



Knowledge Transfer from the Outside or Self-Learning? Keys to Success for the Establishment of Innovative Companies in Eastern Germany After 1989

Anna M. Steinkamp

I INTRODUCTION

The systemic change from a planned to a market economy was not only an opportunity, but above all a great challenge for those wishing to start up innovative, knowledge-intensive, and technology-oriented companies to succeed those that had been nationalized under the “old system.” These entrepreneurs were cognitively trained in ways that did not meet the requirements of democracy, the rule of law, and the market economy (Wagener 2015, 482). They had to catch up on elementary knowledge about the market economy and its legal framework in a short time (Steinkamp 2022, 157). On the one hand, scientists and specialized

A. M. Steinkamp (✉)
Center for Interdisciplinary Polish Studies, European University Viadrina,
Frankfurt (Oder), Germany
e-mail: steinkamp@europa-uni.de

© The Author(s) 2024
J. Günther et al. (eds.), *Roadblocks to the Socialist Modernization
Path and Transition*, Studies in Economic Transition,
https://doi.org/10.1007/978-3-031-37050-2_12

professionals had the competences to solve technical problems or to implement ideas in new products (Günther et al. 2020, 14), but they were forced to produce innovative products in such a way that they would be competitive on the international market.

The question is, therefore, where East German entrepreneurs got the knowledge to run a company successfully under the fundamentally new economic and political conditions. To whom do they owe their success today? This chapter aims, using a qualitative empirical analysis, to explain where entrepreneurs obtained the special knowledge or skills for founding and successfully managing innovative, technology-based, and knowledge-intensive companies in the market economy, when they themselves had been socialized in the “old” socialist system.

2 ESTABLISHMENT OF COMPANIES IN THE TRANSFORMATION PHASE IN THE NEW FEDERAL STATES

Forty years of socialism left their mark on corporate behavior in the transformation phase. Entrepreneurship had been marginalized and systematically pushed back, so that by the end of the GDR, almost no entrepreneurship existed (Ludwig 2020, 18). Millions of entrepreneurially active citizens had migrated to West Germany (Steinkamp 2022, 171).

In contrast, immediately after the systemic change in 1989/1990, East Germany experienced a boom in company start-ups. However, compared with West Germany, a significant number were closely linked to the underdeveloped service sector (cf. Fritsch 1998, 10).

The start-ups undertaken by East German entrepreneurs were associated with many problems. First, the East Germans had little or no equity to set up companies. In addition, due to the lack of collateral, it was difficult to get loans from banks (Schwarz 2022, 149). Another problem was the lack of experience with the functioning of a market economy and with the new legal framework that was implemented along with the transformation in the new federal states (Fritsch 1998, 10). The third problem was the fact that their socialization had taken place at a time when entrepreneurial activities were largely suppressed.

Another characteristic of the transformation in East Germany, which impacted start-up activities, was the enormous reduction in jobs in industry. Start-ups emerged from actual or imminent unemployment; these are

called “start-ups out of necessity” (Kühn et al. 2022). In the long term, such start-ups usually enjoy less than average success (Fritsch 1998; Storey 1994).

3 KNOWLEDGE TRANSFER AS AN IMPORTANT TOOL FOR LONG-TERM SUCCESS IN INNOVATIVE COMPANIES

Knowledge is an elementary basis for establishing and managing an innovative company. Innovations can be neither created nor processed without a high level of knowledge. Even before 1990, socialist countries had a high level of general education and technical skills, but not enough of the business knowledge that is characteristic of the market economy (Knell and Hanzl 1999, 69). Technical knowledge helps to produce an innovative product of the best quality, but business skills help to determine and negotiate a suitable price and to offer a corresponding service to be able to offer and sell the innovative service or product on the market (Rössel 1998, 60). However, several empirical studies show that the proven lack of education of the new East German entrepreneurs in the transformation phase was not a decisive obstacle to entrepreneurial success (Herzog 1998, 85). The level of education of entrepreneurs was often influenced by the system that operated in the GDR. Not every GDR citizen was able to study what they wanted. Not everyone was allowed to graduate from high school. Education in the GDR did not always depend on performance, but also to a large extent on the position of the parents, background, and other characteristics. For example, the children of party members or children of the working class were regularly given preference. On the other hand, people who were active in the church or who were in opposition had difficulties.

The breakdown of the system at the end of 1989 and beginning of 1990 brought to light the different types of knowledge possessed by the populations of the post-socialist and capitalist countries, which resulted in an intensive exchange of information and knowledge transfer in a very short time.

Knowledge transfer refers to the targeted transfer of information, skills, and experience between people, groups, or organizations (Müller 2018, 27; Spelsiek 2005, 27). Knowledge transfer should be carried out in a targeted manner to ensure that the knowledge is tailored to the needs and the existing knowledge of the target group (Schreyögg 2004, 57).

However, successful knowledge transfer requires more than just transferring knowledge. Knowledge transfer is a social process based on trust, cooperation, and a common understanding (Cohen 2014, 289) and is closely related to the characteristics and skills of the people involved in the transfer (Rauter 2013, 28).

The question is: where did entrepreneurs who grew up under socialism get the knowledge or skills to set up and successfully manage innovative, technology-based, and knowledge-intensive companies after 1989?

4 METHODOLOGY

To answer the research question, oral surveys (interview guides with an extended biographical part) were used as a qualitative social research technique. The selected research group, with sufficient common ground, included CEOs or owners of innovative companies, who were required to meet all of the following criteria:

- Year of birth up to 1971 and place of residence up to 1989 in the GDR—this means that they were at least 18 years old in 1989 and were socialized in the old system.
- Founder and owner/managing director with equity investments in an innovative, knowledge- and technology-based company with expenditure on research and development and having headquarters in the new federal states.
- The company founded or taken over by the interviewees still exists today, that is, 30 years after the systemic change.

