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Subsidiarity as secret of success: "Hidden Champion" SMEs and subsidiarity as winning HRM configuration in interdisciplinary case studies

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Abstract

Purpose – This paper contributes to the theory of the relationship between human resource management (HRM) and innovation at small- to medium-sized enterprises (SMEs) by conducting a conceptual analysis of the question why Germany boasts by far the highest number of "Hidden Champion" SMEs. This is done by case studies from the army and public financial management of aid disbursal in developing countries. Implications for HRM at SMEs are discussed.

Design/methodology/approach – Conceptual analysis using case studies.

Findings – Contributing towards filling the gap concerning theoretical underpinnings of the link between HRM and innovation, we suggest that interdisciplinary work from relevant organisational case studies indicates that the concept of institutional design to provide motivational incentives may be relevant, especially concerning high performance systems with bundles of HRM practices. Specifically, the fundamental principle of subsidiarity is found to be important.

Research limitations/implications – The research is broadly applicable to organisations of all kinds, as the diverse case studies indicate. We point towards tentative implications for the firms that account for the majority of the work force, namely SMEs, and among them the most successful ones, the so-called "Hidden Champions".

Practical implications – HR managers can improve motivation, performance and innovation by decentralising decision-making as far as possible, while ensuring the overall organisational goals are well understood and shared, and resources are dedicated to train and educate staff. Additionally, the conception of rank-order competitions complements the institutional design.

Social implications – Greater productivity and material performance as well as greater job satisfaction via larger autonomy and decision-making power on the local level can be achieved by the application of subsidiarity as key HRM configuration. This can be employed at SMEs, as discussed, but also other organisations. Further, the principle of subsidiarity and the greater emphasis on staff training and education may help reduce inequality.

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Originality/value – Our paper contributes towards filling the gap in the literature on the link between HRM and innovation, by identifying the role of subsidiarity. We introduce an interdisciplinary perspective, with contributions from economics and psychology, among others. We also contribute to the history of HRM.

Keywords Innovation, Small- to medium-sized enterprises (SMEs), HRM, Subsidiarity, Hidden Champions, Institutional design

Paper type Conceptual paper

1. Introduction

Interest in innovation and the factors that enable it has increased significantly in recent decades (e.g. Anderson *et al.*, 2004). Innovation is of fundamental importance for successful organisations, since by facilitating superior performance and providing competitive advantages, it allows survival and is a precondition for achieving growth and gaining market share. Innovation can take many forms, such as product or process innovation; technical or administrative, including organisational innovation, or incremental vs fundamental (or radical) innovation.

Human resource management (HRM) can be defined as the "Management of work and people towards desired ends", which must be seen as intrinsic to any organisation (Boxall *et al.*, 2007). Theoretical models integrating HRM and innovation were presented by Looise and van Riemsdijk (2004), De Leede and Looise (2005) and later authors. Empirical research has been produced by many authors, including Perdomo-Ortiz *et al.* (2009) and Fu *et al.* (2015). In their review of the literature on the link between HRM and innovation, Seeck and Diehl (2017) focus on the role of *strategic* HRM in achieving specific goals, namely in particular the goal to deliver innovation. This is also our interest.

Seek and Diehl (2017) conclude their meta-study of 35 empirical studies by pointing to evidence for the "bundled" HRM practices to have a positive effect on innovation. This confirms Guest (1997, 2011) and Paauwe and Boselie (2005), who argue that firm performance will improve if best practice is implemented and individual practices are placed together in a complementary manner in bundles (see also Wood, 2000, and others). This is particularly true in so-called high performance and high-commitment work systems (Boxall and Macky, 2009), and while ensuring that HRM practices are consistent with organisational strategy (Wood, 2000). The logic is that the capacity to innovate resides in humans, who need to be motivated appropriately to deliver optimal results, including in the delivery and application of innovation (Jimenez-Jimenez and Sanz-Valle, 2008).

Concerning individual procedures, "practices that foster employee commitment, loyalty, learning and intrinsic motivation are conducive to innovation" (Seeck and Diehl, 2017). For instance, Jiménez-Jiménez and Sanz-Valle (2005) find in their study of 180 Spanish firms that the use of internal labour markets and practices that promote loyalty and participation are more likely to nurture every type of innovation. Similarly, Heffernan *et al.* (2009) find that communication and involvement are one of the most significant practices that enhance innovation.

