

Chapter 7

A Reform Strategy for Germany



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Abstract In this chapter, we outline a reform strategy to promote a more entrepreneurial society in Germany. Germany has developed a successful model of capitalism in which high productivity growth is driven by on-the-job learning and firm-specific skill accumulation. The economy is rooted in a strong and regionally

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5 embedded *Mittelstand*, which supports an export-oriented industry mainly based on
 6 incremental innovations, but which is less conducive to more radical innovation. We,
 7 therefore, suggest a reform agenda for Germany that encourages more entrepreneurial
 8 experimentation with the aim of facilitating radical innovation, both in incumbent
 9 and new firms. Germany's entrepreneurial talent should be encouraged to take on
 10 more risk, the education system could promote initiative, creativity and a willingness
 11 to experiment, and a more equal playing field between dependent employment and
 12 self-employment/employer could be created.

13 **Keywords** Germany · Entrepreneurship · Varieties of Capitalism · Entrepreneurial
 14 ecosystem · Entrepreneurship policy

15 **7.1 Step 1: Historical Roots of Institutions and Recent** 16 **Policies**

17 **7.1.1 United, Divided, Reunited—A Short History** 18 **of Germany**

19 In the centuries following the rule of Charlemagne (800–814), countries such as
 20 France, Spain, England, and Habsburg Austria developed into centralized states. In
 21 contrast, the so-called Holy Roman Empire of German Nation became increasingly
 22 fragmented because rulers had to “buy” the loyalty of kings, princes, and dukes
 23 within the empire. Between the emergence of Martin Luther's critique of the Church
 24 in Rome (1517) and the Thirty Years' War (1618–1648), many German states, mostly
 25 in the North and Center, adopted the new Protestant faith while others, more South-
 26 ern and Western parts of Germany, remained Catholic (Cantoni 2012).¹ Religious
 27 tensions erupted in a civil war and devastated many of the German states. When the
 28 Treaty of Westphalia ended the Thirty Years' War in 1648, the area that we know as
 29 Germany today was comprised of hundreds of sovereign kingdoms, principalities,
 30 and dukedoms.

31 This fragmentation lasted until the (second) German Empire was established in
 32 1871 (Falck et al. 2011; Chickering 2014) by the Prussian chancellor Otto von Bis-
 33 marck. The immediate years after the formation of Germany are historically remem-
 34 bered as the *Gründerzeit* (start-up boom/founding era), as the country went through
 35 a process of economic expansion, quickly followed by the first wave of bankruptcies

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¹This has implications for entrepreneurship today. Nunziata and Rocco (2018) show that Protestants in Germany have a stronger entrepreneurial intention than Catholics under certain conditions.

known as the *Gründerkrach* (Uebele and Ritschl 2009; Burhop 2011). Germany integrated and industrialized rapidly until World War I. But Germany inherited a distinct regional variation that left traces to this day (Tipton 1976; Gutberlet 2014).²

The Great War imposed an enormous burden in lives lost and resources wasted. Due to the massive reparation payments imposed in the Versailles Treaty, Germany had a hard time recovering (Broadberry and Harrison 2005).³ Hyperinflation left a lasting imprint on the German psyche in 1923 and the economic situation worsened after a few years of economic stability in the mid-1920s. The crash of 1929 and the following Great Depression led to massive unemployment, to the breakdown of leading banks in 1931 (James 1981; Kopper 2011), and fueled the rise of the Nazi movement. The economic system of the Nazi regime that seized power in 1933 was based on autarky (self-sufficiency) and the pursuit of central planning principles (Barkai 1988). Their policy strengthened a trend toward concentration and cartelization of the economy that was already observable since the late nineteenth century (Reckendrees 2003). In a time of slumping (export) demand, the fiscal expansion caused by the Nazi rearmament and public infrastructure worked and resulted in economic recovery and much needed employment, whereas autarky kept Germany relatively isolated from further shocks from abroad.

World War II led, however, to a total destruction of the German economy in the 1940s and fueled a second hyperinflation. Upon defeat, Germany was occupied by the Allied Powers (USA, UK, France, and Soviet Union) and lost one-third of its territory in the East to Poland and Russia. In 1949, the country was split into two separate states, namely the Federal Republic of Germany (FRG or West Germany), which became a Western-style market economy, and the German Democratic Republic (GDR or East Germany), a Soviet-style centrally planned economy. The Iron Curtain divided Germany for more than 40 years and the two German states evolved in distinctly different directions.

The economy of West Germany prospered in the 1950s and early 1960s, a period referred to as economic miracle (*Wirtschaftswunder*). East Germany, meanwhile, had to cope with a massive loss of economic activity as businesses relocated assets and activities, while some 1.3 million, mostly educated and entrepreneurial, people fled to West Germany (e.g., Hefele 1998; Falck et al. 2013) from 1950 until the Berlin Wall was erected in 1961. The East German economy also had to cope with massive war reparations to the Soviet Union which amounted to about 23% of the pre-war gross national product (Lieberman 1996). The West-German economy instead benefitted from the Marshall plan and global monetary stability under the Bretton Woods system, security assurances under the NATO-treaty, and trade liberalization under GATT.

²Some German regions, for example, long retained a primogeniture inheritance system, where in other parts inheritances were shared equally among all (male) children. This led to large estates and landed nobility in some, and a rural, entrepreneurial class in other regions.

³The severity of the impact of these reparations is, however, somewhat disputed in the literature (see, e.g., Hantke and Spoerer 2010).

74 Trends in entrepreneurship also diverged strongly. In the aftermath of the oil price
75 shock of 1973, West Germany developed from a managed to a more entrepreneurial
76 society, with self-employment rising to 10–12% in 1989. In East Germany, in
77 contrast, there were several waves of expropriation driving down the rate of
78 self-employment to 1.8% at the time of reunification (Wyrwich 2012).

79 The biggest challenge after reunification was the integration of the economic
80 structures of the former East Germany into the market economy system (Hall and
81 Ludwig 1995; Burda and Hunt 2001). There was a massive surge in start-up activity in
82 the early 1990s and the self-employment rate in the former East Germany approached
83 the Western level around the year 2005. At the same time, almost none of the Eastern
84 companies that existed in 1989 were still active in the market in 2000 (Fritsch et al.
85 2014). Despite this massive transition and rapid convergence in self-employment,
86 striking economic differences between both parts of the country remain until today.
87 After a period of converging productivity levels in the first years after transition,
88 a productivity gap of 30% still persists since the late 1990s. Massive migration
89 and brain drain to Western Germany came to a halt only recently, and the legacy
90 of the socialist past continues to affect people's inclinations, attitudes, principles,
91 and behavior.⁴ This legacy will last but perhaps not all of it is necessarily a barrier
92 to growth and prosperity (former East Germany has, for example, higher female
93 participation rates and smaller gender gaps in wages and incomes).

94 In conclusion, both the North-East, South-West divide between Protestants and
95 Catholics in the seventeenth and the East-West divide between socialists and cap-
96 italists in the twentieth century are important to understand the fractionalization
97 and regional heterogeneity of Germany today. Germany's federal political structure
98 accommodates and consolidates this heterogeneity and helps explain the decentral-
99 ized character of its entrepreneurial ecosystem(s). These deep-rooted institutional
100 features are manifest in the institutions that govern the flow of knowledge, finance,
101 and labor to existing and new firms alike. We discuss these in the sections below.

102 ***7.1.2 Institutions for Knowledge Creation and Diffusion***

103 The institutions that govern the generation and flow of knowledge to businesses
104 in general and to entrepreneurial ventures in particular are founded in the educa-
105 tional system and the institutions doing basic and applied research. The system
106 for registering and commercially exploiting knowledge then also deserves special
107 mention.

⁴See for example Alesina and Fuchs-Schündeln (2007), Brosig-Koch et al. (2011), Bauernschuster and Rainer (2012), Bauernschuster et al. (2012), Corneo and Grüner (2002), Fuchs-Schündeln and Schündeln (2005, 2009), and Ockenfels and Weimann (1999).

7.1.2.1 Universities

The first medieval universities emerged in Germany after the end of the Papal Schism in 1386 with the University of Heidelberg opening in the very same year (Cantoni and Yuchtman 2014). The political fragmentation of Germany at the time implied that a lot of universities were set up in smaller cities which are not necessarily big economic or administrative agglomerations today. Examples, apart from Heidelberg, are the universities in Rostock (1419), Greifswald (1456), and Tübingen (1477), but also the University in Marburg (1527), which was the first Protestant university in the world, and the University of Jena (1558). There were several further universities founded before the onset of industrialization where, like all “medieval” universities, their curriculum consisted of Greek and Latin classics and was focused on the study of the Bible. The art of reading, writing, rhetoric, and logic were important fields while ability and utility played a minor role. Universities’ traditional tasks were to collect, codify, and teach general knowledge (Carlsson et al. 2009), not to develop any new or useful knowledge.

As a response to the rapid growth of the demand for scientific research and education (Carlsson et al. 2009; Drucker 1998) in the nineteenth century, Germany also saw a wave of universities founded with a technical focus and the adjustment of curricula in already existing universities. The first higher education institutions with a technical focus in Germany were founded in Karlsruhe and Dresden in the early nineteenth century, while the first natural science faculty opened at the University of Tübingen in 1863. Furthermore, there were several technical colleges, known as *Polytechnische Hochschulen* that were upgraded into technical universities around the year 1900. The main political force behind this process was the German Association of Engineers (*Verband Deutscher Ingenieure*, VDI).⁵ All technical colleges that became technical universities were located in the capital cities of the federal states (König 2006; Manegold 1989). Again, the federal tradition of Germany implied that such universities were established in smaller cities and not necessarily in places that are the largest agglomerations today. In 1900, there were technical universities in Berlin and Munich but also in Karlsruhe, Dresden, Hannover, Stuttgart, Aachen, Darmstadt, and Braunschweig.

Today, there are many more technical universities in Germany. They represent a specific type of higher education institution that has relatively strong links to (often local) industry. Recent empirical evidence suggests that the entrepreneurial capacity of technical universities is not necessarily higher than that of “classical” universities (Goethner and Wyrwich 2019). But places close to, or even hosting, a technical university that was already present in the year 1900 have a higher level of entrepreneurship in high-tech industries (Audretsch and Lehmann 2005a, b; Fritsch and Wyrwich 2018). As many universities were founded in smaller places, this partly explains why

⁵The main aim of the initiatives to upgrade technical colleges was to overcome the lower social status of engineers as compared to university graduates. Moreover, upgrading technical colleges to technical universities was regarded an important means for improving the education of engineers (König 2006).

