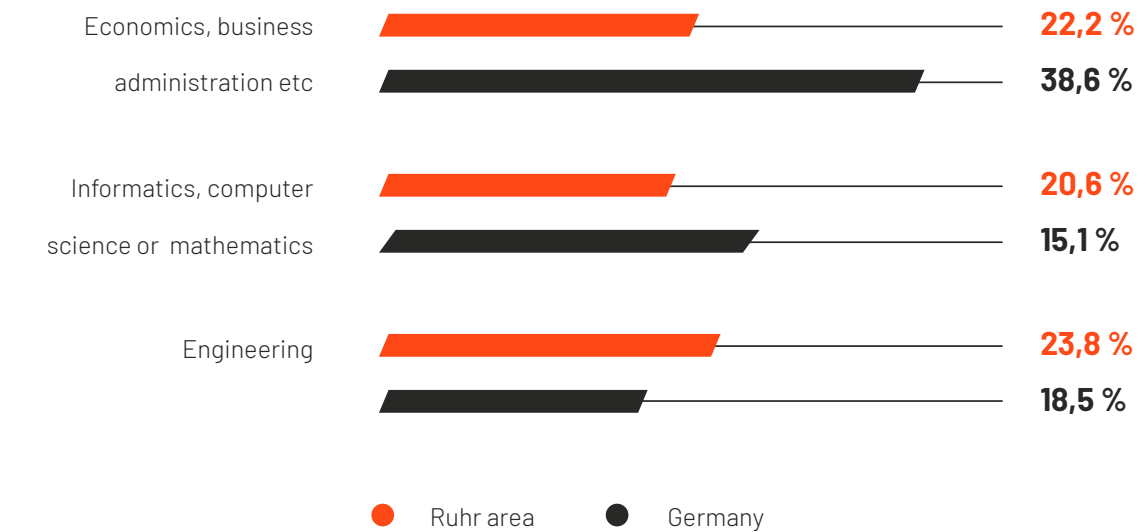
"The proximity to the universities of the Ruhr with their strong research and practice-oriented approach is of great importance for our company. When we founded our company, it was a logical continuation of our research at the Ruhr University Bochum and, thanks to our close links with the university, we will continue to keep our finger on the pulse of science in the future - giving us an important advantage over our competitors."

- Dr. Johannes Görler, Founder and Managing Director at OpenPhase Solutions

i The **OpenPhase Solutions GmbH** is a technology startup that offers innovative solutions for material simulation for research and development. Originally a university spin-off from the Ruhr University Bochum, it links the academic and industrial worlds and develops and distributes software for the simulation of microstructure evolution based on the phase field method.

Fig. 12: Academic backgrounds of founders in the Ruhr area and Germany

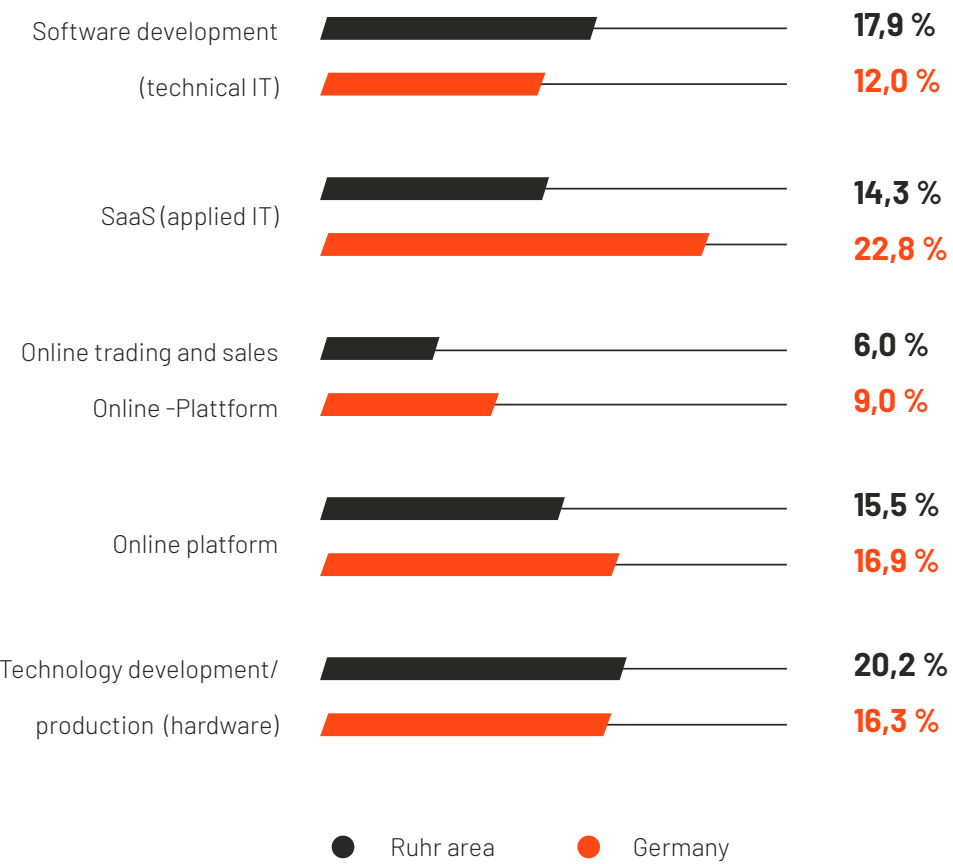
Own calculations based on the German Startup Monitor 2019