Seeck and Diehl (2017) also point towards areas so far insufficiently covered in research on this topic, among which they list the theoretical underpinnings of the relationship between HRM and innovation. They found that among the universe of 35 empirical studies, very few "drew upon a specific theoretical framework – which typically builds on theoretical constructs from the human capital or resource-based view of the firm" (Guest, 2011; Paauwe, 2009). So far, they point out, the main explanatory mechanism has been *knowledge management* (Collins and Smith, 2006) and *organisational learning* (Shipton *et al.*, 2005). Another explanation is the so-called AMO framework (Purcell *et al.*, 2003) used in research on the link between HRM and performance, which focuses on the three factors abilities (A), motivation (M) and opportunities to participate (O). Seeck and Diehl (2017) suggest that a

similar framework may be deployed to explain the relationship between HRM and innovation, but "How exactly employees' ability, motivation and opportunity channel innovation is an important question for future research". Furthermore, they call for a better reflection of the role of collective endeavour and the link between the individual and the collective.

This paper aims at contributing towards tackling this problem of an insufficiently deep theoretical underpinning of the relationship between HRM and innovation. In order to contribute to the question of "How exactly employees' ability, motivation and opportunity channel innovation" (Seeck and Diehl, 2017), we place a particular emphasis on motivation and the role of institutional and incentive structure design in high performance systems. Another contribution of this paper is that we widen the perspective by drawing attention to particular strands of non-HRM literature that are relevant or precede findings in HRM literature, and so gain an interdisciplinary perspective beyond the scope identified by Seeck and Diehl (2017). Last but not least, we aim to draw out the implications of the link between HRM and innovation also for small and medium-sized enterprises (SMEs), which account for the vast majority of employment (over 66% in the UK, over 60% in all OECD countries, and likely an even larger proportion in developing countries).

Research on high-performance companies has recently widened its scope to study highly successful SMEs, which inevitably are highly innovative SMEs. Innovation at SMEs raises productivity, which in turn enhances competitiveness. The fruits of innovation can thus be measured quantitatively. Ready if relative, ordinal measures of successfully utilised innovation are thus measures of performance and success in markets.

An important strand of this literature has identified the SMEs that, akin to Olympic champions, have gained no. 1, no. 2 or no. 3 global market share in their respective market niches. These "champions" are, due to their specialisation and small scale, not known household names, and thus instead are referred to as "Hidden Champions" (Simon, 1990, 1992, 1996, 2009, 2012). There has been a call for more scholarly research on such Hidden Champions (Venohr and Meyer, 2007) as a "source for lessons on how to succeed in the global economy" (p. 2). In the words of the originator of the concept:

> Hidden champions... remain a virtually unexplored source of knowledge. Scattered across the globe, thousands of these highly successful companies are concealed behind a curtain of inconspicuousness... This applies to the products these companies make, how they beat the competition or – even more difficult to research – how they are managed internally. This...contrasts starkly with the dominant positions the hidden champions enjoy in their markets. Many of them have global market shares of over 50%, and some even hold shares in their relevant markets of 70–90%. ... Only a few large multinationals achieve comparable market positions. Far from lagging behind in the globalisation process, the hidden champions are the vanguard of globalisation. In the course of the past decade, they have grown and strengthened their competitiveness at a dramatic rate. Among the impressive characteristics of these small and midsize companies is their enduring, sustainable approach towards global excellence (p. 1). ... I found the hidden champions remarkably similar across the world (p. 18)...As shown by our numerous case studies and the growth rates achieved, the typical hidden champions follow the mantra: grow or die (p. 41)... globalisation and innovation are the outstanding engines of growth...(p. 42). ... Innovation encompasses not only technical but also process innovations... (Simon, 2009).

Yoon (2013) used quantitative techniques to explore the innovation activities of Hidden Champions and, not surprisingly, found that innovativeness is indeed a characteristic of Hidden Champions. Simon's analysis of Hidden Champions produced the insight that

> Hidden champions are highly innovative in both products and process, not only confined to technology. Innovation activities are globally oriented and continuous (Venohr and Meyer, 2007, p. 31).