147 in Germany these smaller places (e.g., rural Baden-Württemberg) prosper today, even
148 though they lack the agglomeration advantages that are found to be supportive for
149 entrepreneurship and innovation in countries such as the USA (Glaeser 2011).

150 In the twentieth century, as was the case in most developed countries, there was
151 a massive expansion of tertiary education in Germany. Therefore, there is no region
152 without a significant university or university of applied science with a focus on edu-
153 cating people for the local labor market (e.g., Jaeger and Kopper 2014).⁶ Moreover,
154 the twentieth century saw the proliferation of scientific research institutes and the
155 emergence of networks like the Kaiser Wilhelm Society (1911), the Max Planck Soci-
156 ety (1948), and the Fraunhofer Society (1949). Their substantial (public) resources
157 were aimed at further developing basic research with an explicit mandate to also
158 disseminate this knowledge to industry (Gibbons et al. 1994; Beise and Stahl 1999).
159 These networks have now grown into important pillars of Germany's knowledge
160 infrastructure. As for most technical universities, however, the focus in these institu-
161 tions has long been on serving the needs of large, industrial, incumbent firms. Initia-
162 tives to foster entrepreneurship at universities or research institutes did not exist until
163 the late 1990s when the EXIST program was initiated in a few pilot universities.

164 The EXIST program followed a dual strategy. One building block was support-
165 ing universities in developing start-up culture at their institutions, while the other
166 was providing direct assistance for individuals and start-up projects. In support of
167 those activities, universities received a grant from the German Federal Ministry of
168 Economics and Technology over a three-year period (e.g., Kulicke 2014). Although
169 there have not yet been rigorous evaluations, the pilot in Berlin was considered a
170 success, has gone through several revisions and extensions, and is still in operation
171 today (Becker et al. 2011; EXIST 2019).

172 In conclusion, the German university and educational system mirror its regional
173 decentralization, given that the federal states are responsible for education policy.
174 There are also joint initiatives where the lead is at the federal level. The most famous
175 program is the so-called excellence initiative that was initiated in 2006. Recent evi-
176 dence suggests that this program was successful in concentrating excellent research.
177 It also promoted collaborations between universities and the non-university research
178 sector. However, it has not caused massive changes to the overall German research
179 system (e.g., Möller et al. 2016). Moreover, a strong tradition of internships and
180 vocational education provides German firms and entrepreneurs with a well-trained
181 and educated workforce at the local level. In contrast to the Anglo-Saxon countries,
182 however, the German university system faces challenges developing into research-
183 oriented universities (Baker and Lenhardt 2008). Universities are mostly teaching-
184 oriented and made universally accessible at low costs for students. This implies,
185 however, that universities are tightly financed out of (state level) tax revenue and
186 have a hard time attracting and retaining (global research) talent. As a consequence,
187 differences in the quality of education and research between German universities are

⁶A university of applied sciences (UAS), also known as a vocational university or *Fachhochschule*, is an institution of higher education that grants professional degrees and is generally more focused on vocational education and applied research.

188 much less pronounced than in other countries such as France, the UK, or the US. A
189 large part of top-level research takes place outside of the universities in industry and
190 endowed research institutes such as those of the Max Planck Society.

191 7.1.2.2 The Patent System

192 Germany has had regional patent systems since the eighteenth century (Harhoff
193 and Hoisl 2007). The first Central German patent office was established in 1877,
194 some six years after Germany became a state. The Imperial Patent Office (*Kaiser-*
195 *liches Patentamt*) provided uniform protection for discoveries in the German Empire.
196 Patents were based on uniform principles and were effective for the entire territory
197 of the German Empire. In the first 13 years of the patent law, there were between
198 4,000 and 5,000 patents granted per year. This number increased to 10,000 before
199 1906, and around 13,000 after that of which more than 10% were long-living patents
200 (Burhop 2010). During the separation of the country after World War II, two patent-
201 ing agencies coexisted, but after reunification, Germany merged them into a single
202 patent institution again.

203 There have been several changes to patent law over the last 120 years. One of
204 the important recent reforms was the *Arbeitnehmerfindergesetz* in 2001, which
205 was a Bayh–Dole Act-like change in the German patenting system to increase the
206 commercialization of scientific research. The results of this measure, however, are
207 rather mixed (Von Proff et al. 2012; Czarnitzki et al. 2016). Without going into
208 detail on the issue, this can be seen as an example where transferring legal institu-
209 tions to another context leads to different, perhaps unexpected, outcomes. The USA
210 universities, for which the Bayh–Dole Act was written, operated under a differ-
211 ent institutional setting and consequently responded very differently than those in
212 Germany. The *Arbeitnehmerfindergesetz* was perhaps less effective because of the
213 already strong practice of technology transfer from academia to the corporate sector
214 in Germany (Grimpe and Fier 2010). To achieve more commercial exploitation of
215 public research, reforms will have to be better tailored to the German context. The
216 problem with such tailored approaches, however, is that intellectual property rights
217 protection has developed into an international issue. That is not a reason for Germany
218 not to speak out. As a leading industrial nation with a lot of intellectual property at
219 stake, Germany’s voice in European and international negotiations governing intel-
220 lectual property carries significant weight and will be heeded. It is in the interest of
221 Germany to push for reforms that ensure a solid protection of industrial innovations
222 but also ensures continued access to the more generic types of knowledge (e.g., gene
223 sequencing) that industrial innovation builds upon.

224 7.1.3 Development of Financial Institutions

225 The financial system in Germany is characterized by a complex network of finan-
 226 cial intermediaries and a, rather dominant, three-pillar banking sector. The three
 227 sets of banks comprise the private banking sector (publicly traded and held banks
 228 like Deutsche Bank and Commerzbank), the mutual or cooperative credit unions
 229 (*Genossenschaften*), and the system of public banks consisting of local savings-and-
 230 loan banks (*Sparkassen*) and the federal state banks (*Landesbanken*), respectively.
 231 The federal state banks fulfill wholesale banking services to the savings-and-loan
 232 banks, such as taking the role of regional clearing houses for liquidity and transfer
 233 liquidity from those banks with an excess liquidity to members with less. Hence,
 234 these financial institutions already have a system of joint liability like in a banking
 235 union (Hackethal 2004).⁷

236 Again, this situation has evolved historically. The roots of the German banking
 237 system can be traced to the Fugger family in Renaissance Augsburg (1367). The
 238 oldest, still operating bank in Germany is the Berenberg Bank founded in 1590.
 239 The fine-grained network of local banks in Germany today has its origins in the
 240 late eighteenth century (Allen and Gale 2000; Kindleberger 2015). During the nine-
 241 teenth century, savings banks spread across the country. They played a decisive role
 242 in financing the industrialization of Germany. The first credit unions originated in
 243 the mid-nineteenth century. The focus of these cooperatives was on traders, shop
 244 owners, and artisans or they were set up in rural areas to serve the needs of agrarian
 245 communities. Credit cooperatives were widespread in nineteenth-century Germany
 246 and by 1914 the ca. 19,000 credit cooperatives had issued around 7% of all banking
 247 liabilities. Guinane (2001) explains their success from their ability to make use
 248 of superior information and their capacity to impose cheap but effective sanctions
 249 on potential defaulters. These characteristics presumably permitted credit unions to
 250 lend to clients to whom commercial banks typically did not provide credits and also
 251 to develop loan terms closer to the needs of the borrowers (Flögel 2018; Flögel and
 252 Gärtner 2018).

253 Today, there are still 423 savings banks and 1,116 cooperative credit unions. Sav-
 254 ings banks and credit unions typically foster close and long-term relationships with
 255 their local clients, particularly the small and medium-sized companies in which they
 256 often have seats on the corporate supervisory board (Herrmann 2020). The savings
 257 banks and cooperative banks provide about two-thirds of all lending to *Mittelstand*
 258 companies and 43% of lending to all companies and households (Audretsch and
 259 Lehmann 2016). Therefore, savings banks and credit unions are an important build-
 260 ing block for the success of the German *Mittelstand*.⁸ When it comes to innovative

⁷In addition, the federal state banks secure market funding by issuing bonds. They are also inter-
 nationally operating wholesale and investment banks. Therefore, they follow a business model
 different from savings banks.

⁸Although there is no “official” definition of the *Mittelstand*, one can say that it comprises firms with
 between 50 and not much more than 500 employees where the owner is involved in the management
 or at least in strategic decisions (Pahnke and Welter 2018). Hence, the *Mittelstand* is part of the

261 new start-ups, however, banks are typically more hesitant to invest. Innovative start-
 262 ups, also in Germany, have to rely on venture capital to finance capital-intensive
 263 high-risk projects. Empirical evidence shows that the market for venture capital in
 264 Germany is functioning relatively well (Fritsch and Schilder 2008, 2012). It remains
 265 much smaller in size and scope than in the Anglo-Saxon world, but this is arguably
 266 not a supply but a demand issue (Herrmann 2020).⁹

267 The German financial system, with its many small and locally well-connected
 268 banks serving many SMEs across the country, has coevolved with the German econ-
 269 omy. It serves the needs of the decentralized, export-oriented, and industrial economy
 270 of organically growing medium-sized industrial firms and *Mittelstand*. Typically,
 271 thanks to their cooperation on corporate governance boards, such firms have long-
 272 standing relationships with their banks that use the relationship and trust as collateral
 273 and security for credit.

274 In conclusion, despite some important challenges in flagship banks like the
 275 Deutsche Bank and the Commerzbank, the German financial system remains quite
 276 decentralized and still has a significant share of small-scale relationship banking.
 277 Thereby, it can finance incremental innovation in existing firms but is perhaps a less
 278 favorable environment for more radical innovation by new entrants as it supplies little
 279 capital in the form of equity to newcomers. The financial system thus consolidates
 280 Germany's conservatism, while underpinning its competitive strength in high-quality
 281 incremental innovation.