⁵ The business models were also determined on the basis of the categories of the German Startup Monitor (DSM) for all startups identified in the Ruhr area. Both data points for the relevant areas of technology and software development show similar trends (DSM: 38.1%; Startup Map Ruhr: 39.3%). Due to the interest in the comparability, the figures from the DSM are used here.

Fig. 13: Business models of startups in the Ruhr area and Germany

Own calculations based on the German Startup Monitor 2019



The university landscape is of fundamental importance, not only because it offers education and training, but also because it engages in research that often flows directly into the product development of the startups. Particularly positive effects can be identified in fields that are flanked by entrepreneurial expertise. As indicated in the previous section, the startup initiatives developed at universities in recent years play a major role in this respect. They help students and researchers to put their ideas into practice and connect with actors from the business world.

One example of this is the Cube 5 incubator, which is located at the Ruhr University and supports students and founders in the field of cybersecurity, offering startup know-how as well as support in business model development and communication strategies. Data Hub Ruhr, on the other hand, is an exciting project in which startups work on specific problems of established companies, not only promoting an exchange of know-how and but also establishing potential customer relationships. There are already many examples of research-intensive startups in the Ruhr with close ties to industry:

These include, for example, the fast-growing company Ingpuls as well as the recently founded Open-Phase Solutions.

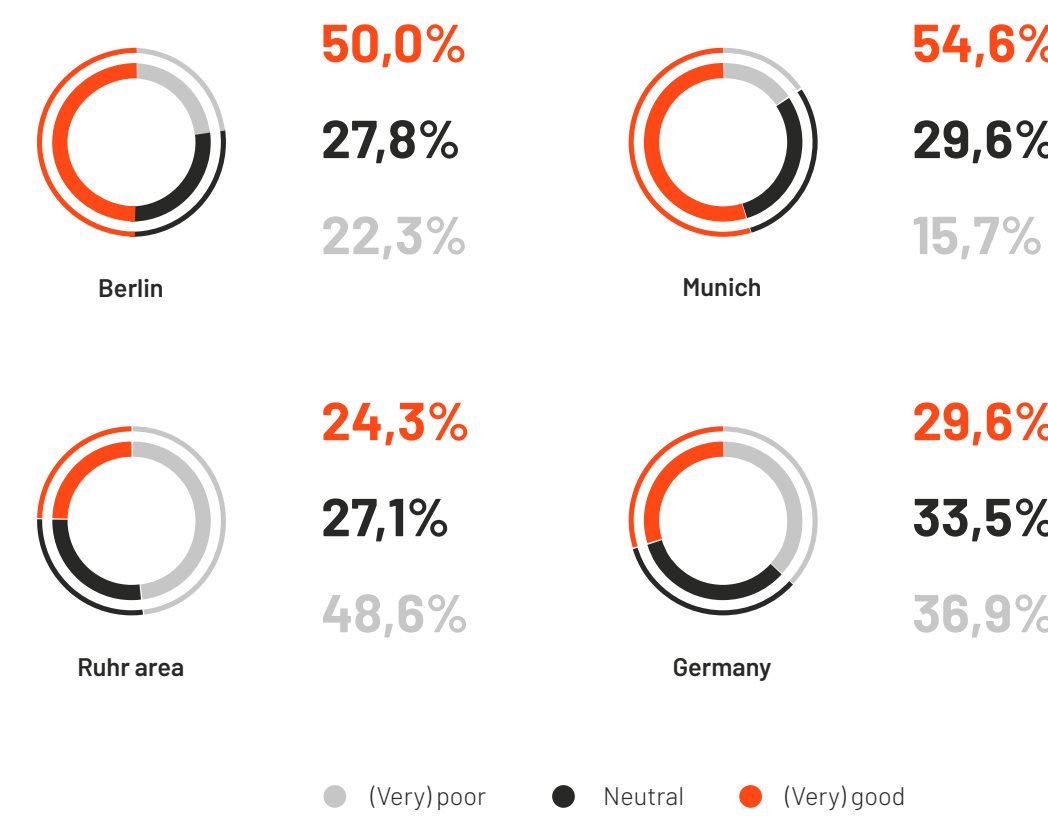
The state government in North Rhine-Westphalia has approved a total of up to EUR 150 million for the Excellence Startup Center which will strengthen and support business startups at universities over the coming years. Two of the six selected universities are located in the Ruhr area - the Ruhr University Bochum will receive just under EUR 20 million and TU Dortmund University around EUR 14 million.