Innovation "is seen as a crucial factor and constitutes one of the pillars for Hidden Champions' competitive advantages" (Rammer and Spielkamp, 2019). Rasche (2003) also argues that

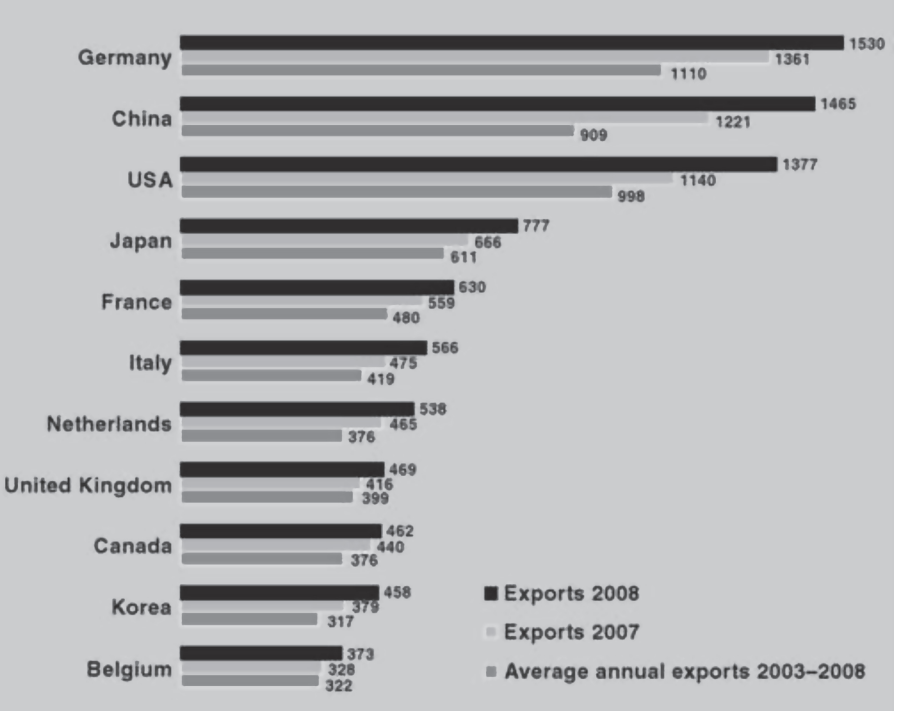
Hidden Champions are drivers of ideas, innovation and technology in market niches that are barely noticed by the public. This is because their market niches may often be too small in the national market to be attractive for large firms. Thus Hidden Champions need to compete on a global scale, for which successful knowledge management and innovation strategies are important.

Hidden Champions have also begun to be recognised as important sources of case studies in HRM systems (Garaus *et al.*, 2016), but the research has hitherto focused on particular aspects (such as ambidextrous HRM systems). This paper hopes to contribute towards filling the gap on HRM policies at successful and innovative SMEs, by considering Hidden Champions and seeking to find some of the secrets of their success.

Surmising that innovation and competitive success of SMEs is the result of embedded institutional factors that may well vary in line with national institutions, one could consider absolute national export value as a measure of competitiveness and hence successfully implemented innovation. A comparison in 2008 of the world's largest exporters in absolute value terms showed the following (Figure 1):

While the Chinese population is almost 30 times larger than the German population, the absolute value of exports from Germany has until recently stayed ahead of China's. Today, as China is number one exporter in the world, Germany remains a close second. These striking facts raise a number of questions:

> How can it be that a relatively small country in Europe has sustained this position for so long? A large part of the explanation lies in the prevalence of hidden champions in Germany. Contrary to



Source: Simon (2009), p. 16

Figure 1.
The world's largest exporters (average annual exports in billion USD)

> what most people believe, the export strength of a country is not determined by a few giant, highly visible corporations, but rather by a large number of midsize firms that are very strong exporters (Simon, 2009, p. 17).