282 7.1.4 Labor Institutions

283 The labor force in Germany is generally well trained and very productive, justifying
 284 high wage incomes while maintaining a strong international competitive position.
 285 Strong vocational education combined with on-the-job training promotes the accu-
 286 mulation of firm-specific human capital in Germany's small and medium-sized high-
 287 tech industrial sector (Herrmann 2020). Consensus-oriented labor relations support
 288 moderate wage growth while firm-specific human capital investments yield high
 289 productivity growth (e.g., Soskice 1990). German export-oriented firms thus remain
 290 competitive in global markets with high quality, high value-added products and ser-
 291 vices. But this peace and high level of investment are based on generous social secu-
 292 rity and stringent labor protection. It is important to realize that these institutions
 293 have long historical roots and coevolved with the German economy into highly com-
 294plementary and interconnecting institutions that support its traditional competitive
 295 strength.

SME sector. Many firms of the *Mittelstand* are family entities that have been passed on within the family for several generations.

⁹German entrepreneurs have been found to be reluctant to give up control rights and therefore prefer organic growth and private ownership over a heavy reliance on external equity finance. One could argue that this has also led to a regulatory framework that makes this type of investment less attractive (see, e.g., Fiedler and Hellman 2001; Franzke et al. 2003).

296 7.1.4.1 Employment Protection

297 The German system of employment protection obtained its modern form during
 298 the period of the German miracle (*Wirtschaftswunder*) in the 1950s and 1960s in
 299 the Federal Republic of Germany. This was the golden era of the so-called *Nor-*
 300 *malarbeitsverhältnis* (standard employment relationship) which describes a depend-
 301 ent, permanent full-time job with strict dismissal protection, a full integration into
 302 status-protecting social insurance and collectively set wages at a relatively high level
 303 (Eichhorst and Marx 2011).

304 The West-German system implied high wages for insiders but also led to under-
 305 utilization of the labor force, which is reflected, for example, by low labor force
 306 participation of women and a male-breadwinner family model. Such a system comes
 307 under pressure when women push into the labor market (Esping-Andersen 2002),
 308 especially after German reunification where about 90% of all women in working age
 309 were full-time employees in the former East Germany (Maier 1993).¹⁰ This system
 310 gave industrial producers a strong incentive to invest in productivity growth, but
 311 high wages and non-wage labor costs proved less suitable for developing a modern,
 312 labor-intensive service sector (Eichhorst and Marx 2011). Moreover, demographic
 313 changes put a heavy burden on the economy to finance the generous pension system.
 314 Reforms were deemed necessary to increase the utilization of all labor resources.

315 The change in the labor market structure, however, did not come along with a
 316 systematic flexibilization of the rigid *Normalarbeitsverhältnis*. Rather, a second-
 317 tier labor market consisting of atypical and much less protected employment (e.g.,
 318 part-time work, marginal employment) emerged. Streeck (1997) argues that this
 319 pattern is explained by the German manufacturing system that is based on “diversified
 320 quality production.” This model requires labor with highly specialized skills and
 321 enables workforces—thanks to their long-standing experience within one firm—to
 322 come up with incremental innovations and improvements that translate into high-
 323 quality products and specialization in niche markets. Tight employment protection
 324 incentivizes employees to invest in the necessary firm-specific skills, which would
 325 otherwise become sunk costs in case of a job loss (Herrmann 2020).¹¹

326 In the mid-1990s, the firm size threshold for dismissal protection was raised from
 327 5 to 10 employees (Eichhorst and Marx 2011), and Bauernschuster (2013) found
 328 a positive effect on hiring by small firms of this reform. The duality between well-
 329 protected insiders and precariously employed outsiders in the labor market, however,
 330 persists in larger firms and the new threshold still represents a penalty on employment
 331 growth.

¹⁰There is still an East-West gap in terms of female labor force participation in the year 2015. However, recent analyses show that only about 40% of that difference can be attributed to the effect of the socialist system (Wyrwich 2017). The rest is due to other factors.

¹¹This explanation perfectly in line with basic human capital theory (Becker 1964). See Hall and Soskice (2001) for further explanations on the relationship between employment regulation and incremental versus radical innovation.

332 7.1.4.2 Wage Bargaining

333 The relatively high wage costs in Germany are also institutionalized in a system of
 334 collective wage bargaining. Unions played an important role in the first decades after
 335 World War II in West Germany and wages were collectively set (Soskice 1990).¹²
 336 There was some modest flexibilization in collective bargaining (e.g., single enterprise
 337 exceptions, the introduction of working time accounts) since the 1980s. With reuni-
 338 fication, the West-German model was extended to the East and the system remained
 339 relatively stable for standard employment contracts (Eichhorst and Marx 2011; Dust-
 340 mann et al. 2014). Despite low and declining union membership, in the 2000s, still,
 341 some 60–70% of all employees were covered by collective agreements and such
 342 coverage still implied significant wage premia (Kohaut and Schnabel 2007; Burda
 343 et al. 2008; Fitzenberger et al. 2013; Kluge and Weber 2018). The contrast between
 344 marginal workers in precarious employment and the well-protected and covered
 345 insiders has increased in recent decades (Brady and Biegert 2017). Entrepreneurs
 346 have more or less equal access to the latter pool of labor, but face high wage and
 347 non-wage labor costs when recruiting from the high-quality segments. A potentially
 348 important recent development is the broadly supported introduction of a minimum
 349 wage in 2015 of at that time €8.50/h (Burda 2016).¹³ Its effect on the flow of labor
 350 resources to entrepreneurship is unclear and not yet empirically investigated.

351 7.1.4.3 Social Security

352 Social security also has a long tradition in Germany. The introduction of social
 353 insurance dates back to an initiative by von Bismarck in the 1880s, which implied
 354 the implementation of the first social security net in the world. The Compulsory
 355 Health Insurance Act of 1883 can be regarded as the starting point of this system.
 356 This was followed by the Accident Insurance Act (1884) and the Disability/Old-
 357 age Pension System Act (1891). Arguably, the build-up of a social security system
 358 enabled von Bismarck to pacify the threat of class struggle and create loyalty to
 359 the new state (Rimlinger 1968; Pflanze 2014). The German social security system
 360 around this time became a blueprint for Germany's current health system and was a
 361 role model for many insurance systems in other countries (Abrams 2007; Weichlein
 362 2011; Bauernschuster et al. 2019).

363 The social insurance system underwent several reforms and extensions since the
 364 1880s. Unemployment insurance was introduced in 1927. Finally, care insurance was
 365 set up in 1995. The current pension system is based on a reform in 1957 and follows a
 366 pay-as-you-go defined-benefit design. There are also state-supported private pension
 367 schemes. These were introduced in the early 2000s to make up for the demographic

¹²The wage agreements are negotiated at the sector level between labor unions and employers' associations. The negotiations are at the regional level (so-called *Tarifbezirk*).

¹³There have been sector-based minimum wages already in the 2000s. In the West-German construction sector, a minimum wage became effective in 1997.

368 transition that implies fewer contributors in the pay-as-you-go scheme face a growing
 369 number of retired people.

370 A significant reform of the unemployment insurance was associated with the
 371 “Agenda 2010.” It was a shift from policies that were rather generous toward an
 372 approach with stricter job search monitoring, harsher sanctioning of unemploy-
 373 ment provisions, and a reduction in the duration of job training. Another element
 374 of the reform was to combine the earnings-related and means-tested unemployment
 375 assistance with the social assistance (*Sozialhilfe*) into a new support system called
 376 *Arbeitslosengeld II*. This transfer can be regarded as a step toward a more universal
 377 minimum income support scheme (Eichhorst and Marx 2011). The regulation also
 378 came with new active labor market policy tools to promote start-ups by the unem-
 379 ployed (*Ich AG* / “Me Inc.”). The evidence on the success of these measures to date
 380 is mixed (Zöllner et al. 2018). While some do succeed in leaving the program and
 381 generate an income, most of these start-ups are not very innovative and have low
 382 growth potential.

383 7.1.5 Recent Entrepreneurship Policies in Germany

384 7.1.5.1 Entrepreneurship in Divided Germany: 1945–1989

385 Before reunification, the post-war “German model” can be described as a rather dis-
 386 tinctive kind of capitalist economy that was governed by national social institutions
 387 yielding high international competitiveness despite high wages and low dispersion
 388 with respect to inequality of incomes and living standards (Streeck 1997). A defin-
 389 ing feature of the German model is the existence of the *Mittelstand*. Audretsch
 390 and Lehmann (2016) argue that *Mittelstand* firms represent a sort of “main street
 391 entrepreneurship” of decades-old, family-owned firms with strong linkages and
 392 social ties to their local communities, including banks. These firms attract and retain
 393 specifically skilled employees, for example, by local apprentice programs. They also
 394 often have close ties with local banks providing them with financial resources. These
 395 ties are legally in the form of loans and credit, but long relations and trust enable
 396 firms to also approach banks for financing intrapreneurial ventures and innovative
 397 projects. Their products are successful in niche markets.

398 Public policy strongly promoted the German SMEs (including the *Mittelstand*)
 399 in the post-war period. The state-owned *Kreditanstalt für Wiederaufbau* (KfW) pro-
 400 vided finance for the development of technological capabilities of SMEs (e.g., long-
 401 term investment loans as well as working capital loans). The KfW measures can be
 402 regarded as small business but to a much lesser extent as entrepreneurship policies.
 403 Policy programs directly targeted at start-ups played a rather minor role in the policy
 404 menu in the post-war decades.

405 In contrast, in socialist East Germany, *Mittelstand* and entrepreneurship were
 406 dubbed a bourgeois anachronism (Fritsch and Wyrwich 2016, p. 263). There were
 407 many outright anti-entrepreneurship policies, such as the massive expropriation of all

408 private industrial firms in 1972. Private business ownership was very much confined
 409 to small craft enterprises and private shops in East Germany and self-employment fell
 410 from 20.4% in 1955 to 1.8% in 1989 (Pickel 1992; Wyrwich 2012). Consequently,
 411 the *Mittelstand* had largely disappeared in the East by 1989 (Fritsch et al. 2014).

412 7.1.5.2 Entrepreneurship and Entrepreneurship Policy 413 after Unification

414 In the 1990s, the self-employment rates were steadily increasing in West Germany,
 415 partly reflecting the increased role of service but also the fundamental shift toward
 416 a more entrepreneurial society. In East Germany, the level of self-employment
 417 converged to Western levels and reached parity around the year 2005 (Welter
 418 2007a; Fritsch et al. 2014). Interestingly, in areas that had already a high level
 419 of entrepreneurship in the pre-socialist period, the entrepreneurial catch-up was
 420 particularly pronounced (Wyrwich 2012; Fritsch and Wyrwich 2014).