“When we founded our company almost 10 years ago, there was no distinct startup scene here in the region. We were considered really exotic when we went self-employed. Fortunately, this has changed in recent years. A new young generation of founders combines the agility of the future with the Ruhr area mentality. Conditions for high-technology startups are particularly good here, even though there is certainly still an investment gap in this area.”

- Dr. Christian Grossmann, co-founder and managing director of Ingpuls

i Ingpuls GmbH from Bochum develops and produces customised alloys and components from shape memory alloys (SMA). As a spin-off from the Institute for Materials at the Ruhr University Bochum, Ingpuls has risen in several steps from consultant to development service provider and finally in 2016 to mass producer.

Fig. 14: Assessment of access to capital in the ecosystem / Own calculations based on the German Startup Monitor 2019



3.3 The growth challenge

In recent years, the number of young companies in Germany that have passed the key symbolic billion mark has increased significantly. Just a few years after their foundation, companies such as N26 or FlixBus are already generating sales in the region of hundreds of millions and each employ over 1,000 people. The fact that North Rhine-Westphalia and the Ruhr have not yet produced any startups of this size is due not only to the broad backlog

demand described above, but above all to a lack of investment gaps. With EUR 500 million, the Munich startup FlixBus, for example, was granted twice as much venture capital in 2019 as all startups in North Rhine-Westphalia combined (Ernst & Young 2020). Funding in NRW is concentrated in particular on the cities of Cologne, Düsseldorf and Aachen, while in other regions there were only a few isolated cases of funding rounds (Ernst & Young 2019). In the Ruhr, companies such as Masterplan com,

Abalos Therapeutics and VMRay received funding.

Data from the German Startup Monitor confirm this imbalance in the investment sector: Overall, growth financing through business angels and venture capital is less common in the Ruhr compared with the national average: While almost one in four startups (22.3%) in Germany states that it is supported by at least one business angel, this figure is only 12.3% for companies in the Ruhr. Venture capital is also used more frequently (14.6%) on

a federal average than in the Ruhr region (9.9%). And the data from the German Startup Monitor also indicate that there is still a lack of relevant players locally: Founders in the Ruhr are more dissatisfied with access to capital, not only in comparison with the cities of Berlin and Munich but also in relation to the national average – almost half of the respondents (48.6%) rated the Ruhr ecosystem here as poor or very poor (cf. Figure 14). The interviews also show that growth-oriented founders often establish additional branches in Berlin or at least consider doing so.

Keeping such startups and personalities in the region is extremely important for the visibility of the location and the capital market. A critical mass of successful funding would put the Ruhr area on the

map of more and more venture capital funds. In addition, more successful founders are needed as active business angels locally, who only provide money but also contacts and know-how. Established companies, too, can become more involved and act as an investor. The next chapter illustrates that certain sector clusters are seeing positive developments in this direction.

Alongside the general framework conditions, the topics of growth and funding also affect the culture of the specific ecosystem and with it the mindset of founders. While our interviewees on the one hand emphasise restraint and down-to-earthness as positive characteristics of the people in the region, there is also a clear demand for a much louder and more combative

attitude when it comes to their own company.

Apart from the funding infrastructure and a startup landscape with still only a limited visibility in the Ruhr, it is probably the preferred business models that contribute to the backlog in investment. While Software as a Service offers and online platforms are globally scalable products with a large market, many business models in the Ruhr area are aimed at a smaller market due to their specific solution orientation. In addition, they are more often dependent on high initial investment in research and development as well as machinery. This results in significantly longer investment horizons than in the classic venture capital sector. Founders in this field therefore need patient capital.

“When I look at other startup ecosystems, it makes me wish for more courage in the Ruhr, for people to think big with their own ideas. In the long term, however, this requires more capital and better networking with investors in the region and what’s more investors from outside, who have had a very limited presence so far”.

- Stefan Peukert, co-founder & managing director at Masterplan

i **Masterplan** is the e-learning portal for digital education focusing on companies and enterprise accounts. We are expanding internationally revolutionizing the field of continuing education. We develop the platform as well as the content completely in-house with our team of over 60 people.

“The potential of the Ruhr metropolitan region is huge - lots of large corporate groups, a high density of universities, an affordable workforce and cheap rents. So why not create a really cool company like N26 here? But we have to think bigger, for example in formats like the Bits and Pretzels!”

- Mirco Grübel, founder and CEO of Myster

i **Myster** offers carefree renovation all over Germany. Myster is the first company to accompany the customer throughout the entire renovation journey, from design and material experience (own flagship store in major cities) to the actual work by craftsman throughout Germany.