The categories used to achieve sufficient variation in the cases examined here include:

- Different types of foundations: start-ups, reprivatization, privatization (purchase from a trust), takeover.
- Different levels of education of interviewees; doctorate, master's or engineer's degrees, diploma (college, university, technical college).
- Different years of birth of the interviewees, ranging from 1936 to 1970.
- Different places of foundation (by federal state).
- Interviewees' background in terms of parents' profession and parents' political positioning in the old system.

- Company size: small, medium, large; micro-enterprises (up to nine employees and annual turnover up to €2 million) were not considered in the research.

In total, 26 persons participated in the study, including 13 from the new federal states. All interviews conducted were fully transcribed, anonymized, and analyzed using the MAXQDA program. A characteristic of these studies is that they are not representative. However, the research results will reveal mechanisms relevant to the growth of entrepreneurship.

5 EMPIRICAL INVESTIGATION

Based on the interviews conducted with entrepreneurs, the following typology was adopted in relation to the knowledge and skills of the interviewees:

- 1) Entrepreneurs with family tradition
- 2) Entrepreneurs for self-development reasons
- 3) Scientists with entrepreneurial talent
- 4) Unemployed scientists

5.1 *Entrepreneurs with Family Tradition*

The group of “entrepreneurs with family tradition” includes those interviewed whose parents and, in some cases, grandparents had been entrepreneurs or self-employed craftsmen. Despite the socialist system, they were able to observe their own parents and grandparents and learn what it meant to run their own company. Every day they could see how an entrepreneur acts, thinks, and so on. These interviewees undoubtedly wanted to become self-employed, and there was no other option for them. They reacquired their family businesses from a trust or bought them back.

This type includes Interviewee D and Interviewee G.

Interviewee D (born 1936) is a chemist from Saxony with a PhD. At the end of 1932, at the age of 36, his father, who had a doctorate in pharmacology and came from an independent family of pharmacists, founded a limited liability company together with one other person, to manufacture special medicines. The company developed rapidly, employing 250

people before the Second World War. In 1945, the company was almost completely destroyed and then rebuilt, so that the production of basic pharmaceutical substances and medicines—subject to the many restrictions in place in the GDR—was possible.

Interviewee D was able to decide for himself about his course of studies. When he was five years old he already had a deep desire to study chemistry and take over the family company. Despite his good grades, he was rejected by the Technical University of Dresden. His mother got him a place to study chemistry in West Germany, but he stayed in the GDR, because shortly before he planned to leave the country, he suddenly received an offer from a newly founded technical university for chemistry in Leuna-Merseburg.

For him, studying in Leuna-Merseburg was just a way station; he fought for a place at the renowned TU Dresden, where he was allowed to study from the second year.

Interviewee D witnessed the transformation of the family business into a state-owned business around 1960. After the death of his father in 1968, he took over the management of the company.

He benefited greatly from contacts made at TU Dresden and took those people with him to his company:

D And I hired friends and good people from the TU Dresden, so that we formed a good scientific team and yet could do a very good job, could develop good products. So that was from ... In '68 my father died. (D_DE, pos. 18)

Complete expropriation and conversion to a state-owned company (VEB) took place four years later. Interviewee D was thus forced to give up central management. He was allowed only to lead the research department.

D And then we made a gentlemen's agreement, I became head of research and a comrade from a company with which we were merged became factory manager. (D_DE, pos. 22)

Interviewee D remained in a managerial position in research and development in his former family business until 1990. After that, at the age of 55, he took the opportunity to buy the company from the trust. The privatization contract was signed in 1991.

D *But I was 55 years old. [...] And so it was a wonderful feeling to be able to show again that we are also able to perform. Because we weren't dumber than the West, we were the same genetic pool, we just had a completely incompetent social system where political doctrines ruled, and the achievements of the individual were not recognized at all. (D_DE, pos. 22)*

The impulse to reprivatize the company came from the interviewee himself:

D *And in the end, privatization was only possible after October 3rd, when we had unity. And then I contacted the trust company. And for the trust company my story was, the story was practically a story from a picture book, an exemplary story, like something out of a picture book. Company taken over by father, expropriated, stayed in the company and now again applying for reprivatization. So, I found very constructive people there to talk to. And the trust company went through several phases. (D_DE, Pos. 62)*

After the change of system, Interviewee D found his sales markets secured due to the specifics of his industry:

D *We had a good substance in terms of products. And it was different in the pharmaceutical industry than in the automotive or motorcycle industry, for that matter. The young people naturally wanted to buy a Yamaha motorbike or a Honda motorbike after reunification, not one made in the GDR. On the other hand, the doctors knew modern pharmacotherapy very well, it's like surgery without a knife, you can use a drug with lots of benefits, but you can also cause harm. So they stayed with their products that they knew, with the old GDR products that were thoroughly tested in terms of drug law, that were approved. And so sales were also secured in the start-up phase. (D_DE, pos. 66)*

Nevertheless, he intensively attended lectures on the market economy and sought contacts from whom he could learn something. His cousin, who worked in top management at Siemens, said to him: *"You seem to me like a dried-up sponge that soaks up everything"* (D_DE, pos. 70). The interviewee continues: *"Of course, gathering information was the most important thing. And it was, by the way, also typical for the GDR. It wasn't the*

material shortage that was decisive, it was the lack of information. The information deficit” (D_DE, Pos. 70).