421 Despite convergence in the numbers, however, East German businesses tend to be
 422 much smaller, even 20 years after reunification. One reason is their comparatively
 423 low levels of productivity and much lower survival rates (Fackler 2014). There are
 424 several explanations for this weakness of East German companies, ranging from unfa-
 425 vorable economic framework conditions to lacking managerial and entrepreneurial
 426 skills among East German entrepreneurs (Wyrwich 2013). Furthermore, East Ger-
 427 man businesses tend to have a strong focus on regional markets and their export
 428 orientation is rather low (IWH 2010; Mattes et al. 2015).

429 In an attempt to also support start-ups in East and West, the KfW began creating
 430 programs, such as the *Eigenkapitalhilfe-Programm* which consisted of subordinated
 431 capital for (young) entrepreneurs. In 2010, the *Bundesministerium für Wirtschaft
 432 und Energie* (BMWi) implemented *INVEST—Zuschuss für Wagniskapital* and the
 433 *Mikromezzaninfonds-Deutschland* to strengthen and develop the entrepreneurial cul-
 434 ture of Germany. The former provides a subsidy of 20% for venture capital, whereas
 435 the latter provides specific support for unemployed persons, women, or migrants in
 436 creative industries (Audretsch et al. 2007). Bøggild et al. (2011) show that these pro-
 437 grams yielded both an increase in competitiveness and innovativeness for subsidized
 438 start-ups as well as generated positive employment effects. Overall, BMWi-policy
 439 initiatives include the provision of information on self-employment (e.g., by partic-
 440 ipating in the *Gründerwoche Deutschland*), special measures to strengthen interest
 441 in entrepreneurship in the education system, and the improvement of the financing
 442 options available for innovative start-ups. Under the umbrella of the *Gründerland
 443 Deutschland Initiative*, the BMWi also provides an online portal to make all infor-
 444 mation available to the public and provides young ICT entrepreneurs with means for

445 a stay in innovative regions such as Silicon Valley under the *German Accelerator*
446 program.¹⁴

447 In addition to these federal initiatives, the German *Länder* (states) are also quite
448 active in developing entrepreneurship promotion programs at the regional level (Wel-
449 ter 2007b). In East Germany, such initiatives often relied massively on European
450 Structural Funds which were relatively generous in view of the low GDP per capita
451 of the East German *Länder*. It is noteworthy that there is a huge heterogeneity across
452 the *Länder* in promoting entrepreneurship. It is particularly Bavaria in West Ger-
453 many and Saxony in East Germany that developed multifaceted programs to promote
454 innovative entrepreneurship (Fritsch et al. 2010, 2015).

455 Finally, at the local level, some municipalities and districts focus on the develop-
456 ment of the entrepreneurial culture within their region. Here, the main players include
457 business associations, chambers of commerce, economic development departments,
458 and business development agencies. An example for local funding initiatives is the
459 *GÖBI-fonds (Göttinger Fonds für örtliche Beschäftigungsinitiativen)*. Established
460 in 1997, it constitutes one of the first cases of public–private collaboration at the
461 regional level, where banking institutions were involved. Targeting unemployed and
462 young entrepreneurs, the *Fonds* was organized in such a way that the banks would
463 provide the funding, while the regional government would bear 50% of the default
464 risk and (thus) would subsidize the interest rate.

465 Although the three levels of policy regulation aim at closely integrating their
466 respective instruments, inconsistencies and incoherence across these levels are a real
467 danger. For example, most state programs do not consider part-time entrepreneur-
468 ship to be desirable, arguing that this type of entrepreneurship tends to contribute
469 little to economic and employment growth, whereas at the federal level, part-time
470 entrepreneurship is supported and recognized as a potential first step to full-time
471 self-employment and eventual business formation.

472 These programs have of course been evaluated, but it is difficult to ascertain their
473 true impact. It would also take us beyond the scope of this chapter to attempt an
474 assessment here. At this point, we can conclude that Germany’s policy makers at
475 various levels are clearly highly interested in promoting a more adventurous and
476 radically innovative form of entrepreneurial venturing.

477 7.1.6 Conclusions

478 Germany’s turbulent history of division and unification had a big impact on the coun-
479 try, its institutions and inhabitants. After World War II, the entire country experienced
480 an institutional reset: while informal institutions persisted, East and West Germany
481 set off on diverging trajectories on formal institutions.

¹⁴There have been further measures within the framework of the *Gründerland Deutschland Initiative* that are not active in 2018 anymore. For example, the *Gründerwettbewerb—IKT Innovative* which consisted of a contest for young entrepreneurs in the ICT industry.

482 The West developed its own unique model of capitalism, with moderate wage
483 growth, high productivity growth driven by on-the-job learning, and firm-specific
484 skill accumulation. This supported an export-oriented industry built on the his-
485 toric legacy of strongly regionally embedded *Mittelstand*, financed by a region-
486 ally branched bank-based financial system, also fueled by science and knowledge
487 developed in technical universities as well as institutes.

488 In the East, meanwhile, the socialist doctrine led to the destruction of the *Mittel-*
489 *stand*, while massive migration to the West before the building of the Wall contributed
490 to depriving East Germany of a significant part of its entrepreneurial talent. Import-
491 tantly, the experiment with central planning failed and the East German economy
492 collapsed, whereas the West grew into the economic powerhouse of Europe.

493 Now, at 30 years after reunification and in spite of enormous efforts, the socioe-
494 conomic gap between East and West Germany has still not been bridged (Canova
495 and Ravn 2000; Lindner 2017; Mertes 2018; Verheyen 2018). Against this back-
496 drop, it is impossible to treat Germany as a blank canvas. Hence, we suggest policies
497 and reforms that fit its historical heritage, consider its federal character and multi-
498 level governance, and build on Germany's strengths in order to address weaknesses
499 within the German entrepreneurial ecosystem. To identify these weaknesses, the next
500 section turns to the present and examines current data.

501 7.2 Step 2: Data Analysis with REDI for Germany

502 7.2.1 Germany's International Position

503 To get a first impression of Germany's relative performance as an entrepreneurial
504 ecosystem, we turn to the Regional Entrepreneurship and Development Index
505 (REDI). For calculating an overall country score, we used the population weighted
506 regional REDI-scores. Out of the 24 EU countries for which we have this regional
507 data, Germany ranks seventh with 51.1 points between Finland and Austria, behind
508 Ireland, the Scandinavian countries, The Netherlands, and the UK, but ahead of
509 France and all the Southern and Central European countries (Table 3.3 Varga et al.
510 2020). This implies that the German competitive position in the European Union is
511 supported by its strong, regionally embedded *Mittelstand* and incremental innova-
512 tion system (Audretsch and Lehmann 2016). To identify where reforms would help
513 to improve its performance, however, we need to delve a little deeper into where the
514 entrepreneurial ecosystem in Germany could be improved.

515 The REDI is composed of 14 underlying pillars that together make up three
516 subindices, namely (1) Entrepreneurial Attitudes, (2) Entrepreneurial Abilities, and
517 (3) Entrepreneurial Aspirations (Acs et al. 2014; Szerb et al. 2017, 2019). Figure 7.1
518 gives us a first glance at how Germany is performing relative to the UK, Italy, and the
519 EU average on these 14 pillars. The data show that Germany overall performs better
520 than the EU average and only slightly underperforms the EU average on four pillars,

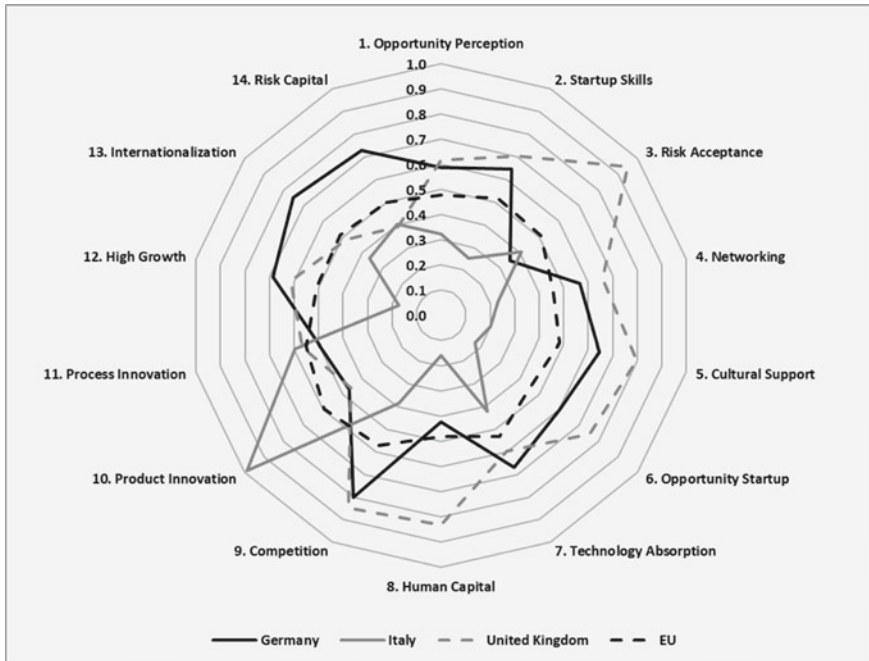


Fig. 7.1 Radar-plot REDI comparison Germany–Italy–UK and EU-average. *Source* Authors' own compilation

521 namely “Risk Acceptance,” “Human Capital,” and, perhaps surprising, “Product,”
 522 and “Process Innovation.”

523 The underlying algorithm in the REDI puts a penalty on bottlenecks in the ecosys-
 524 tem (Acs et al. 2014; Szerb et al. 2017), such that a rounder radar-plot scores higher
 525 than a more erratic one. This reflects the intuition that all pillars in the index are com-
 526plementary and the ecosystem is only as effective as its weakest link. To increase the
 527 REDI-score and improve the ecosystem performance, policy interventions should
 528 therefore be aimed at alleviating bottlenecks with priority. For Germany, and based
 529 on the data, one would conclude that improving the “Risk Acceptance,” “Human
 530 Capital,” “Product Innovation,” and “Process Innovation” pillars is most urgent.