I N T E R V I E W

with Klaus Hommels

Founder of Lakestar



Startups association: In the past years, you have successfully invested in many startups like Skype or Spotify. What does a founding team have to present to convince you to invest?

Klaus Hommels: Passion! I must be able to see that they are not doing it for the money, but that they have a passion for their idea. A founder who starts a business because he or she is dissatisfied with the old job or to make money will not succeed. And in the end, of course, the idea must make sense and solve a real problem. But without passion, even the best idea is useless.

Startups association: When people think of startups in Germany, the first places that come to mind are Berlin and Munich. As a native of the Rhineland, how do you generally assess the development of NRW and the Ruhr as startup location?

Klaus Hommels: North Rhine-Westphalia is not yet really on the map from an investor's perspective. Although there are now many founders in the region –

especially in Cologne and the Rhineland – there is still a lack of visibility. And larger funding deals, like the ones we see in Berlin and Munich, need larger companies in the first place, but there is also a lack of these in NRW. The trouble is that such companies rarely develop in smaller towns. For example, if a founder spends the evening in Würzburg city centre, he probably won't meet any other founders. In the hubs, on the other hand, there is far more exchange, networks are created and ideas improve. This is why investors look to these regions in particular.

Startups association: What do you think a region can do to improve the conditions for founders and perhaps also to be perceived more strongly?

Klaus Hommels: That is really no easy task. But two things can help: On the one hand, the public sector should show a stronger presence as a buyer and open itself up to products from founders. On the other hand, there are projects like Station F in Paris, where Emmanuel Macron's government provides very targeted support. Good framework conditions have

been created and, due to its close ties with public administration, founders have direct access to contact persons. Problems can therefore be solved jointly at an early stage.

Startups association: In the Ruhr there is already a relatively strong community in the field of cybersecurity. Would it help if such existing strengths were developed through clusters?

Klaus Hommels: That may be a possibility. The question I always ask myself is how credible a cluster is. This is the decisive criterion. When I think of cybersecurity, for example, I think first and foremost of Israel. In order to be successful, I need to have the world's best in the particular field at hand. When a certain critical mass is reached and the special funding is available, something exciting can be created.

Startups association: Apart from the individual sectors where the Ruhr region is strong, there are a lot of established corporations and a wide range of medium-sized businesses in the region. How can this locational advantage be used for the startup scene?

Klaus Hommels: It has to be clearly said that a lot of companies in Germany have been very slow to cooperate effectively with startups until now. In many corporations, the decision-making process takes over six months. This works better and faster in other regions. In the USA, in particular, as a founder I can develop customer relationships in the B2B sector much faster. In this respect, I would like to see German companies try out new things more often.



4 . I N D U S T R Y F O C U S

4. Strengthening strengths

A lot more activity is needed in all areas to push the startup ecosystem in the Ruhr forward. The results of the study also show that some sectors have specific strengths which should be given consideration. Contrary to popular belief, there is no uniform pattern for creating an innovative startup scene; depending on local conditions, very different paths can lead to success. Of course, it is worth taking a look at particularly successful locations – but without losing sight of your own potential.

For the Ruhr, this means in concrete terms placing the emphasis on the opportunities in the B2B market and further strengthening research and industry-related fields. Industry clusters where there is already a high level of business activity are of key importance. These offer the best opportunities to address the challenges of corporate growth and develop the region strategically. While on the one hand, potential has to be activated on a broad scale, startups in the later stages of development are faced with the task of thinking bigger and marketing products globally.

In general, focussing on clusters takes account of global economic developments – in particular the increasing global interdependence and growing dynamics of markets. Interaction between research facilities, educational institutions, investors and established companies can give a region clear locational advantages in specific sectors.

4.2 Cluster formation in the Ruhr

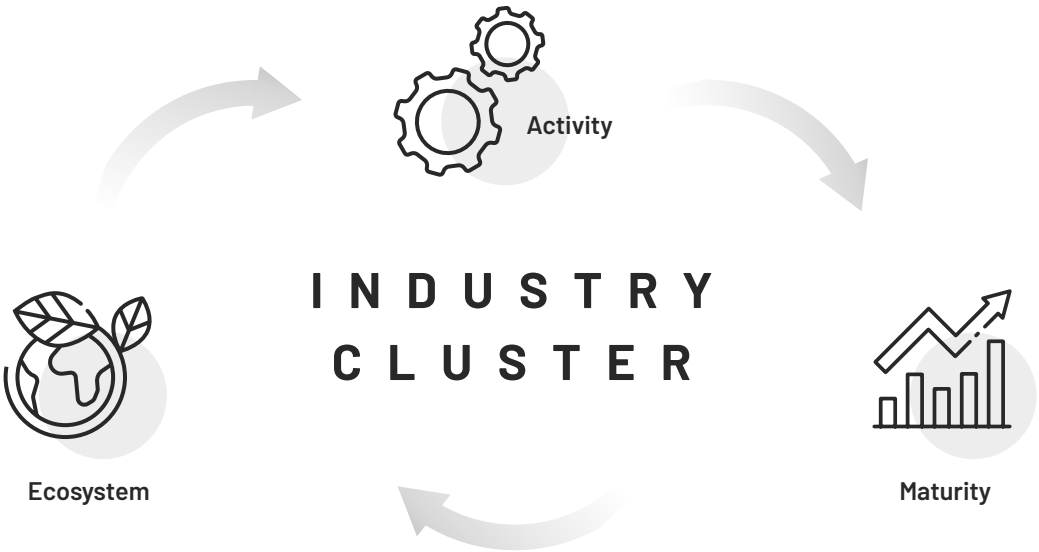
Various definitions of the term cluster can be found in academic literature, some of which have found their way into practical use in the past in connection with measures undertaken by economic development agencies. There are three key criteria for identifying startup clusters: firstly, the location of the startup activity in a defined region and secondly, the existence of a vibrant ecosystem, including research institutes, incubators or even investors. The third dimension relates to the maturity of the cluster, which is indicated, for example, by the size and economic relevance of the companies that have emerged so far.