Throughout the twentieth century, German companies have consistently been among the most successful exporters in the world. Venohr and Meyer (2007) estimate that of the over 340,000 German exporting companies, the majority are small and medium-sized firms, and such SMEs with revenues of less than E1bn account for about 40% of all German manufactured goods exports (p. 4). Most are family-owned and based in small towns, yet they hold market shares of up to 90% worldwide in their niche [1].

Figure 2 lists the countries with the largest numbers of Hidden Champions. It can immediately be seen that the German contingent is disproportionately large, significantly ahead of the much larger countries and competitors United States, China or Japan. This supports the thesis that German export prowess is directly linked to the highly successful and innovative SMEs known as Hidden Champions.

The United States, which also has many thousands of SMEs, comes in a distant second in terms of the number of Hidden Champions. The gap to Germany is palpable: Germany boasts almost four times as many Hidden Champions as the United States, and almost 20 times as many as China, despite these economies and their populations being substantially larger than Germany's.

Other leading countries in terms of the absolute number of Hidden Champions are Austria and Switzerland, again predominantly German-speaking countries. Simon commented already in 2009: "My global list of hidden champions contains about 2,000 companies. About two-thirds of them come from the German-language area" (p. 17) [2]. More recent empirical research has since raised the number of Hidden Champions in Germany from the above 1,307 to 1,800 (Rammer and Spielkamp, 2019).

This raises the next question: How could it be that a substantial number of German SMEs are apparently so far ahead of the game compared to SMEs in other countries? In this paper

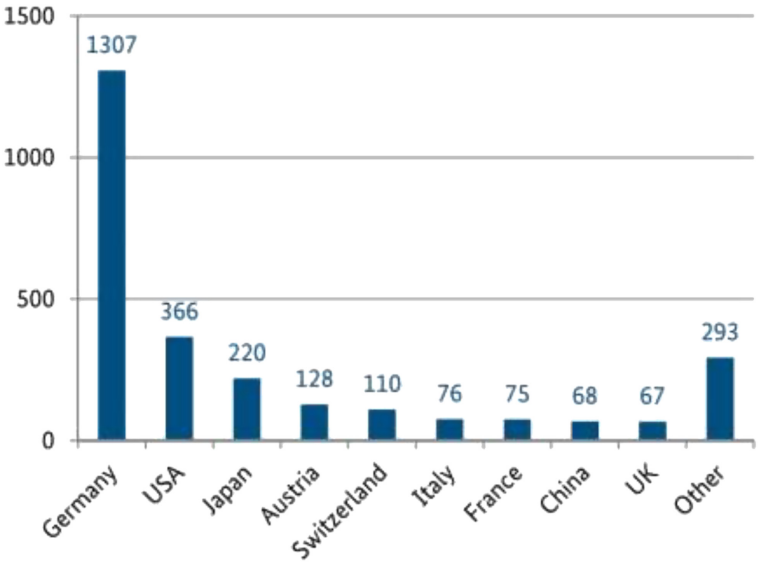


Figure 2.
Number of "Hidden Champion" SMEs in international comparison

Source: Federal Ministry of Economics and Technology (2012)

we pursue the question of how Germany succeeded in creating a world record number of Hidden Champions – SMEs that are world leaders in innovation and competitiveness. This is also of practical interest, since it can be expected that certain principles or particular constructs may be abstracted from the German experience and benefit policy-makers and SMEs elsewhere. Lehmann *et al.* (2019) report that the unequal distribution of Hidden Champions is indeed explained by the "institutional context, in particular the provision of human capital." Since firms are organisations employing humans, we start from the premise that HRM insights are indeed likely to be relevant in answering this question and in identifying the institutional features that contributed to the success of Germany's Hidden Champions.

Innovation at SMEs is an important area that remains under-researched. Edwards *et al.* (2005) point to the flexibility and narrow focus of SMEs, which can be an advantage in generating innovation. At the same time they point out that SMEs often do not have the capacity to manage the whole innovation process, due to lack of resources and capabilities in manufacturing, distribution, marketing and extended R&D funding. Some research has pointed to inter-firm collaboration as a successful strategy adopted by SMEs (Lichtenthaler, 2005). Shaw (1998) also indicates the importance of human interaction beyond the confines of the SME, in the form of social networks, in the innovation process. These are themes we shall return to.