531 7.2.2 A More Detailed Regional Quick Scan

532 A national-level analysis, however, will hide a lot of regional heterogeneity. Bottle-
 533 necks in Hamburg and Berlin may well prove to be very different from the bottle-
 534 necks in Brandenburg and Hessen. Before we draw too strong a conclusion on how
 535 to improve the German entrepreneurial ecosystem, let us therefore zoom in at the
 536 regional level.

537 In Fig. 7.2 and Table 7.1, we observe that there is quite some variation among
538 German regions. The REDI-scores range between 35 (Brandenburg) and 70 (Ham-
539 burg).¹⁵ The map and table illustrate that even at this low spatial resolution, the
540 aggregated REDI-scores capture quite a bit of the regional heterogeneity.

541 Without going into technical details in this chapter, the intuition behind each of
542 the pillars is that data on individual entrepreneurial agency (taken from the Global
543 Entrepreneurship Monitor adult population survey data) are combined with relevant
544 institutional quality indicators (taken from a wide variety of reputed international
545 institutions, such as the World Bank, Freedom House, and OECD).¹⁶ The index then
546 builds on the assumption that institutions and individual agency are complements

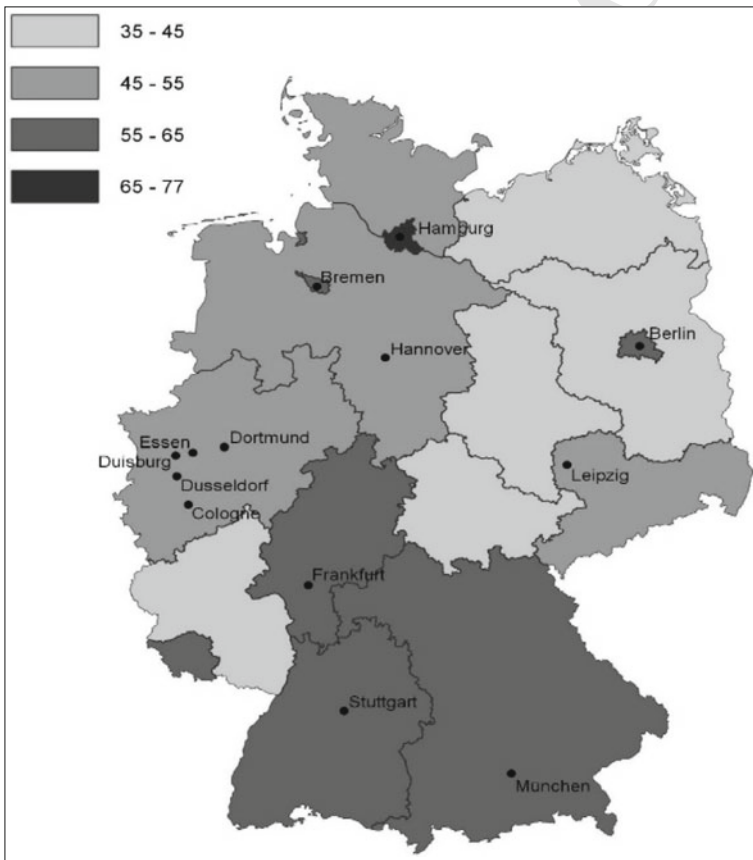


Fig. 7.2 REDI map of German NUTS2/3 regions. Source Authors' own compilation

¹⁵The numbers are index numbers ranging from 0 (worst) to 100 (best) across all 125 European NUTS2/3 regions for 2012–2014.

¹⁶We refer interested readers to Szerb et al. (2017) and the technical annex to Acs and Szerb (2016) for further details.

Table 7.1 REDI-scores
Germany

Region	REDI-scores 2012–2014
Baden-Württemberg	62.0
Bayern	60.6
Berlin	62.4
Brandenburg	35.1
Bremen	57.1
Hamburg	69.5
Hessen	58.9
Mecklenburg-Vorpommern	40.2
Niedersachsen	50.3
Nordrhein-Westfalen	54.8
Rheinland-Pfalz	44.6
Saarland	56.7
Sachsen	50.5
Sachsen-Anhalt	38.2
Schleswig-Holstein	49.8
Thüringen	41.1

Source Authors' own compilation

547 (Acs and Szerb 2009; Acs et al. 2014). That is, for example, high levels of high
 548 Opportunity Perception in a low-quality institutional environment will contribute
 549 little. Likewise, low Opportunity Perception in a high-quality institutional environ-
 550 nment is also a sign of weakness in the entrepreneurial ecosystem. To improve the
 551 score on a given pillar, policies and reforms should seek to improve the weakest link
 552 and then aim to increase both institutional quality and individual agency together.
 553 Especially because of the latter, the menu of effective interventions is not limited to
 554 improving the scores on the institutional quality indices alone. The same logic is then
 555 also imposed on the individual pillars that make up the three subindices: Attitudes,
 556 Abilities, and Aspirations.

557 For all the *Länder*, we have identified those three pillars that are holding back the
 558 respective *Land* most. We then compared the *Länder* and identified the most common
 559 weak spots in regional ecosystems. The results, presented in Table 7.2, provide some
 560 clear-cut insights.

561 Across the best and the weakest entrepreneurial ecosystems in Germany, bottle-
 562 necks seem to arise most frequently with regard to business risk, which will reduce the
 563 score on risk acceptance and thereby Entrepreneurial Attitudes. On Entrepreneurial
 564 Abilities, the overall scores are decreased by low Human Capital scores due to a
 565 lack of Education and Training, whereas a lack of New Product or New Technol-
 566 ogy in Product or Process Innovation generally holds back the overall performance
 567 on Entrepreneurial Aspirations. Despite significant heterogeneity across the German

Table 7.2 Weakest points per region

Region	Weakest pillars	Weakest variables
Hamburg	3, 8, 11	Business Risk, Education and Training, and New Technology
Schleswig-Holstein	3, 8, 10	Business Risk, Education and Training, and New Product
Bremen	3, 8, 13	Business Risk, Education and Training, and Exports
Niedersachsen	3, 7, 10	Business Risk, Technology Level, and New Product
Nordrhein-Westphalen	3, 8, 11	Business Risk, Education and Training, and New Technology
Rheinland-Pfaltz	3, 8, 10	Business Risk, Education and Training, Educational Level, and New Product
Hessen	3, 8, 10	Business Risk, Education and Training, and New Product
Saarland	3, 8, 11	Business Risk, Risk Perception, Education and Training, and New Technology
Baden-Württemberg	3, 8, 10	Business Risk, Education and Training, and New Product
Bayern	3, 8, 10	Business Risk, Education and Training, and New Product
Thüringen	1, 8, 11	Market Agglomeration, Education and Training, Educational Level, and New Technology
Sachsen-Anhalt	1, 8, 10	Market Agglomeration, Education and Training, and New Product
Sachsen	3, 8, 10	Business Risk, Risk Perception, Education and Training, and New Product
Brandenburg	3, 7, 10	Business Risk, Technology Level, and New Product
Berlin	3, 8, 10	Business Risk, Education and Training, and New Product
Mecklenburg-Vorpommern	1, 8, 14	Market Agglomeration, Education and Training, and Informal Investment

Source Authors' own compilation

568 *Länder*, there certainly seems to be room for national-level interventions and reforms
569 in these areas.

570 At the regional level, the *Länder* may well add specific interventions to strengthen
571 specific regional weaknesses and bottlenecks, given in particular that it does not seem
572 necessary to equally develop all pillars in all regions.

573 7.2.3 Overall Conclusions of the REDI Analysis

574 Our interpretation of the data above reveals that in all German *Länder*, and the country
 575 as a whole, the main bottlenecks in the entrepreneurial ecosystem are a limited will-
 576 ingness to take risk (Business Risk), an education system that can be improved (Edu-
 577 cation and Training), and a lack of radical innovation (New Products and Technology)
 578 that feeds back into a low familiarity with ambitious entrepreneurship.

579 As the simulation exercises in Varga et al. (2020) have shown, improving the scores
 580 on REDI in Germany would have positive effects on productivity and well-being in all
 581 regions, even if some would benefit more than others. At this point, however, it is not
 582 quite clear exactly how one could go about engineering such an improvement in the
 583 German entrepreneurial ecosystems. We know it is the bottlenecks that hold down
 584 scores, and consequently, improving on those is probably the most cost-effective
 585 way of improving the system as a whole. But a lot of research remains to be done on
 586 how exactly policy interventions and reforms would affect the various variables and
 587 pillars underlying REDI.

588 Moreover, it is not advised to draw conclusions exclusively on the basis of data
 589 and aggregate indices, even if they are composed of a broad set of sub-indicators.
 590 It is not yet clear from the data exactly what could be done to improve the situation
 591 or how interventions could be made to fit local specificities. Only after triangulating
 592 the results above with the historical analysis, literature review, expert judgment, and
 593 qualitative survey results below, we can map propose tailored reforms for Germany.

594 7.3 Step 3: Triangulating History, Data, and Survey Results

595 7.3.1 Venture Creation Processes in Germany

596 As illustrated in Herrmann (2020), we assessed the impact of Germany's institutional
 597 ecosystem upon entrepreneurial activities from both a static perspective (based on
 598 multiannual averages) and from a process-oriented perspective. Both sets of analy-
 599 ses provide similar and complementary results. The static analyses confirmed that
 600 entrepreneurs in Germany have a tendency to set up incrementally innovative ven-
 601 tures rather than to develop ventures based on radically innovative technologies or
 602 the imitation of existing business ideas (Dilli et al. 2018; Herrmann 2019).

603 The dynamic analyses, in turn, revealed how Germany's institutional environment
 604 influences different aspects of the venture creation process. With regard to human
 605 capital, we find that entrepreneurs in Germany, who begin to set up their ventures in
 606 part-time, are less likely to transition to full-time entrepreneurship than their counter-
 607 parts in the UK or the USA. The reason seems related to Germany's regulated labor
 608 market which, in case of venture failure, makes it rather difficult for entrepreneurs
 609 to obtain a position in dependent employment. Entrepreneurs are reluctant to give
 610 up dependent employment and set up their ventures in part-time (Held 2019). In

611 addition, entrepreneurs in Germany are unwilling or unable to hire employees and
 612 rather engage external service providers in order to access qualified labor (Held et al.
 613 2018).