Based on data from the German Startup Monitor, the Startup Map

and expert assessments, there are clear indications of a trend towards cluster formation in the fields of cybersecurity, logistics and healthcare. The most mature cluster with the longest tradition and the broadest ecosystem is in the cybersecurity sector which will be described in more detail in the next chapter. In the logistics sector, two key projects are shaping the landscape and, in particular, attracting attention from outside the region, namely startport in Duisburg and Digital.Hub Logistics in Dortmund. In view of its central location, excellent transport infrastructure and high population density, the region is predestined for innovations in this sector. The ecosystem also plays a decisive role in the healthcare industry: Essen University Hospital and the University of Witten-Herdecke are important players that are active

at the interface between scientific theory and medical application. Clusters are not only of benefit to the region in general, but also to the individual founders. Examples of this can be found not only in Silicon Valley, but also elsewhere. In Seattle, for example, an ecosystem has developed in the field of eCommerce that benefits greatly from the presence of the online retailer Amazon. This provides the scene with expertise, experience and a strong network which is hugely important for rapid scaling and attracting investors. If such advantages are to be leveraged and expanded within a region, we do not only need innovative solutions but effective marketing as well – and this requires efforts by both the startups and the region.

Fig. 15: Criteria for identifying industry clusters / Own diagram



“What is important for me in the Ruhr area is not just its excellent transport infrastructure, but also the strong academic research landscape. Our close cooperation with the University of Essen and our investors with their industrial expertise and patience are critical to our success.”

- Dr. Marcus Kostka, CEO of Abalos Therapeutics

i Abalos Therapeutics is harnessing the unique immune stimulation of the arenavirus to apply the full breadth of the immune system’s power specifically against primary tumours and their metastases. With this novel approach, the team of experienced biotech entrepreneurs and immunology pioneers is aiming for a quantum leap in immunoncology.

I N T E R V I E W

with Margit Wennmachers

Operating Partner at Andreessen Horowitz



Startups association: With your own PR agency Outcast Marketing, you started doing marketing work for many well-known startups in Silicon Valley back in the 1990s. What do young companies have to do to attract attention and how important is it to be visible?

Margit Wennmachers: Visibility is an important issue for startups. In the search for employees, well-known names simply have the better cards: In Silicon Valley in particular there is a fierce battle for talent – anyone who isn't visible there has to face the fact that the talent will go to the big names. But perception and awareness also count when establishing business relationships in the B2B sector. First of all, startups have to look bigger and better known than they actually are, if they want large companies to work with them.

Startups association: As an investor with Andreessen Horowitz and an expert on the Valley, how do you perceive Germany as a business location?

Margit Wennmachers: On the one hand, thanks to its affordable education system, Germany has a large

pool of well-trained skilled specialists. Germany is doing a good job in the industrial sector in particular, and this is also perceived internationally. But the crucial point is the area of technology. German companies are simply not early adopters. Instead, there is a conservative attitude towards digital innovations, which, to put it bluntly, wavers between „nobody needs it“ and „it has to be approved first“.

Startups association: What do you think a region needs to do if it wants to develop into an international tech hub? Or what does the Valley have that nobody else has?

Margit Wennmachers: The same applies here as for startups: If you want to impress people with your location, you have to market yourself well. The Valley is attractive: Sea, sun, innovative young people. But also high living and business costs. Other locations must take advantage of this and draw attention to their advantages. Ireland has been very successful at this. In recent years, more liberal tax legislation has enabled it to attract many US companies and talent.



Germany could do this, too: the Ruhr could market its low cost of living and the good startup conditions due to low rents, for example.

Startups association: The Ruhr has a strong industry and many successful medium-sized companies: Do startups fit into this landscape and how can they benefit from each other?