The interviewee admitted that he had no knowledge of how the market economy worked. However, he himself was looking for people in West Germany who could pass this knowledge on to him:

D We, of course, hired management consultants, and they, for example, switched the wage system to West German. ... We had no idea about West German collective agreements. So from one day to the next, we had to convert our wage system to the West German chemical wage agreements, we had no idea. So additionally, we got a West German consultant, who then got himself a sub again. So he then did this work in payroll accounting and set the wage groups, i.e. wrote them out and changed them over. (D_DE, pos. 68)

The interviewee comes from an educated middle-class family. Reading books was an everyday activity for him. He had already read West German books on business administration in the GDR:

D But I was always interested in business administration. And we have a very good library in Dresden, the Saxon State Library, which always had new acquisitions of Western books. And I always read business literature there. Simply out of curiosity. Not because I could have used it for my work, but simply out of interest. It was also one of those, yes, intuitively, such a coincidence that I was interested in it. And of course, that could all benefit me then. So that’s what I learned still during the GDR times. (D_DE, pos. 80)

Interviewee D has also received a great deal of support from West German business associates, whom he sought out in West Germany himself. For example, they showed him how a balance sheet is set up or how production is established:

D I received lots of support from West German business friends. So they were honest in trying to help here. And, for example, my daughter and I went to [name of company X] in Frankfurt (Main) and there the doctor [name] has all his library books and balance sheet spread out, confidential documents. He said, “Forget the numbers again because you’re out again ... but I’d like you to see how a balance sheet is built up

and the profit and loss statement and the like. [...] After all, the money in the West has been hard-earned. [...] And in addition, the loyalty of West German business associates. The network is perhaps an exaggeration.” (D_DE, Pos. 88)

In summary, it can be stated that Interviewee D, who set up a company with up to 150 employees, received his knowledge of the market economy primarily from West German business partners or West German consultants. He was open to making new contacts, which he specifically sought in West Germany. He had already studied specialist literature from the Federal Republic of Germany while living under the old system. He also took part in continuing education courses for entrepreneurs.

Another entrepreneur of type I, an “entrepreneur with family tradition,” is Interviewee G (year of birth 1963) from the state of Brandenburg, whose father, grandfather, and great-grandfather were already self-employed entrepreneurs:

G That’s where the optics industry was born. And we have been here since 1895, my great-grandfather industrially built up the company there. Before that, we were goldsmiths. And we guess, we were already gold workers before that. And glasses were made in [name of city]. And there a lot of gold glasses were made. And then he implemented that in production. But we don’t know any more since 1895. (G_DE, pos. 11)

The great-grandfather, who was a master craftsman, employed around 35–45 people in the 1930s before the Second World War. The great-grandson, Interviewee G, reached a similar level with his company in 2022, with 46 employees.

Interviewee G always wanted to be self-employed:

G I got my independence, I think, from the family in my blood. [...] And I think that this entrepreneurial instinct somehow runs in my family. Because it doesn’t bother me that I just continued to work here in the evening. There are entrepreneurial families like that. I think that’s the way it’s passed on. Something has to be there. (G_DE, pos. 95)

In the GDR era, the family had a much lower status and much less money than before the Second World War. It fought unsuccessfully against the GDR’s restrictions. The family was allowed to continue producing

glasses as a private business in the GDR for two decades. The endpoint was the year 1972, when complete expropriation took place and the company had to be converted into a VEB. The father, who ran the company, was suddenly employed in the company as a foreman and contact person for custom-made products, but also as a stoker. Although the father continued to work there, he was no longer allowed to enter many areas of the firm. He was increasingly degraded:

G As a result, after 1972, my father was not only the manager but also a stoker. He had to do both. He wasn't allowed in at times, not even into his own company building, to check whether the heating was working at all. It was so bad, practically dictated from above. (G_DE, pos. 83)

Because of its involvement in the church, Western relationships, and self-employed status, the family experienced many restrictions and inconveniences in the GDR era, which also had a negative impact on the education of its members. For these reasons, for example, Interviewee G was not allowed to take the Abitur:

G We are a church-going family. After we left school, my brother was able to graduate from high school. And they denied it to me.

I Why?

G I don't know. I can't tell you. You had practically to change to eighth grade back then, right? Although I was the best in my class, that wasn't of interest in that case. (G_DE, Pos. 7–9)

He was also denied sports training at the better sports clubs in the GDR because of his Western relationships.

The interviewee was very interested in scientific equipment construction in the field of laser technology and optics, and his father helped him get an apprenticeship at an optics company in Berlin, where he was able to obtain a master craftsman's certificate. Immediately after completing his apprenticeship as a master craftsman, Interviewee G founded his own company on 1 January 1989, still in the GDR era, at the age of 26, and he took over the family business from the trust a year and a half later:

G Then I took on my father as an employee. We were able to take over the company on 2 August 1990. Then we practically got the property back

through a notary, but had to pay back the entire amount that was paid at the time. (G_DE, pos. 83)

As of 1990, a number of previous job titles were abolished, so that in order to work in certain areas, one had to catch up on qualifications, which Interviewee G also did. He also lacked business knowledge about the management of the company. He attended many training courses and made intensive contacts, from whom he was able to obtain further information:

G *Then I have special education. [...] We had to deal with VAT and all that in 1990, so first of all, you had to understand what that [means]. We all had no idea about it. Yes, what is VAT? Hm. Yes. Training, what do we do with devaluation? [...] And inventory, so how is it all? I was self-employed for a year. Economically no idea. I knew how a combine is structured, who has a say in that, right? But not how to edit business performance indicators. That didn't exist. You had to learn all that. That's what you want for yourself, professional leadership seminars, or we have everything, everything well-read and everything asked around. (G_DE, pos. 91)*

Interviewee G, who completed the technical school for ophthalmic optics in Jena during the GDR era and also acquired three master's degrees, attached great importance to further training for himself and for the company's employees. For him, attending seminars was an "exchange of experiences, there is further education, there is development" (G_DE, pos. 93). He spends 2 percent of sales annually on research and development in the company, that is, between €40,000 and €200,000.

To the question: *What do you see as the decisive aspects that have made you so successful?* he replies: *"The basis, I think, is my education. Education is important"* (G_DE, pos. 101).