614 With regard to the process of finance acquisition, Held et al. (under review-a)
 615 find that various venture characteristics influence the type of funding which nascent
 616 venture acquire first and, respectively, most. These characteristics include the type
 617 of good that a venture develops, its product's novelty, size, industry, but also its
 618 institutional environment. With regard to the latter, Germany's entrepreneurs are
 619 particularly likely to make up for a low stock market capitalization by seeking debt
 620 finance, making use of the well-developed banking system instead (Held et al. under
 621 review-a).

622 Finally, we also find that nascent ventures in Germany are more likely to engage in
 623 R&D collaborations with external partners, such as universities and labs, than nascent
 624 ventures in the UK or the USA. The reason for this seems to be that nascent ventures
 625 are reluctant to engage in joint R&D projects whenever the institutions governing
 626 inter-firm collaborations make the outcome of lawsuits in case of IP conflicts rather
 627 unpredictable (Held et al. under review-b).

628 Taken together, these studies suggest that Germany's distinct finance, labor, and
 629 R&D-related institutions lead entrepreneurs to focus on incrementally innovative
 630 business ideas.

631 7.3.2 *Regulatory Barriers to Entrepreneurship in Germany*

632 To examine regulatory barriers to entrepreneurship, we conducted interviews with
 633 313 founders in Germany, between 2015 and 2018. Table 7.3 provides an overview of
 634 the answers given to the question: "Which regulatory requirements did you perceive
 635 as major obstacles during venture creation?" coded to also compare the answers
 636 across countries. The table suggests that an important number of German founders
 637 did not feel constrained by regulatory barriers. Among those regulatory obstacles
 638 that were mentioned most, founders often pointed to difficulties with various aspects
 639 of administrative processes. With regard to the acquisition of labor, capital, or knowl-
 640 edge, only very few founders pointed to the problem of "high taxes" which, in turn,
 641 might indicate that founders considered financial constraints less important.

642 These findings are overall in line with the REDI analysis which indeed indicated
 643 that regulatory barriers were not the most pressing problem. In contrast, other sources
 644 and rankings, such as the World Bank's Doing Business Index (World Bank 2018a),
 645 mention regulatory barriers to starting up as a matter of concern in Germany. Part
 646 of the answer to this paradox could be that regulatory barriers are significant in
 647 Germany but perceived to be justified and unproblematic by the founders that actually
 648 overcame them. Moreover, strict regulation, provided it is clear and fair, can also
 649 prevent the entry of less viable and low-quality entrepreneurs (Stenholm et al. 2013).
 650 Our interview results suggest something like this is the case in Germany.

Table 7.3 Results survey on regulatory obstacles in Germany

Which regulatory requirements did you perceive as major obstacles during venture creation?	Times mentioned	In %
None	130	41.0
Does not answer question	32	10.1
Stringent environmental regulations	18	5.7
Regulatory requirements for buildings	12	3.8
Bureaucracy in general	11	3.5
Specific requirements related to energy sector	10	3.2
Legal requirements for approval	10	3.2
Onerous requirements for documentation	10	3.2
Tax laws in general	8	2.5
Legal requirement to be member of IHK	7	2.2
Lengthy approval process	5	1.6
Registration procedure	5	1.6
Difficulties with obtaining finance	5	1.6
Employment regulations which hamper ability to hire employees	5	1.6
High taxes in early phases of venture creation	4	1.3
Legal initial capital requirements	4	1.3
Constantly changing regulatory environment	4	1.3
Difficulties with transition of legal form	3	0.9
Insecurity about details of law	3	0.9

Note

1. Based on interviews with 313 founders mentioning 317 obstacles (more than one obstacle could be mentioned)

2. Only obstacles mentioned three times or more are reported in the table

Source Authors' own compilation

651 When looking at the top-10 obstacles more closely, we see that founders confirm
 652 the problem of a cumbersome bureaucracy which is not always very transparent. But
 653 only some (<5%) mention bureaucracy and complicated legal and regulatory require-
 654 ments as a real obstacle to start a firm. From our survey, we thus get the impression
 655 that barriers to entry in Germany could be alleviated by reducing the administrative
 656 requirements for venture creation. That is certainly confirmed by the fact that Ger-
 657 many ranks 113 out of 190 in the World Bank (2018a) Doing Business Index on
 658 "ease of starting a firm." Arguably, the regulatory hurdles that need to be taken when
 659 setting up a venture in Germany are in line with the German attitudes toward ven-
 660 turing and entrepreneurship in general. German founders take their responsibilities
 661 as an employer, creditor, and supplier seriously, and some bureaucratic verification
 662 of a prospective business seems justified in the German context.

663 7.3.3 Founders' Suggestions for Reforms in Germany

664 In the same survey, founders were also asked: “What can policy makers do to facilitate
 665 venture creation?” An overview of the answers to this question is listed in Table 7.4.
 666 While an important share of the founders interviewed still thinks that policy makers
 667 cannot facilitate venture creation, the most common suggestions point to measures
 668 of financial support. This is remarkable in light of the fact that financial barriers
 669 were rarely mentioned as a regulatory obstacle. Similarly, financial constraints do
 670 not come out very strongly in the data analyses of Sect. 7.2 nor in the historical
 671 analysis of Sect. 7.1.

672 Two other suggestions stand out. In slightly different wordings, the founders
 673 suggest a simplification of procedures, which in itself need not make regulations
 674 less tight, only more transparent and easier to follow. And, again, in different
 675 ways, they argue that the government could promote venture creation by allow-
 676 ing founders to benefit more from the venture they create. Although, not strongly
 677 and perfectly, Germany’s founders clearly identified some of the same weaknesses in
 678 the entrepreneurial ecosystem that our above data analysis revealed. Recall that the
 679 weaknesses of the REDI analysis revealed a low score on the pillars “risk acceptance,”
 680 “education and training,” and “product innovation.” The founders’ suggestions about
 681 better networking opportunities, the stimulation of a more entrepreneurial culture,
 682 and general need for more support resonate with those weaknesses, but the founders
 683 did not mention a lack of knowledge, absorptive capacity, or a lack of new product and
 684 process technology. The latter might be explained by survival bias in sampling, such
 685 that the surveyed founders may find themselves in a vibrant entrepreneurial scene and
 686 perceive a strong ecosystem where only external constraints hold venturing back. At
 687 the same time, they could be less informed and aware of the barriers to entrepreneur-
 688 ship in the lagging *Länder* and the macro-conditions of the broader ecosystem.
 689 Instead, the survey reveals founders’ frustration with the regulatory framework and
 690 bureaucracy that the REDI-analysis is ill equipped to reveal.

691 Rather unsurprisingly, the policies suggested are all action-oriented, whereby
 692 financial instruments are typically top-of-mind, also for founders. This may explain
 693 the high share of recommendations that suggest to supporting start-ups and new ven-
 694 tures financially—even though capital did not seem to be a major barrier to venturing
 695 in Germany in the REDI analysis. Those founders signaling a lack of information
 696 and training and calling for a more stable policy environment can be interpreted in
 697 support of a more fundamental reform approach that creates institutional support for
 698 those providing such services and knowledge.

699 When calling for lower taxation and higher financial support for founders, we
 700 should of course be very cautious. Nobody likes to pay taxes, and founders are
 701 no exception. Still, perhaps founders’ complaints are not unjustified in this case.
 702 Even if Germany’s founders strongly benefit from a public-funded infrastructure—
 703 including, for example, a well-developed transportation system, public incubators,
 704 and entrepreneurial support programs like the EXIST initiative—the level of taxation
 705 and social security contributions out of total profits is estimated to be about 50%

Table 7.4 Results survey on suggested policies in Germany

In your view, what could policy makers do to facilitate venture creation?	Times mentioned	In %
None	37	9.5
Does not answer question	30	7.7
Facilitate financing for small businesses	89	22.9
Reduce bureaucracy	39	10.1
Avoid constant policy changes	28	7.2
Provide competent advice to people starting businesses	24	6.2
Improve situation specific to energy sector	23	5.9
Reduce tax rates for small businesses	20	5.2
Provide better information about how to start a business	18	4.6
Provide better training to people for starting businesses	13	3.4
Simplify tax laws	12	3.1
Clear regulations	10	2.6
More flexible tax law adjustable to liquidity of start-up	10	2.6
Provide guidance	9	2.3
Provide incentives for hiring people	9	2.3
Reduce costs	9	2.3
Financial benefits for founder	9	2.3
Facilitate procedures for approval	8	2.1
Create feeling of support for entrepreneurs	5	1.3
Abolish compulsory membership in IHK	5	1.3
Reduce initial capital requirement	4	1.0
Offset risk of starting business	4	1.0
Simplify regulatory requirements for buildings	4	1.0
Simplify venture creation process	3	0.8
Provide better networking opportunities	3	0.8
Create entrepreneurial culture	3	0.8
Adjust tax system to encompass start-ups	3	0.8
Help market start-ups	3	0.8
Ease environmental regulations	3	0.8

Note

1. Based on interviews with 313 founders mentioning 455 suggestions (more than one suggestion could be mentioned)

2. Only suggestions mentioned three times or more are reported in the table

Source Authors' own compilation

706 (World Bank 2018a) in Germany, and on “paying taxes” Germany ranks 41 out of
707 190. Concerning financial support for founders, there are already quite a lot of public
708 programs for entrepreneurship and it is doubtful whether even more support would
709 be helpful.

710 **7.3.4 Conclusions**

711 The analysis in this section confirms some, but not all of the weaknesses identified
712 in the REDI analysis completed in Step 2. Moreover, it provides some revealing
713 additional insights, for example, the need to create a stable regulatory framework
714 that is above all transparent and clear, and the suggestion that overall taxation on
715 new ventures is perhaps too high. Such information is hard to gather from quantita-
716 tive data or historical analyses. The more qualitative analysis presented in this step
717 was therefore useful to complement the results obtained in Sects. 7.1 and 7.2. But
718 given the limited perspective that most founders have, the proposed interventions
719 typically fall in the “inform, deregulate, subsidize-more and tax-less” approach that
720 has characterized entrepreneurship policies around the world already for decades.
721 When asked for the most important barriers and additional policy measures, it is only
722 logical that founders would mention those barriers and proposals that they perceived
723 as most important in their personal experiences and direct environment. There cer-
724 tainly is valuable information in that experience. But as a guide to policy, this is
725 not sufficient, as is an approach based on history or aggregate data only. The true
726 value of this information is revealed when combined with information from other
727 sources. Together, the insights gained from triangulating our historical, quantitative,
728 and qualitative information on Germany now reveal enough information to formulate
729 a “diagnosis” for Germany and propose our “treatments.”