We adopt an analytical and conceptual comparative and interdisciplinary approach. We do this mainly by contrasting relevant features of the UK and German economic development experience, which provides a contrast in terms of productivity and competitiveness (and thus, by default, in their applied innovativeness). We consider comparative analytical case studies to highlight key differences between German and non-German (such as British) HRM aspects, in order to identify necessary conditions for companies to be innovative, competitive and successful. In the following section we start with a robustness check, namely by testing the hypothesis that German post-war success was a phenomenon not rooted in underlying long-term management structures or institutional features, but instead due to the apparently benign post-war economic and political environment, starting with the Marshall Plan and a fixed exchange rate system. We do so by examining the degree of German innovativeness in an often neglected time period – the years until 1945 – to establish that German innovativeness by both large and small firms is not a recent phenomenon. There has long been a German innovation and productivity puzzle in need of an explanation. Such an explanation is likely found in institutional design and HRM policies adopted far earlier than the post-war era.

We thus take a broader view and consider the contrasting institutional, theoretical and methodological approaches pursued in the UK and Germany over the past two hundred years. This indicates particular biases in both countries and sets the stage for our central argument, which is set out in the fourth section: We single out one particular design and incentive feature that we believe is central to explaining the German success story – *the principle of subsidiarity* –bundled as HRM configuration in combination with other principles, namely greater investment in training and staff development, as well as rank order/peer group competition. We consider the historical origin of the subsidiarity principle, which we trace to the Prussian army, and contrast it with UK army practice. As a robustness check of the significance of this principle of subsidiarity as incentive and design feature, in section five we also consider a contemporary international case study involving a different domain – public fiscal management – which confirms the thesis of the incentive effect of the subsidiarity principle in the present era.

In section six we compare our analytical findings with evidence in HRM and high performance SMEs. In general, there are few reasons why the insights pointed out by Wood (2000), Seeck and Diehl (2017), Guest (1997, 2011) and Paauwe and Boselie (2005) concerning the positive effect on innovation of "bundled" HRM practices as well as "high performance

and high-commitment work systems" (Boxall and Macky, 2009; Jimenez-Jimenez and Sanz-Valle, 2008) should not also apply to innovation at SMEs. SMEs are also able to enhance innovation through "practices that foster employee commitment, loyalty, learning and intrinsic motivation" (Seeck and Diehl, 2017). The application of the principle of subsidiarity is such a practice. This is confirmed in our review of recent empirical studies on Hidden Champions.

There remains a question concerning the handling of rank-order and peer group competition by SMEs, which is a complementary tool enhancing the subsidiarity principle. Given their smaller scale, it is argued that a key source of motivation, namely that deriving from competition among peer groups for ranking, which operate together with the hierarchy structure of subsidiarity and is expressed in rank-competition, can in small firms be utilised through peer competition external to the firm, which can work when small firms are located in geographical or other peer-competition clusters, via social networks facilitated thereby. We also hypothesise, as an area for further research, that a weakness in the HRM bundle may also be substituted for by support from another important contributing factor to the success of German SMEs over the past two centuries: the availability of finance from a local, decentralised banking system, allowing continuous upgrading of technology and thus maintaining high productivity.

A final section discusses our argument and concludes. We also point to relevant policy implications to foster innovative SMEs, especially in countries where there has been a problem with productivity, such as the UK.

2. Robustness check: German innovativeness in the years to 1945

Sometimes the view is voiced that post-war German economic success is overstated, as it benefitted from friendly post-war policies adopted by the United States, such as Marshall Plan aid, the post-war currency arrangements potentially undervaluing the German currency, US-led European unification and not to mention the post-war drive to rebuild Germany as an open free market democracy and construct Europe as a bulwark against communism.

However, these favourable conditions also applied to other European countries. Moreover, the majority of Marshall Plan aid (officially the European Recovery Program) went to the UK (receiving almost a quarter of all Marshall Plan disbursements), while Germany ranked behind the UK, France and Italy in terms of funds received (Marshall Plan, 2014). This "aid" consisted of loans that had to be repaid. Furthermore, in the years to 1945, German economic conditions were quite different, as the economy was aimed at near-autarky, while it was not characterised by free markets, but laden with government intervention, including the creation of various business cartels and regulations suppressing the payment of dividends to shareholders. Government interventions took the form of a conscious re-design of incentive structures. Following the argument that post-1945 Germany faced an unusually benign environment, its economic performance before 1945, especially concerning the issue at hand – innovation and competitiveness – should have been a disaster zone.