Despite their different ages and different training, the two entrepreneurs of type 1 show typical innovative entrepreneurial skills in line with the 100-year-old definition of an entrepreneur according to Schumpeter. They seek and implement solutions on their own initiative, have a strong ability to be enthusiastic, but also enjoy creating things and have a strong will to build something of their own (Schumpeter 1997).

In addition, one notices the so-called peer effects in both entrepreneurs, that is, a tendency toward entrepreneurial independence shaped by

role models in the family and in social networks (Fritsch and Wyrwich 2021, 46). The interviewees' perception of entrepreneurial activity, despite the terrible experiences in the GDR associated with expropriation, encouraged rather than discouraged the desire and ability to engage in such activity. Their technical knowledge was acquired through studies and apprenticeships; however, apart from the systemic change, the passing on of industry- and company-specific knowledge and experience through the generations was of great importance.

5.2 *Entrepreneurs for Self-Development Reasons*

The type “entrepreneurs for self-development reasons” includes people whose parents were not entrepreneurs, but who nonetheless developed entrepreneurially at a very early age. They are similar to type 1 entrepreneurs: they like to create new things, and have great assertiveness, ambition, enthusiasm, and leadership skills. Some of them were able to earn their first money through small jobs in early childhood. In their professional lives, back in the GDR era, they noticed that their strengths lay in negotiation, contacts with customers, and the development of business strategies. The systemic change in 1989 and 1990 presented them with an opportunity for entrepreneurial self-realization. They especially wanted to be independent. The impulse to found a company came from intrinsic motives. Two entrepreneurs are presented as examples: Interviewee I, who has built up an innovative company with up to 1200 employees, and Interviewee J, who runs a high-tech company with more than 250 employees.

Interviewee I (born 1949), who is now a millionaire, grew up in great poverty in Thuringia. His father fled to West Germany in the 1950s, leaving his wife and three children behind. Contact with him was lost. The interviewee's mother lost her job in administration because of her husband's flight to the West. She had to work shifts in production for over a year. After the war, all four family members lived in a single room in an old castle and used an outdoor toilet.

As a child, Interviewee I guided tourists around the castle and was able to earn a small amount of money of his own. He was also happy to help his mother at the cash register:

I [I] always had to help my mother at the cash register. [...] Therefore, in that respect, the sense of business was actually already developed in childhood. (I_DE, pos. 10)

After the tenth grade, he did an apprenticeship as a chemical laboratory technician:

I Then I did the tenth grade, it wasn't that easy to go to high school. I don't know if I would have made it either, no idea. And then, out in the tenth grade, I trained as a chemical laboratory assistant, a metallurgy laboratory assistant in the stainless-steel works. (I_DE, pos. 10)

His first job in the early 1950s was in a large combine in Thuringia, where he remained for the next 20 years and which he bought in the 1990s. He remembers the job as a very valuable experience, as a kind of professional development. What he valued most was that during the GDR era he had professional contacts with people outside the socialist zone. In this way, he learned other mentalities, other modes of acting and realities:

I I worked in an application center, which was also important. You had this contact with the outside world, that is, the West, which was actually good for us in this laboratory, then [name] had that, that was it, shall we say, a very Western manager with a Western touch in his style who actually tried to bring [name of combine] into international business and then also built up such an application, where I worked in research beforehand and then in the application. Well, those were essential interfaces that shaped you. I was also selling insurance at the time. So the sales aspect didn't suit me so badly. Actually, still today. (I_DE, Pos. 10)

Interviewee I has great entrepreneurial talent and a high level of intuition. During the period of reunification, he tracked market changes and used these opportunities for himself. He founded, among other things, a sales company for West German products in East Germany, and looked for business partners in West Germany on his own initiative:

I Then came the change. And 1989. And I read the newspapers at home in 1989, yes, and then the first Western consultants were also in the newspaper, advertising that they were helping with founding a company and such. It was New Year's Eve, I called my buddy right away, [...] I ran over there and said: "Hey, look, isn't that something for us?" So we thought about what we could do, a video store, taxi drivers or something

else. And then I said from my side, I say: "No, you know, [Max],¹ what we can do is stay in our own business, in analysis technology, and look for partners in the old federal states." Because they will all come with much more modern technology than we at [combine] could ever have developed. (I_DE, pos. 10)

Banks were unwilling to lend to Interviewee I. His application for a DM 20,000 loan was rejected. He received the greatest support from three West German clients. They provided him with office equipment, cars, and technology free of charge:

I We had [business partners] who are based in the Freiburg area. [...] They said: "When you drive your cars, Trabi, that won't work." They gave us an air mattress, a tent, we have desks from [name of the company], so these devices, infrared spectrometers. They gave us the technology for free so we could demonstrate it, so we could show customers. The [name] company, that's in Breisgau, they also had a computer available for us, we didn't have anything. And the company [name of the company from West Berlin] gave us an Opel Omega back then, a car. Yeah, we were proud like never before. With our Wartburg and Trabant, that was not the car to drive to a big customer, but. ... That gave us incredible support. Yes, down to the furniture. They were really happy with how we developed. And that's why, especially in the early days, a characteristic feature was that we had a lot of backing. Who knows how it would have been otherwise? So, everything came together really well for us. (I_DE, pos. 120)

Interviewee I managed the sales company very successfully for five years. In 1995 there was a chance to take over the combine. The combine in which Interviewee I used to work had problems with the sale of the products developed there in the mid-1990 s. Initially, buyers were sought in Switzerland and Italy. However, a former colleague of Interviewee I offered the possibility of buying part of the combine, including the research and development department. After successful negotiations, Interviewee I bought the combine with his partner Klaus for over DM 1 million and with the support of subsidies.

¹ All personal names have been changed for the purpose of the chapter.