730 **7.4 Step 4: Mapping onto the FIRES-Reform Proposals**

731 Formulating a reform strategy to strengthen the entrepreneurial ecosystem is similar
732 to treating a patient. In the previous sections, we have considered the medical history
733 of the patient, used advanced diagnostic tools to scan for her health problems, and
734 asked the patient how they feel and what they believe would be a good treatment.
735 Based on this information, we can now come up with a diagnosis and map this
736 diagnosis onto the menu of available treatments in order to propose a treatment that
737 fits the patient.

738 In general, Germany boasts a strong entrepreneurial ecosystem. Like in most other
739 countries, there are hotbeds of entrepreneurship in major cities alongside more rural
740 regions. The geographic resolution of our data reveals that Germany’s entrepreneurial
741 talent and resources arguably tend to cluster in its major cities. But given that these

742 cities are themselves spread across the country, this is also the case for entrepreneur-
743 ship in Germany. Our quantitative data analyses suggested a large regional hetero-
744 geneity in entrepreneurial ecosystem performance, whereas for the country as a whole
745 or the regions affected, this does not necessarily constitute a problem.

746 The results from the surveys do not suffer from this problem and confirm that
747 the challenges and bottlenecks in the German ecosystem are indeed not formidable.
748 Founders suggested that regulation makes the founding of new ventures difficult,
749 especially in green tech and renewable energy sectors. This is confirmed in Ger-
750 many's rankings on traditional indicators like self-employment and firm formation,
751 especially in high-tech sectors. These show that Germany is lagging in an inter-
752 national comparison. But these concerns do not seem to be overly problematic.
753 Importantly, founders did not complain about a lack of funding, skilled personnel,
754 or knowledge. The data analysis does however reveal that German entrepreneurship
755 is less risk seeking than in the Anglo-Saxon world. New ventures in Germany score
756 comparatively low in radically new products and technology as well as in risk accep-
757 tance. Moreover, the rates of self-employment and start-up activity in Germany have
758 been declining and this might be worrisome to a country that is already scoring low
759 on these indicators. Incremental innovation is routine in German industry, but the
760 pillars related to more radical innovation seem the weakest links in an otherwise well
761 developed and functional entrepreneurial ecosystem. This diagnosis roughly holds
762 for the country as a whole and the individual *Länder* separately.

763 Admittedly, though, it is not easy to change all these aspects together. German
764 preferences for well-designed and (over)engineered solutions, an emphasis on qual-
765 ity over price and a dislike for disruptive technologies that might challenge incum-
766 bent firms and unsettle long-grown business relations, are deeply entrenched in the
767 German culture. Furthermore, these even constitute the core of a carefully built and
768 cherished "made in Germany" brand and reputation. It is thus important not to advise
769 our "German patient" to become a person they are not and do not want to become.
770 Still, a little more adventurous spirit would not hurt and more likely improve Ger-
771 many's position *vis-a-vis* the competition from East-Asian tiger economies that rival
772 its industrial and engineering dominance. Hence, making it easier to start (and end) a
773 venture and supporting radically innovative entrepreneurship financially could go a
774 long way in improving the entrepreneurial ecosystem in the country and its *Länder*.

775 Taking these general prescriptions to the menu of policy interventions and reform
776 proposals in the companion volume of this book (Elert et al. 2019), we have selected
777 fifteen suitable interventions for Germany. They are listed in Table 7.5. In Column 1,
778 we find the number under which they were presented in Elert et al. (2019). Column 2
779 lists the title and Column 3 the proposal, whereas Column 4 gives a brief motivation
780 for the case of Germany tying in with the analysis presented above.

781 The first proposal (2) refers to intellectual property. We think it is in the interest of
782 the German entrepreneurial society that access to knowledge remains open. Germany
783 is traditionally strong in developing generic knowledge into specific products and
784 services, and IP protection should protect the latter, not the former. But as IP is
785 beyond the competencies of even national authorities, our proposal here is to be

Table 7.5 The FIRES-reform proposals for Germany^a

No.	Policy area	Proposal	Germany
2	Intellectual property	Limit the breadth, width, and span of patent protection to cover working prototypes and market-ready innovations only for a short period of time and permit economic actors to infringe upon patents that have not been commercialized	This is an international issue, but it would certainly help if Germany were to advocate this at the appropriate levels, because Germany is an important player in this field. It may, at first sight, go against the interests of a country that patents a lot. But this will stimulate commercialization also in Germany
9	Wealth taxation	Harmonize and reduce taxes on private wealth, private wealth transfers and inheritance if productively invested	The transfer of wealth across generations, especially in the form of business assets, is a major issue in the family-firm dominated <i>Mittelstand</i> in Germany (Ellul et al. 2010; Getz and Peterszen 2004). By reducing taxation on private wealth transfers, the transition of ownership across generations is easier and this also frees up more so-called triple-F finance in Germany
17	VC	Reduce barriers to the sale, acquisition, and IPO of VC-funded start-ups to facilitate profitable exits	Germany does not seem to suffer from a direct lack of VC funds, but the market remains small because of low demand. We propose to stimulate this market by strengthening the pull-factors as direct subsidies in these circumstances will only cause too much cheap money chasing too few projects
19	Banks	Increase the mandatory equity ratio in banking gradually to 10–15% to allow them to take on more risk responsibly in their lending portfolios	European and international minimum standards are applied in Germany, but allow for rather low reserves and high leverage. Deutsche Bank was branded the worlds' riskiest bank by the USA FDIC in 2016 (Hofbauer et al. 2017; Moshinsky 2016). Financing entrepreneurship simply requires more loss-absorbing capacity in banking
21	FinTech	Implement a light-touch regulatory regime for equity crowdfunding and peer-to-business lending	German crowdfunding regulation introduced in 2015 is relatively conservative. The arguments are all about stability. We would encourage experimentation with this new form of finance under tight supervision, but loose regulation

(continued)

Table 7.5 (continued)

No.	Policy area	Proposal	Germany
23	Employment protection	Relax the stringency of employment protection legislation for permanent contracts	Germany ranks fourth for permanent and forty-fourth for temporary contracts protection in the OECD ranking. The gap is huge. Some labor protection is needed to maintain the high levels of firm-specific human capital (e.g., Hall and Soskice 2001), but that cannot justify the gap with temporary workers. The way forward would be to close the gap by bringing protection for permanent contracts down where responsible, and award temporary work more protection where needed to level the playing field
27	Social security	Carefully consider the impact of flexicurity reforms on young firms and do not force them to take on excessive risks and burdens	Many of the flexicurity reforms tend to put administrative or financial burdens and risks on firms that work as a deterrent to hire and/or as a penalty on growth. In reforming the labor market, policy makers should take a dynamic view of entrepreneurship and realize that successful firms need to grow
29	Social security	Ensure full portability of social security entitlements by making them independent of tenure at a specific employer	Labor market mobility in Germany is relatively low. It seems that in Germany this is also due to the “orderly” educational system that sets people on a very predictable career path. Linking social security entitlements to jobs is perhaps a consequence as much as a cause but it is a good place to start
31	Active labor market policy	Establish or strengthen training programs to prepare workers for new occupations	Labor market mobility in Germany is relatively low. On-the-job training for mobility has to be publicly funded or funded by employees as we cannot expect employers (let alone start-ups) to invest in mobility
32	Entry barriers	Excessive barriers to new business formation and new entry should be lifted where possible	The survey above clearly indicates founders think bureaucracy and regulation are a barrier to business formation and the Doing Business Index of the World Bank (World Bank 2018b) ranks Germany 113 out of 190 in ease of starting a business. Compared to Georgia, at 20% below the global frontier and not improving as fast (World Bank 2018c)

(continued)

Table 7.5 (continued)

No.	Policy area	Proposal	Germany
37	ICT	Invest in excellent, open-access digital infrastructure for European citizens and businesses	Providing such an infrastructure would promote scaling of new digital ventures and high-tech services (Baller et al. 2016). Germany ranks 15 out of 139 in the Networked Readiness Index, down from 13 and below the Nordics and UK. As this is a fertile ground for new firm formation, Germany could invest here to promote a more adventurous entrepreneurial ecosystem without jeopardizing upsetting its existing routine innovation paradigm in manufacturing. Strong improvements could also be made to the digitalization of public administration
39	Insolvency	Insolvency regulation should protect ventures that are inherently healthy and promising and allow for a quick and ex-ante transparent liquidation of those that are not	This proposal ties in with the Business Risk Acceptance and Fear of Failure, but this necessarily is a long run intervention. Only by signaling strongly to society that failure in business is acceptable, can cultural attitudes gradually become more supportive. German bankruptcy law seems overly stringent
41	Education system	Reforms in primary and secondary education should provide pupils with a solid and coherent knowledge base and promote initiative, creativity and a willingness to experiment	If we combine German performance on PISA scores and low scores on education and training plus need for more risk acceptance in the REDI-data analysis, it is clear that also in the educational system reforms are desirable. The government has put quite a few programs in place in the 2000s already and reform fatigue may be an issue, but a focus on creativity and out-of-the-box thinking remains urgent (Rothman 2017). This proposal is of course complicated by the fact that educational policy in Germany is largely a competence of the federal states

(continued)

Table 7.5 (continued)

No.	Policy area	Proposal	Germany
45	Universities	Both the EU and its member states should create healthy, well-funded, academic institutions that allow Europe's most talented academics to pursue their research interests	For Germany, this should be interpreted as a call for increasing the public funding for universities in particular. These institutions have a strong educational focus in Germany as it is and spending per student has declined (Füller 2017) to €9000 per students which is less than the OECD average of €10,400. Underinvesting in academic teaching and basic research jeopardizes the knowledge base in the long run. Again, federal state and national politicians need to closely collaborate to address this issue in Germany
48	Innovation policy	Develop highly competitive programs encouraging small businesses to engage research and development with the potential for commercialization	Germany's unique legacy of a decentralized, innovative, and well-funded <i>Mittelstand</i> gives it a unique strength to build on. If its <i>Mittelstand</i> firms can be engaged in somewhat more risky innovation, Germany can strengthen and maintain its competitive position in the world in a way that will be hard to copy in other places

^aNumbered as in Elert et al. (2019)
 Source Authors' own compilation

786 interpreted as a suggestion to raise the issue at the appropriate governing bodies and
 787 treaty negotiations.