This was however not the case. Quite the opposite. In 1945, the US government engaged special large units of secret services agents, including the so-called T-Forces, under the Combined Intelligence Objectives Subcommittee (CIOS), in Field Information Agency, Technical (FIAT), operating for such organisations as the Technical Industrial Intelligence Committee (TIIC, later Branch, known as TIIB) and Operation Paperclip, with the specific aim to go to Germany in order to sequester patents, technology, equipment, laboratories and, indeed, entire research staff for use by the US military and to pass technology on as spoils of war to be exploited by US companies [3]. Their task, based on President Truman's Executive Orders 9,604 and 9,568, was to engage in large-scale theft of technical intellectual property,

which some observes frame as (forced impromptu, informal and in-kind) "reparation" payments. Secretary of Commerce Henry A. Wallace looked forward to the stimulation of US business by the "new methods, new products and new job opportunities" that were derived from "enemy data" (Gimbel, 1990, p. 25f). (The US IP-collectors arrived ahead of their Soviet counterparts, ensuring that the bulk of such technology would move to the USA).

The value of the planned public–private sector exploitation of German technology was described by Badley Dewey, President of the American Chemical Society and head of Dewey and Almy Chemical Company in Cambridge, MA, as follows:

> Research is always expensive. . . The results of research which has been carried out by someone else and proven workable are priceless. . . the boost to our economy and national defense of just one or two of the ideas that have been worked out in Germany will pay many times over the cost of the entire investigation (cited in Gimbel, 1990, p. 24f).

Sidney Kirkpatrick, editor of *Chemical and Metallurgical Engineering*, wrote in his journal in May 1945 about the pending influx of German knowhow and innovations: ". . .what we can obtain in the way of new science and technology, processes, patents, and know-how, can be used by the democracies in building a better and safer world" (p. 39) [4].

Although the US-side, based on the experience of frontline soldiers directly exposed to German military technology, expected to find a treasure trove of important technical innovations and inventions (hence the creation of the well-resourced operation to transfer this knowhow and its applications in the first place), even the technical specialists of the various US units were taken by surprise by the scale and enormity of innovation they found in Germany in 1945, prompting a US official to exclaim (in likely exaggeration) that in certain key industries Germany was "a hundred years ahead of us" (Georg, 2008, p. 330).

The transfer of technologies via documents, blueprints, patents, models, prototypes, factory installations and even several thousand living researchers and engineers was vast, estimated at 6,000 tons of documentation and over 3.5 million pages sequestered by TIIB. On 10 January 1947, Dr. Kilgores of TIIB wrote in a memorandum:

> This accumulation of information not only represents the greatest transfer of mass intelligence ever made from one country to another, but it also represents one of the most valuable acquisitions ever made by this country [5].

To manage this scale of advanced foreign-language technical material, Dr Kilgores proposed the creation of a new dictionary to properly translate the many new German technical concepts and terms into English. In the words of a recent researcher on the topic:

> The efforts to exploit German science and technology were an unprecedented, enormously complex attempt at mass technology transfer, in which the newfound importance of science in national security entangled diplomacy, science policy at home and in Germany, and industrial policy (O'Reagan, 2014, p. 9).

Given the size of the task, the classification and evaluation of the material was to take several decades. It has been suggested that many US inventions since 1945 have to be reassessed as to their true provenance. The sudden and puzzling surge in technological advances by US industry after 1945 may possibly have a simple explanation. In any case, the post-1945 boost to almost all US industries, including in civil aircraft, computing and telecommunications (areas largely forbidden for much of the post-war era to German firms), was a non-negligible factor in US post-war economic development.