I It was the turning point in our company because we were suddenly responsible for all of the [combine] products, which were all still on the world market. [...] We had to take on the service technicians, take on employees in production, we were suddenly a company with research and development, with production and sales internationally. (I_DE, pos. 10)

Interviewee I was looking for a partner in West Germany who could invest in the company. He used existing contacts and convinced them to take a 25 percent share. The West German co-shareholder pushed for an immediate IPO (initial public offering), but Interviewee I, who held the majority of the shares, had to admit that he had no idea about stock corporations:

I [...] took part [and] then asked me why I think they are participating. I say: "Well, you just believe in us a bit, don't you?" Says (laughter) the other, [names], who is still a lawyer today, said: "Well, you mustn't dream, we want to make money with you, and there would be an IPO then." I say, you, I didn't even know what it was that they wanted from me. And then we still [performed an IPO]. (I_DE, pos. 10)

Interviewee I learned how the market economy works from his business partners. During the GDR era, he was in contact with foreign customers and suppliers from capitalist countries. He wasn't allowed to go abroad, but foreign customers visited him at the combine. According to him, these first foreign contacts in the GDR played a very major role in his later development. After the systemic change, he specifically looked for business partners in the old federal states in order to sell their products in the new federal states. Cognitive change takes time (Wagener 2015: 482); in this case Interviewee I needed five years in the business of distributing and collaborating with West German companies to become ready to buy part of the combine in Thuringia and take on innovative products made locally to distribute worldwide.

The type "entrepreneur for self-development reasons" also includes Interviewee J, born in 1960, who currently runs an innovative company with its own research and development department, with over 250 employees, operating in Saxony in the environmental measurement technology sector. He became a millionaire by setting up his own company. He originally comes from a working-class family in Saxony-Anhalt:

J My mother was a kindergarten teacher, my father was a truck driver, a truck driver on construction sites, so no outstanding academic education, but you could say, skilled workers. (J_DE, pos. 10)

His house was very modest. Even as a six-year-old child, he was earning money on the sports field, lining up skittles, among other things. He really enjoyed this:

J Then there was always one mark per hour. So you could buy a lot for one mark. And then there were the folk festivals, where you could set up skittles and collect waste paper. You could earn money there. So earning money was always very important in order to be able to afford something. Because pocket money was not much. It was not a disadvantage. Well, we never saw that as a disadvantage, it was fun. That was encouraging. (J_DE, Pos. 18–20)

At school, he was never the best, being rather an average student, but he was selected for high school. He wanted to study psychology, but then got a place to study in the field of environmental technology:

J And since we were in East Germany back then, not everyone could study what they wanted. [...] I also wanted to do psychology. And then there was no study at all. And then they said: "But we have something new. Environmental technology." I say: "Environmental technology?" That was in 1978. Everything was dirty, the water was dirty, and the air was dirty. Environmental engineering. For the first time, there is this as a degree. Technology. I said, "I'll do that." And that's how I got into process engineering with a specialization in environmental protection technologies. Therefore, coincidence. Actually, they recruited me because I had something similar with my girlfriend back then. (J_DE, pos. 28)

After he had completed his studies, his thesis supervisor offered him a place on a doctoral degree course, which he gladly accepted and successfully completed.

In 1987, Interviewee J left the Technical University with a PhD in engineering to work for a large company, *which at that time had already encouraged and co-financed this doctoral work* (J_DE, Pos. 64). For this company, he implemented his research results in the area of research and

development, and two years later, he took over the management of the research and development department.

Shortly after the systemic change, he was offered a job in western Germany as a department manager at an industrial company. He refused and chose 20 people from his old company with whom he would continue working in his own new company. To the question: “Why did you want to start your own business?” he answers:

J There was the chance. The chance was there. So, the business was broken up in 1990. That was clear. [...] And I was 29 at the time. And that was an opportunity. From today's perspective, that was actually irresponsible because it was just rubbish. We had no money. Ancient buildings. And people were poorly trained for the competition that was coming. And we had no orders. (J_DE, pos. 72)

The trust wanted DM 1 million for the business. Interviewee J needed copartners. He persuaded three people from the combine to join him: his former boss, a lab technician, and a person from production. He specifically sought the fourth person in West Germany. Interviewee J already had professional contacts with foreign and West German partners, which he had established at the combine. These were sales representatives from Bavaria and Switzerland, where he was allowed to buy dust measuring technology at the end of the GDR period. Due to the lack of hotels, the business partners from the West had stayed at his home, so that contacts were already established on a personal level.

On the subject of company composition, he recalls the following:

J And then, in the end I got five people to get involved. Once upon a time, there was an employee from the workshop, he is a millionaire today. He sold his shares last year. He bought a semi-detached house with his wife and child and lives here. He is already 75. A former boss of mine who is already dead. A former laboratory assistant who later sold her shares. At that time, Mr. [Müller] from [Bavaria] was still a shareholder. He got SO many shares back then for little money, a foundation, and then sold for double-digit million amounts a year ago. I made them all millionaires, so to speak. But then I needed the money. And because even as a young person, I didn't know what to expect. (J_DE, pos. 82)

The interviewee negotiated with the trust. Instead of the desired million, he had to pay only DM 300,000 for his companies. Unfortunately, he had no money to pay the share capital. At that time, the banks did not give any loans for founding such companies. However, he quickly found a solution:

J I needed money for the foundation, and I didn't have any money. Back then, I had a small terraced house here in [name of town]. And then I went to the bank and said I wanted to remodel the house. And then I got 50,000 or 100,000 for the house. But I didn't build. I founded the company with it. (J_DE, pos. 84)

He gained knowledge about managing a company in the market economy in various ways. He acquired technical knowledge during his studies. The copartner from Bavaria taught him the basics of management. In addition, he attended an evening school for management training and read a large amount of specialist literature.