Margit Wennmachers: America is not a country characterised by industry and small and medium-sized businesses – Germany is. In order to benefit from this, technology must be used early on by the established companies: in the security sector, for example, large banks and insurance companies should become customers of startups.

Startups association: How important is the proximity to a strong research and university landscape for the development of a successful ecosystem?

Margit Wennmachers: Silicon Valley has become so successful because various factors are combined

there: Venture capital, a positive attitude towards experiments and renowned universities. It is important for a startup location to be close to research and universities, but not the only criterion. What is more important is for the attitude towards failure to change fundamentally throughout Germany: All too often people ask about the potential problems of an idea, while for investors in the Valley the crucial question is how big an idea is, if it works.

Startups association: The first thing that comes to people's minds when they think of successful startups are platforms in the B2C sector (Uber, Spotify, Zalando). What are the most important current trends for you?

Margit Wennmachers: There are quite a few exciting topics: Of course, everything that is related to artificial intelligence, especially autonomous driving. The trend towards crypto-technologies as well as the area of cybersecurity and privacy could have an impact especially in Germany, as it is part of the German value system.

4.3 Cybersecurity

The Cybersecurity sector is one example of how startups in the Ruhr are using existing strengths and building on know-how and expertise. It is therefore a very good guide for developments in other business areas. In view of the ever-increasing digitalisation and the growing significance of data in all aspects of life and business, the issue of security is becoming more and more important. In 2019, the German economy suffered damage totalling EUR 102.9 billion from cyber attacks - almost twice as much as two years earlier (Bitkom 2019). More and more companies are responding to the new risks and stepping up their activities in this area; the volume of the global cybersecurity market is expected to virtually triple to around USD 250 billion by 2023 compared with 2019 (MarketsandMarkets

Research 2018). This growing and rapidly changing sector offers huge market opportunities for young innovative companies.

This attractive market is served by a lively and mature cybersecurity scene in the Ruhr. Back in 1987, one of the two founders of today's G Data CyberDefense AG programmed one of the first commercial virus protection programs. Today, G Data from Bochum is one of the largest IT security companies in Germany with 500 employees. The Ruhr University Bochum also houses the Horst Görtz Institute for IT Security, founded in 2002 which is a leading international research institution with more than 1,000 students and 16 startups to date. The region has seen two waves of startups: The first successful generation includes companies like ESCRYPT and Zynamics, which were taken over by the Bosch

Group and Google. In recent years, the second wave so to speak, many new innovative companies have emerged in the university environment. Since 2018, when incubator Cube 5 was opened, this potential has been bundled and tapped even more effectively.

Thanks to many years of entrepreneurial experience, the specialised excellence of university and non-university research institutions and not least the creation of a dedicated venture capital fund through eCapital, a complete ecosystem has been created here. This enables innovative young companies to develop into internationally competitive players and make a significant contribution to economic development. The opening of the Max Planck Institute for Cybersecurity and Privacy Protection in Bochum in 2019 further strengthened the cluster.

"In recent years, a strong cybersecurity ecosystem has emerged in the Ruhr, from which we benefit, but which we also want to continue to shape ourselves. As a region, we are the European leaders in this field. But we need to make this strength more visible internationally."

- Carsten Willems, Co-Founder & CEO VMRay

i **VMRay** concentrates on one single mission: Helping companies to protect themselves against the ever growing threat of global malware. Our automated malware analysis and detection solutions help companies around the world minimise business risks, protect critical data, and secure identities.

"While we were putting the idea for our company into practice, we benefited from our good talks with our professors at the Ruhr University. And the development of the Cube5, which we were involved in from the beginning, has strengthened the network in the field of cybersecurity in the Ruhr enormously."

- Philipp Koppe, Co-Founder & CEO of emproof GmbH

i **The emproof GmbH** is an IT security startup from Bochum, Germany. We protect intellectual property and corporate secrets in the software of embedded systems against industrial espionage. The emproof technology offers strong protection features for small devices as well as Linux-based devices and fulfils requirements for functional safety.



5 . O U T L O O K

5.1 No future without innovation

The structural change in the traditionally industrial Ruhr area is not a simple transformation process, but an ongoing task. Hence the deliberate focus on young growth companies whose business models link up directly to technical and social innovations. Startups take off without a lot of ballast and are therefore able to get things up and running fairly quickly. If the innovative capacity is to be increased in order to secure the future of the region, we need to focus on startups.

The core objective of the Ruhr must be to harness its full innovative potential. As a metropolitan area, the region has clear locational advantages – for example in the areas of infrastructure, education and culture. Political and economic initiatives designed to activate a startup culture should therefore

continue to play a central role. A broad base of innovative growth companies also improves quality and with it, in the long term, the chance of even more success at the top.