788 The proposals in taxation and financial regulation (9, 17, 19, and 21) lie clearly
 789 within national competencies. They serve the dual purpose of mobilizing more capital
 790 for riskier, perhaps more radically innovative ventures and increasing the financial
 791 rewards for such venturing and investing in it. Here, we propose a different approach
 792 than the founders, whom in our survey called for more public funding and financial
 793 support. Instead, we believe that mobilizing the so-called triple-F finance by family,
 794 friends and fools, can be promoted by allowing for more wealth to accumulate and
 795 be transferred among private individuals.

796 Proposals on social security and labor market regulation (23, 27, 29, and 31) all aim
 797 to mobilize Germany's most knowledgeable and valuable employees. Portability of
 798 social security entitlements across jobs, sectors, and labor market statuses will reduce
 799 the lock-in of skilled labor in gilded jobs and reduce the barriers for employers. Also,
 800 this portability creates a level playing field for start-ups on the demand side and for
 801 marginalized groups on the supply side of the labor market. This will make growth
 802 in Germany more inclusive and equitable as well as more innovative.

803 A third group of proposals (32, 37, and 39) intends to improve the regulatory
 804 situation for start-ups and founders both at the start and possibly the end of their

805 venture, as well as strengthen the digital infrastructure of Germany. The latter is an
806 essential and vital infrastructure for platform-based services that account for most
807 spectacular new firm formation in the world today.

808 Finally, a group of proposals (41, 45, and 48) suggests reforms to make Ger-
809 many's strong knowledge generation sector more open to entrepreneurs penetrating
810 the knowledge filter (Acs and Plummer 2005), and particularly for more radical ideas.
811 The promotion of creativity and experimental mindsets in primary and secondary
812 education will support this shift in the long run. Policies to support innovation in
813 SMEs will have to be designed in close cooperation with knowledge-intensive firms
814 in Germany, whereas greater investment in higher education and basic research is a
815 proven recipe for improving the quality of life in the long run.

816 The proposals individually and in combination aim not only at making German
817 entrepreneurs more adventurous and change their environment in ways that such
818 adventures are rewarded more if successful and punished less if a failure. In addition,
819 the proposals focus more directly on allowing these more adventurous entrepreneurs
820 to start a venture with less administrative hurdles and to grow them with capital,
821 labor, and knowledge for which they can compete on a more level playing field.
822 These reforms would have to be implemented while keeping sensible and important
823 regulations in place to screen out business models that add no social value.

824 It is likely that, even though all German *Länder* stand to benefit from these inter-
825 ventions, the fact that density and clustering tend to promote the quality and impact of
826 entrepreneurial venturing will imply that the same policy improvements will benefit
827 already prosperous cities and regions most. Still, that should not stop policy makers
828 from pursuing these interventions as it is the well-being of German citizens, not the
829 GRP of its administrative units per se, that the national government should primar-
830 ily care about. In addition, Germany has effective automatic transfer schemes that
831 will help maintain a high quality of life throughout the country, even if the available
832 entrepreneurial resources are attracted to, and deployed in, only parts of the territory.

833 **7.5 Step 5: The FIRES-Reform Proposals in Light** 834 **of the Countries' Historical, Geographical,** 835 **and Institutional Context**

836 To put our proposed reform program in context, it is important to discuss the diagnosis
837 and proposed treatments with experts in the field. Moreover, given the wide diversity
838 of policy areas involved, it is important to not only discuss this with policy makers that
839 are active in "entrepreneurship policy" in the narrow sense. Our approach emphasizes
840 the importance of reforming institutions that determine the allocation of financial,
841 labor, and knowledge resources to entrepreneurial activity in the broadest and most
842 inclusive sense of the word. Entrepreneurship policy, in the narrow sense, has been in
843 place for more than three decades and, to date, seems to have achieved only limited
844 success.

845 Because of its breadth, our reform agenda inevitably cuts across many policy areas
846 traditionally less associated with entrepreneurship policy, including wealth taxation,
847 financial and labor market regulation, social security, and science policy. Policies
848 and institutions in these different areas overlap and interact in ways that affect the
849 quality and performance of the entrepreneurial ecosystem (Stam 2015, 2018). As
850 the institutions in these areas have evolved historically and policy makers in these
851 areas pursue different, equally relevant public policy priorities, the challenge is to
852 discuss the proposed agenda in sufficient depth and with a sufficiently diverse group
853 of policy makers and practitioners. The challenge is to not only propose policies
854 and reforms that will strengthen the ecosystem, but to do it in such a way that other
855 important policy priorities are also achieved.

856 In order to receive the first round of feedback on the proposals for Germany
857 presented in Table 7.5, a policy round table was held at the *Bundesministerium*
858 *für Wirtschaft und Energie* in Berlin on April 24, 2018. This step can be seen as
859 an attempt to allow our patient, or perhaps more accurately, their team of medical
860 specialists, intimately familiar with our patient, to give feedback about our diagnosis
861 and proposed treatments. What proposals does this team endorse, question, or propose
862 to drop?

863 Several participants stressed that cultural aspects and attitudes are important factors
864 affecting the entrepreneurial activity in Germany. Discussing monetary issues,
865 such as the size and distribution of certain items of EU's, Germany's, or the *Bun-*
866 *desländer's* budget, will only be of limited use if one does not see how this fits into
867 the institutional and cultural patterns of Germany.

868 The participants also agreed that institutions like high employment protection
869 and entrepreneurship-inhibiting insolvency laws increase the risks involved with
870 entrepreneurial failure and the stakeholders also meant that institutional reforms that
871 decrease the personal risks of failure might have an effect on individuals' risk attitude.
872 The relatively high-risk aversion in Germany is not innate and can be altered, even
873 if it might take some time.

874 Supporting business angels might work to reduce market failure in the seed stage.
875 The idea to subsidize the investors and not the firms was regarded as a fruitful strategy.
876 However, some participants questioned the idea that capital access was an important
877 bottleneck and others claimed that angel investment has no detectable effect on firm
878 productivity and development. Supporting the VC industry might have an effect on
879 the entrepreneurial culture and the risk attitude among potential entrepreneurs in
880 society. It was also critically discussed whether tight regulation truly is a bottleneck
881 for start-ups.

882 Some proponents argued that the size threshold of the SME definition that EU
883 uses should be increased to include more *Mittelstand* firms as well. Even if these
884 firms are not SMEs by the today's definition, they operate under similar organizational
885 routines, managerial practices, and firm behavior. Even if this issue was not a specific
886 proposal, participants pointed out that this would imply that a given budget has to be
887 distributed among more firms or that the budget must increase substantially to avoid
888 that resources are diluted.

889 7.6 Conclusions

890 This chapter on Germany presents the FIRES-approach to formulating a tailored
 891 institutional reform strategy to promote a more entrepreneurial society in Europe. It
 892 illustrates how one could systematically analyze the situation before selecting and
 893 proposing reforms within this area. After carefully analyzing Germany's historically
 894 rooted institutional foundations, this chapter triangulated the historical, qualitative,
 895 and quantitative information to identify Germany's strengths and weaknesses. Based
 896 on this diagnosis, the most relevant proposals are selected from the menu of pol-
 897 icy interventions and reform proposals developed in more detail in the companion
 898 volume of this book (Elert et al. 2019).

899 Due to its unique history, the German entrepreneurial landscape is probably the
 900 most decentralized and regionally diffused in all of Europe. This is reflected to this day
 901 in a spatial structure with a comparatively low level of concentration of economic
 902 power in the capital region and with economically strong clusters in the *Länder*
 903 capitals and other large cities around the country. Germany is home to centuries-old
 904 universities and also developed a strong system of non-university research institutes.
 905 Germany's financial system is unique with its locally embedded public bank system
 906 which supports Germany's *Mittelstand* of decentralized export-oriented medium-
 907 sized industrial firms across the country. The labor market is characterized by a model
 908 of consensual and coordinated decision making between employers and employees
 909 that facilitates and promotes high investments in firm-specific human capital.

910 Germany has developed its own unique model of capitalism and represents the
 911 core of the continental European model with a coordinated market economy. The
 912 reunification between West and East Germany in 1990 started an economic process
 913 that is arguably still ongoing. The socialist doctrine had drained East Germany of its
 914 entrepreneurial talent and the structure of *Mittelstand* vanished.

915 Germany today has, however, a rather unbalanced entrepreneurial ecosystem. It
 916 excels in competition and technology absorption, but these strengths are negated by
 917 lacking performance on human capital. Germany lags only slightly relative to the
 918 EU average on human capital and risk acceptance and scores low in Entrepreneurial
 919 Attitudes. The main bottlenecks in the entrepreneurial ecosystem are a limited will-
 920 ingness to take risk, an educational system that could aim for more creativity and
 921 experimentation and a lack of radical innovation that feeds back into a low famil-
 922 iarity with ambitious entrepreneurship and a rather closed and conservative business
 923 culture.

924 This chapter discusses proposals concerning taxation and financial regulations as
 925 well as ideas about how to improve the regulatory situation for start-ups and founders.
 926 Germany also needs to strengthen the digital infrastructure and the knowledge
 927 generation sector in addition to supporting innovation in SMEs.

928 The main message for Germany is that the German institutions could allow for
 929 more experimentation and somewhat more radical innovation by strengthening the
 930 educational system in that direction and considering creating a more equal playing
 931 field between dependent employment and self-employment/employer when it comes

932 to labor protection and social security. While this should not go at the cost of carefully
 933 built-up competitive strengths, Germany could afford to become more adventurous.
 934 The proposals individually and in combination aim to reward German entrepreneurs
 935 more if successful and punish them less if they fail.

936 Of course, these proposals will need a much more detailed discussion and form
 937 the starting point, and not the final word on the policy debate. Moreover, even if
 938 adopted, our proposals all require careful implementation and evaluation to complete
 939 the seven-step policy cycle presented in Chap. 1 of this volume.

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