With a PhD in engineering, Interviewee J was able to do research and develop new products. However, his strengths lay more in his entrepreneurial skills. He was good at negotiating, persuading, and winning new customers, and had great assertiveness for his visions and strategies:

J For the first ten years, I was on the road a lot because I was in sales. So a lot with customers. Because I was able to persuade using extremely good application knowledge. So, I was able to convince customers, not only, that I could say what we sell. Because we don't just have devices, we didn't have anything of our own, we sold solutions. So, I developed, delivered and supported complete solutions for customers. That was our advantage. (J_DE, Pos. 88)

Interviewee J, similarly to Interviewee I, had already had experience with West German business partners in the GDR era. After the systemic change, he offered a partner from West Germany the opportunity to join him in establishing a knowledge- and technology-based company.

5.3 *Scientists with Entrepreneurial Talent*

The type “scientists with entrepreneurial talent” includes people who have acquired a scientific or technical education out of their own interest and

also have strong entrepreneurial skills. For these entrepreneurs, technical knowledge plays a much more important role in their running a company than business inclination. An example of this type is Interviewee K.

Interviewee K (born in 1964) grew up in a village in Saxony-Anhalt. His father was a mechanical engineer with a PhD in economics, who worked as a director of cement plant construction and then became director of a combine. The interviewee's mother was a chemist. Other ancestors were often independent artisans. His grandfather had his own bakery, and his great-grandparents had their own brewery around 1900.

Interviewee K founded his own renewable energy company in the state of Brandenburg together with a shareholder from Dresden and built it up to a size of over 800 employees.

As a child he had always been interested in physics. He was later able to choose his place and course of studies. Until 1989 he studied nuclear technology at the Moscow Energy Institute. He also wanted to study for a doctorate, but due to the change in the system, that was no longer possible. After his studies, he returned to Germany and worked in a state combine for power plant construction, being obliged to work there due to his length of service. The combine was converted into a public limited company, and interviewee K gained initial experience in public tenders. He worked with a business partner from Dresden, with whom he founded his own company in 1993 to build systems. The first two employees were hired in 1995.

To the question: “*When you started a company, what were your hopes?*” Interviewee K does not talk—like other interviewees from groups (1) and (2)—about the chance to build something of their own or the possibility of earning “good” money, but gives arguments of a technical nature:

K At the beginning of the 1990s, I gave it some thought. Because we realized back then that we couldn't get nuclear fusion under control. We can't do it. We haven't made it to this day. Definitely not in time. It was also clear that nuclear fission, i.e. nuclear power plants, as the saying goes, nuclear fission is very limited in time because there is not that much uranium and because it is also a hazardous technology. [...] And then I tried very, very early on to simply think about what else IS possible. You can do all the math with an adequate education in physics. And then it was pretty clear that solar energy would work, but it's still very expensive. Wind energy is also possible. Especially when you have storage. And that is what we are seeing, in reality, today, i.e. hydrogen

as a storage medium was very, very firmly planned from the start. You can't do it without storage. [...] It didn't go together with the big company. They were too expensive. Okay, let's continue on our own. The first facilities were built. That worked surprisingly well, as I said, they are still running today. (K_DE, pos. 161)

Interviewee K acquired knowledge about the market economy himself through specialist literature:

K Yes, there was no special support like that. Well, my father put several books on corporate law on the table for me early on. "Here, read this. May help." So how does it work now within the new legal environment, how do companies work, how do limited partnerships, corporations work, how does tax work. I read that one too. Definitely didn't do any harm. But other than that, there wasn't much support worth mentioning right now. So where was it supposed to come from? (K_DE, pos. 165)

When asked: *Where did you get the knowledge to run the company?* he considers only technical knowledge. Knowledge of how the market economy works is marginalized:

K The technical knowledge to do renewable energies, you have that when you have a nuclear physics education. So, you just have to. Statics, chemistry, electrical engineering. ... Well, what you don't really need now, but what is nevertheless helpful is how nuclear fission works, how does nuclear fusion work, you don't need that right now, right? But generators, networks, voltage, three-phase current, I was allowed to learn everything, right?

I What about management?

K Yes, management doesn't play such a big role at all. Not at the beginning, anyway. (K_DE, pos. 173–175)

Interviewee K, who had gained a technical degree in Moscow, used the first three years of transformation to gain professional experience in the free-market economy. During the GDR era, he had no contacts within Western Europe at all, and had not sought any contacts that could have helped him to found or run a company.

5.4 *Unemployed Scientists*

The “unemployed scientists” type includes interviewees who started an innovative company because they had lost their job. These were foundations of necessity. All interviewees from this group worked in the research and development sector in the GDR era. This type includes, for example, Interviewee C and Interviewee H.

Interviewee C (born in 1959) comes from a working-class family in Thuringia. His mother was a master hairdresser² and his father was an industrial foreman. He was “pushed” through the DDR system. He was selected for high school and then told what to study and what to do for his PhD.

C That was determined in the GDR, like that. The decision was made for me. Of course, I never thought I would study, but somehow the system decided that for me there, yes. And as I went to the advanced high school, that’s what we call grammar school now, I was told there: “No, no, you’re studying engineering,” like that. And then, that was chosen for me, what are the interests? So, the interests are optics, photography in the broadest sense, and, yes, that’s how it happened. So, it’s not like I really wanted to study optics from a young age, yes. (C_DE, pos. 13)

Interviewee C did not in fact want to study but wished to complete an apprenticeship as a radio and television mechanic. He said: *And that was simply rejected, and they said: “No, you will not. (Laughter) You are studying.” Yes? (C_DE, pos. 57).*

After graduating and completing his doctorate, he worked in a Brandenburg combine. After the systemic change, the combine was closed, and all jobs were lost. Consequently, he founded his own optics and electronics company in 1991.

Thirty years later, he continues to run that company and employs 19 people, which is relatively few compared with the other interviewees.