In addition, supra-regional initiatives have to be developed together with a strategy for increasing the region's visibility in the national and international competitive field. Above all, it is important that the cities in the Ruhr pull together and leverage the current economic and political dynamics in the startup sector jointly. On the one hand, this requires formats that connect the scene more closely, and on the other hand, activities that bring players from the important ecosystems in Germany and the world to the region. One very interesting project in this respect is the Founders Foundation in Bielefeld which has put a previously little-noticed location on the map and, generated nationwide interest with

its Hinterland of Things conference. The Berlin ecosystem has events such as the Tech Open Air and NOAH, but also Factory Berlin, which connects the local scene both locally and internationally. Large event formats such as the RuhrSummit are therefore particularly important for strengthening the startup location.

5.2 Using multiple synergies

The results of the report highlight the broad potential that still needs to be activated as well as pointing out specific opportunities and unique selling points of the region. The proximity to large corporations and medium-sized companies provides the basis for an attractive B2B market and this is where the Ruhr can become a space for innovations. In addition, the dense university landscape with its strong

focus on research demonstrates that it can supply the local startup scene with precisely the IT and engineering know-how it needs.

The numerous technical universities and research institutes in the area are already working on the practical challenges of the future. But now the ideas and solutions that emerge must be translated even more systematically into business practice. It is particularly important that the entrepreneurial mindset is strengthened: Anyone who founds a startup company must think first and foremost in terms of the market and the product and detach him or herself from pure research. This potential is already being supported in the Ruhr by a whole series of initiatives, such as Cube 5 at the Ruhr University Bochum which helps

young founders to set up businesses in the cybersecurity sector. In connection with new impulses, it is worth taking a look at CODE University in Berlin: the study programmes are based on digital practice – for example in the field of software development – and the focus is on the development of entrepreneurial core competencies. Concepts such as this can help to strengthen the link between IT expertise and startup companies. In addition, it will generate a larger pool of potential founders and may attract national and international talent.

In cooperation with the established industry, it also makes sense to continue to push forward with the cultural change. The main thing is to take young companies seriously. Corporate groups must also be-

come early adopters of innovative products in their own interests; small and medium-sized companies can follow on from their own founding tradition and get their processes in shape for joint ventures. In the short term, of course, this requires time and energy from everyone, but in the medium term the investment is worthwhile. One successful example is the Tengelmann Group which recognised the competition in the field of e-commerce a good ten years ago and invested in companies such as Zalando. The resulting venture arm of the company is now not only an extremely lucrative business area, but has also provided the Group with significant support in the implementation of innovative business ideas.

“Recently, a whole series of promising initiatives have been launched to strengthen the startup ecosystem in the Ruhr area - for example the Gründerinitiative Ruhr, the ruhr:HUB and the Gründerfonds Ruhr. Two of the six Excellence Startup Centres supporting entrepreneurial activities at the universities with sums in the double-digit millions are also located in the Ruhr, with locations in Bochum and Dortmund. I am pleased that the larger venture capital funds from the region and beyond are now increasingly looking to startups from the Ruhr area and launching new formats such as the “VC Rodeo Ruhr”. I am optimistic that - in the words of Alexander Hüsing - unicorns will soon be grazing on the Emscher river.”

– Dr. Johannes Velling, Group leader “Entrepreneurship, digital impulses, financing”, MWIDE NRW

I N T E R V I E W

with Dirk Kanngiesser

Co-founder of the German Accelerator



Startup-Verband: As a successful founder and investor, you know both the German ecosystem and the Valley very well. What can and should we learn from the USA?

Dirk Kanngiesser: Of course, thinking big, risk appetite, rapid scaling are still relevant, but have levelled off somewhat in many areas. However, a lot of German startups still have a kind of sequential approach to the key issue of internationalisation; first they conquer the German market and then the American. This strategy leads to considerable competitive disadvantages, however.

Startup-Verband: This is where the German Accelerator, which you helped to set up in 2011, comes in. Why do we need such a programme?

Dirk Kanngiesser: Basically, when it comes to startups, I would distinguish between companies that want to become and should become „local category leaders“ and those that address a global market, the „global category leaders“. Whereas, in Israel, for example, startups only have a very small domestic market and

therefore start operating internationally at an early stage, things are often different in Germany. This is where the German Accelerator acts as a contact point. Experienced mentors accompany the development and testing of go-to-market strategies, particularly for the USA, which continues to be the largest market, especially in the IT sector.

Startup-Verband: As a native of Dortmund, I expect you still keep an eye on the Ruhr. What developments have you noticed there in the last few years?

Dirk Kanngiesser: I was active in the VC sector in Dortmund about 20 years ago, but I only recently started to get more involved with my home region again. Basically we can count ourselves lucky that politicians and local government in NRW want to promote and organise the startup environment more strongly. In addition, a lot of different initiatives and conferences have been set up. This is important for the creation of networks. I myself am a member of the board of trustees of the tu>startup FOUNDATION and can see just how many great measures are cur-

rently being put into practice at Dortmund's TU University. These are all important pieces of the mosaic, but they also take time.