²In Germany, a master craftsman or craftswoman (*m. Meister, f. Meisterin*) is a holder of the *Meisterbrief* (master’s certificate), which is the highest professional qualification in crafts and is a state-approved grade. The qualification includes theoretical and practical training in the craft as well as business and legal training. Additionally, it implies a qualification to train apprentices. These qualifications prepare the *Meister* to run their own business, or alternatively for higher positions at a company.

He admits that 30 years ago, he had no idea how the market economy worked:

C *You really had no idea about anything. You have to say it like that. Everything you can do now, you know and do, we did not know anything. So actually, everything was a totally new experience. (C_DE, pos. 93)*

Interviewee C did not seek contacts in West Germany, but brought a colleague from the institute where he had written his dissertation, and founded a company with him, each having a 50 percent shareholding. He acquired the necessary knowledge himself. For him, it was *learning by doing*.

Interviewee H (born in 1949) from Saxony also represents the “unemployed scientist” type. His father was a mathematics teacher, and his mother was a salesperson. His maternal grandfather had a private business: a car paint shop with six employees:

H *He had a car paint shop. And, of course, he always earned good money. I was the only grandson and always (laughter) got a lot of attention, yes. A moped, then a car at the age of eighteen. Yes, while in my parents' house, money was much tighter. (H_DE, pos. 9)*

His great-grandparents were large landowners, but they sold their estate and traveled around the world.

As a child, even at the age of seven, he was able to earn money with his grandfather and saw what it meant to run his own business:

H *[...] of course, I helped out there often, and then I always got a good salary. For my work when I had time.*

I *What did you do there?*

H *Sanded down cars. Yes. Then he freshly painted it. And before that, the old paint had to come off, yes. With water and sandpaper. It wasn't nice work, but it paid well. Yes. (H_DE, pos. 23–25)*

When he was at school, he was interested in the natural sciences. He often won mathematics and physics Olympiad competitions. But his dream job was that of a chemist:

H Yes, I always wanted to be a chemist. Because my father also taught chemistry as a second subject. At school. And I also had chemistry with my father until eighth grade. And I liked that. As a child, I got the big chemistry kit and was able to do experiments at home. (H_DE, pos. 57)

He was allowed to study chemistry, but the specific field of his doctoral research was determined for him:

H Well, that was the case in the GDR because it was a performance principle. The best in the academic year got an offer. Well, I graduated with a first grade and then got an offer. Anyway, the offer wasn't that great. But I saw it as a challenge. It was in the field of theoretical physics. And as a chemist, you have to catch up on a lot of the basics. (H_DE, pos. 61)

In the GDR, Interviewee H worked for ten years as the research director in a combine that employed 2,000 people.

After the systemic change, a trust took over the management of the combine. The works council was asked to select four people to represent the combine, select new investors, and conduct negotiations. Interviewee H was one of these four people. He traveled through Europe looking for clients and investors for the combine. However, the negotiations and take-over attempts were unsuccessful. He lost his job, and that was the impulse for his first thought about starting his own company:

H I was unemployed then, only for one day, but that annoyed me. Because the Americans then said: "No, we won't take it over. And we don't do synthesis either." Then I thought: well, not then, right? I had another colleague who felt the same way. I was the research director before. And he was when I became managing director, then he took over as research director. He was also of the opinion: "We'll do it ourselves now." (H_DE, pos. 113)

He himself looked for copartners with money in West Germany and founded a five-person company with 50 percent owned by three people from the East, and 50 percent by two people from the West.

To finance their own shares, the shareholders from the East each received DM 20,000 from the Western companies as a ten-year loan. To finance initial production, the company received DM 400,000, but only through contacts of the West German shareholders.

In their initial period of self-employment, they received the greatest support from French clients, selected by Interviewee H himself. The French business partners came on-site and demonstrated how products should be manufactured properly. Despite the complaint, payment for the first order was received in full with no deduction, which was unusual among such firms. Only thanks to this cooperation was it possible to build up the company:

H We had a big contract with the French. [...] They even sent us (.) their team that made the product in Grasse. And they said: "We'll teach you how to do it." They trained our workers then. And in the preparation, in planning, they also gave us important tips, for example, material questions and technical details. That was absolutely cooperative. When the workers were there, it was like that, our people were very surprised that the French asked: "Why did you give up the beautiful GDR?" And the French, they are all a bit on the left down there and were of the opinion: "We have to support it if you here become self-employed." And then it was like that, we had the first appointment when the first delivery was supposed to be, and the system was just finished. We couldn't clean them yet. But they exerted such pressure that we said: "Well, okay, let's go now, shall we?" As a result, the product was dirty. So, there was still dirt in the pipeline and such. We delivered and knew we'd get a slap in the face again. And then the call came: "Well, your product is good." I just sank in the chair. "There's dirt inside. But we'll distil it again, and then we can deliver it, but we'll pay you the full price." That was like Christmas. Because that was a large sum. Then it could go on. And from then on, things actually went well for us, right? For the first two or three years, we only did business with the French. (H_DE, pos. 111)

Interviewee H actually had no intention of becoming self-employed. It was by chance, because of his losing his job, that he came up with the idea. He was active and sought partner companies in West Germany to finance his company. The interviewee has personally applied for nine patents, and the company currently has five or six pending patents. The company, which has 56 employees, generates sales of between €10 million and €25 million, with annual research and development expenditure of around €3 million. It is managed by the son of Interviewee H, while the latter remains the majority shareholder.

6 SUMMARY

Irrespective of entrepreneurial skills, age, level of education, and experience in management positions in the GDR, most of the entrepreneurs surveyed stated that they lacked the necessary business or legal knowledge to run a company in a highly competitive market environment following the systemic change. The technical knowledge that they carried over from the GDR era was sufficient for the interviewees to establish innovative companies.

The way in which entrepreneurs socialized in the old system acquired knowledge of the functioning of the market economy depended more on individual experience and less on age, education, or level of entrepreneurial skills. After the systemic change, people who had contact with business partners from capitalist countries while working in state-owned companies purposefully sought contacts in West Germany or Western Europe (Interviewees I, D, J, H). Support from Western partners mainly related to the transfer of know-how, capital, and goods. Interestingly, it was the East German interviewees who actively looked for potential partners in West Germany, and not vice versa.

Weiss emphasizes that the long-term transfer of knowledge and experience to new contexts requires a high degree of openness, interaction, and trust between the parties involved (Weiss 2009, 36). This was the only way to ensure effective cooperation and a successful transfer of knowledge. In addition to cooperation between eastern and western German companies, education and training also played an important role in knowledge transfer. Here it was fundamental that East German entrepreneurs had access to the latest developments and technologies and were thus able to use and further develop their existing knowledge. Almost all of the interviewed entrepreneurs attended courses on the market economy in the transition phase. Their technical knowledge was already in place. Education and training are crucial factors for the success of knowledge transfer in the transformation process. Only in this way can existing knowledge be put into practice and further developed (Lindner 2010, 44). It cannot be questioned that knowledge transfer was an important factor in the long-term success of innovative companies in East Germany. Through the cooperation between East and West German companies, as well as through education and training, the application of existing knowledge and its further development were made possible. This was crucial to successfully shaping the economic transformation process in East Germany.

REFERENCES

- Cohen M D (2014) Wissenstransfer als sozialer Prozess. In Fiol C M, Taylor S E (eds.) *Neue Perspektiven der Organisationsforschung*, 285–306. Springer, Berlin
- Fritsch M (1998) Das Innovationssystem Ostdeutschland: Problemstellung und Überblick. In Fritsch M et al. (eds.) *Innovationen in Ostdeutschland. Potentiale und Probleme*, 3–19. Springer, Heidelberg
- Fritsch M, Wyrwich M (2021) *Entrepreneurship. Theorie, Empirie, Politik*. 3rd ed. Springer Gabler, Wiesbaden
- Günther J et al. (2020) *Universalien der Innovation – Erfindertum und technischer Fortschritt in der DDR und dessen Rolle nach 1990. Empirische Befunde auf der Basis von Patentdaten – ein Diskussionsbeitrag*. Universität Bremen
- Herzog M (1998) Determinants of Entrepreneurial Success in East Germany. In Hölscher J, Hochberg A (eds.) *East Germany's Economic Development since Unification. Domestic and Global Aspects*, 79–91. Palgrave Macmillan, Basingstoke
- Knell M, Hanzl D (1999) Technology and Industrial Restructuring in Central Europe, In Dyker D A, Radošević S (eds.) *Innovation and Structural Change in Post-Socialist Countries: A Quantitative Approach*, 67–86. Kluwer, Dordrecht
- Kühn J et al. (2022) Eigentlich musst du jetzt dabei sein - Motivationsarten für Unternehmensgründungen in der postsozialistischen Transformation in Ostdeutschland. *Deutschland Archiv*, 21 Sep 2022. www.bpb.de/513227
- Lindner H-G (2010) *Bildung und Ausbildung als Erfolgsfaktoren des Wissenstransfers*. Gabler, Wiesbaden
- Ludwig U (2020) Mikrofundierte makroökonomische Resultate der ostdeutschen Transformationswirtschaft. In Leibniz-Institut für Wirtschaftsforschung Halle – IWH (ed.) *Ostdeutschland – Eine Bilanz. Festschrift für Gerhard Heimpold*, 16–35. IWH, Halle
- Müller, J C (2018) *Wissenstransfer in Einsatzorganisationen. Empirische Entwicklung eines Bezugsrahmens für den intraorganisationalen Transfer von Einsatzwissen*. Springer, Wiesbaden
- Rauter R (2013) *Interorganisationaler Wissenstransfer. Zusammenarbeit zwischen Forschungseinrichtungen und KMU*. Springer, Wiesbaden
- Rössel G (1998) Probleme der Einführung von komplexen Innovationssystemen in ostdeutschen Betrieben. In Fritsch M et al. (eds.) *Innovationen in Ostdeutschland. Potentiale und Probleme*, 59–70. Physica, Heidelberg
- Schreyögg G (2004) *Wissenstransfer in Unternehmen*. Schäffer-Poeschel, Stuttgart
- Schumpeter J (1997) *Theorie der wirtschaftlichen Entwicklung. Eine Untersuchung über Unternehmensgewinn, Kapital, Kredit, Zins und den Konjunkturzyklus*. 9th ed. Duncker & Humblot, Berlin

- Schwarz A (2022) Unternehmerischer Habitus und seine partiellen Wandlungsmöglichkeiten durch die postsozialistische Transformation – eine theoretische Perspektive. In Flade F et al. (eds.) Transformation in Polen und Ostdeutschland. Voraussetzungen, Verlauf und Ergebnisse, 141–155. Harrasowitz, Wiesbaden
- Spelsiek J (2005) Motivationsorientierte Steuerung des Wissenstransferverhaltens. Modellierung, empirische Analyse und Anreizsystemgestaltung, Wiesbaden: Springer
- Steinkamp A M (2022) Zur Bedeutung habitueller Prägung für Unternehmensgründungen in Ostdeutschland und Polen nach 1989. In: Flade F et al. (eds.) Transformation in Polen und Ostdeutschland. Voraussetzungen, Verlauf und Ergebnisse, 157–172. Harrasowitz, Wiesbaden
- Storey D J (1994) Understanding the Small Business Sector. Routledge, London
- Wagener H-J (2015) Wirtschaft. In Kollmorgen R et al. (eds.) Handbuch Transformationsforschung, 471–489. Springer, Wiesbaden
- Weiss, M (2009) Wissenstransfer in der Praxis. Schäffer-Poeschel, Stuttgart

Open Access This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