Startup-Verband: How can the region be pushed forward, especially when you look at other successful ecosystems like the Valley?

Dirk Kanngiesser: You can't simply copy Silicon Valley, but you can identify and transfer appropriate success factors such as speed, easy cooperation with B2B customers or standard contracts. The so-called unicorns in the Valley or Berlin are the direct consequence of a well-structured ecosystem. What we need is a broad basis of good and solid startups, and then those with greatest potential should be given targeted support. Attempts have already been made in the past to develop certain sectors by promoting clusters. In concrete terms, I would emphasise four potential success factors for the Ruhr: Highly qualified specialists in technology-intensive fields, a good infrastructure, the down-to-earth mentality and affordable rents.

Startup-Verband: Not only the Ruhr but the whole of Germany is facing the challenge of a profound transformation of the industrial economy. What can Germany learn from the Ruhr?

Dirk Kanngiesser: Startups need a lot of capital, especially in the industrial sector and it's difficult for such companies to obtain venture capital. Other appropriate forms of funding and support are needed. The Ruhr can serve as a model for other regions in this respect. It is important that the established economy connects with startups in joint ventures. After all, the German economy - and this is also true for small and medium-sized enterprises - does not only need incremental innovations, but also completely new approaches in many fields.



5.3 The Ruhr as a model for the future

The economic significance of digital companies is becoming increasingly visible: seven of the ten most valuable companies in the world are now digital groups such as Microsoft, Alibaba and Apple. Young companies in particular are increasingly conquering markets that have long been successfully occupied by German brands. In January 2020, for example, Tesla, which was founded in 2003, overtook Volkswagen for the first time in terms of corporate value. The examples mentioned have two things in common: they do not come from Germany and they have fundamentally changed or disrupted the status quo.

What does this mean for the future of the Ruhr? Despite the importance of synergies between the old

and the new world, there must be no dependencies that unnecessarily restrict young companies. Startups can profit enormously from the knowledge and established economy in the Ruhr, but they should not live permanently in its shadow. A high degree of creative freedom, a vibrant startup ecosystem and, above all, the step-by-step development of a network of investors are essential.

What we need here is a fundamental change of cultural attitude: as important as modesty and down-to-earthness are as values for the region, it is important to throw them overboard to some extent in the interest of your own success story. The path has been laid out and the conditions have never been better: Now it is time to show courage, shout out loud, think big and act fast.



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I N S T I T U T I O N S

and persons involved

Editor:

German Startups Association

Startups are the driving economic force of the future – visionary founders putting great ideas into practice. As the representative and voice of startups in Germany, the German Startup Association has been committed to a founder-friendly environment since 2012 and currently represents more than 900 startups. Within its network, the Startup Association enables an equal exchange between innovative young companies, established businesses and the political sphere. The Startup Association makes sure that entrepreneurial knowledge and experience are passed on from one generation of founders to the next and helps to bring the startup culture into more traditional medium-sized businesses and corporations.

The Startup Association's mission is to make Germany and Europe a place in which startups can thrive, in which taking risks is rewarded and which offers the entrepreneurial pioneers of our time the best conditions to succeed with their innovative ideas. It is guided by the vision of an open, equal and progress-driven society.

Please find further information on the Startup Association at: www.deutschestartups.org

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With around 43,000 students, the University of Duisburg-Essen is one of the ten largest universities in Germany. netCAMPUS, the Chair of Business Administration and Business Informatics, specialized in E-Business and E-Entrepreneurship, is headed by Prof. Dr. Tobias Kollmann.

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The RAG-Stiftung is a private foundation that was established in 2007. Its headquarters are in Essen on the UNESCO World Heritage Site Zollverein. At the beginning of 2019, the RAG-Stiftung took over the responsibility for financing the perpetual obligations arising from the operations of the German hard coal mining company RAG Aktiengesellschaft in the Ruhr and Saar regions and in Ibbenbüren. These obligations include pit water management, polder measures and groundwater purification. In order to safeguard the long-term financing of these activities, the RAG-Stiftung is building up assets through a profitable but secure programme of capital investment. This programme is reliably providing the Stiftung with the necessary returns.

As of 31 December 2019, the RAG-Stiftung is managing a total asset of € 18.7 billion. The investments of the RAG-Stiftung are characterised by a global and broadly diversified investment approach. In addition to its investments in highly liquid asset classes, the RAG-Stiftung also allocates a substantial proportion of its capital investments to real estate, private equity and equity investments in companies. This includes direct equity investments in high-growth companies, as well as investments in venture and growth funds.

In addition, the RAG-Stiftung promotes projects in the areas of education, science and culture that are related to the hard coal mining industry in Germany. Through these projects the Stiftung is generating long-term momentum for the transformation of the regions along the Ruhr and Saar Rivers and in Ibbenbüren.

Further information on the RAG-Stiftung is available at: www.rag-stiftung.de

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