The United States was not the only nation to invest significant resources in the exploitation and "transfer" of German science and technology after 1945. "The efforts by the United Kingdom following the Second World War to exploit German science and technology for the benefit of British industry were a key site of a shifting understanding of state-

sponsored technology transfer" (O'Reagan, 2014). There even seems to be an indication that the recognition of the superiority of German technology in 1945 and its exploitation by the occupiers provided some impetus for the development and introduction of industrial policy in post-war Britain, as the laissez-faire policy approach previously dominant had discouraged such initiatives, but had failed to deliver.

The scale and scope of the advances in innovation and technology implemented by German companies in the decades and years to 1945 were especially remarkable, as Germany during these years could hardly have been said to have followed the principles of laissez-faire free market economics, nor were its firms and researchers necessarily motivated solely by profit maximisation, as UK economists had been postulating. How could it be that German company employees were so innovative to develop such an array of superior technologies over a short time period within this German system? It may be noticed that this question is not very much different from the question posed in the introduction: How could Germany possess so many firms, and small firms at that, able to be innovative and competitive market leaders globally, well ahead of any other country? At the least it is beyond doubt that innovation and competitive edge of German companies and Hidden Champions is not a post-war phenomenon. Since a similar forced acquisition of German technology and patents took place – with the UK featuring more prominently – after 1918, there can be little doubt that high productivity and competitiveness of German companies is a long-term phenomenon. We thus briefly step back and consider relevant developments in the UK and Germany over the past two hundred years.

3. Comparative analysis of economic and policy methodology in Germany vs the UK

In the pursuit of an answer to the question of just why Germany has produced the world's largest number of SMEs that are market leaders in their respective market niches, and why in 1945 many of its companies were thought to be in possession of technologies many years ahead of competitors, we adopt a comparative approach, and in particular we choose to compare Germany and the UK, two European economies near to each other, with somewhat similar size and populations. Since institutions and societal structures, including those affecting incentives in labour markets and at companies, usually develop over many decades, in this section we first consider the historical development of relevant theoretical and methodological approaches to economic policy-making adopted in these countries, since this may influence the institutional setting and policies towards and within firms and SMEs.

Economic policy is based on the discipline of economics. This discipline developed differently in the UK and Germany, especially during the course of the nineteenth and the first half of the twentieth century. English-language economics was developed in Britain as "classical economics" in the nineteenth century, with the influential classical writer, David Ricardo, as leading proponent and financial sponsor of other key classical economists. From this developed neoclassical and new classical economics, which in its contemporary form is today's mainstream economics – not substantially different in its outlook, methodology and, most importantly, conclusions and policy recommendations, from nineteenth century classical economics. There has been significant continuity in economics in the UK, despite various disputes between different schools of thought, since UK economics has consistently been dominated by *equilibrium economics* (Lee and Werner, 2018).

In the nineteenth century, the *deductive* methodology (also known as the hypothetico-axiomatic approach) was introduced to economics in the UK. This methodology pursues research by postulating the primacy of theory, within which analysis and policy recommendations are pursued. This theoretical framework is based on fundamental axioms and a set of assumptions, which are not scientifically derived but asserted. Concerning human motivation, the axiom is postulated that individuals do not care about

others and cannot be influenced by others while they rationally seek to maximise solely their own utility. Next, it is assumed that there are complete markets, perfect information, perfect competition, perfectly flexible and instantaneously adjusting prices and no transaction costs. Assuming that all these conditions apply, economists then proceed to discuss the features of the resulting theoretical possibility that demand equals supply in all markets ("general equilibrium") [6]. No further thought is given to human motivation, since the orthodox economist assumes permanent optimal utilisation of all factors of production, including human labour. Both analysis and policy recommendations are based on the highly implausible scenario that all axioms and assumptions hold simultaneously. This deductive methodology has remained dominant in the UK (and since the second world war has become dominant world-wide) and has justified the use of equilibrium economics, which does not require government or other intervention. To the contrary, starting from a position of (theoretical) equilibrium, industrial policy or other intervention could only move the economy away from the already (assumed) optimal free market position.

This approach contrasts starkly with the research methodology adopted in the sciences, whereby first data and facts are collected, which are then, upon examination of their patterns and relationships, the basis for the formulation of hypotheses and theories, which in turn are empirically tested and refined. This scientific research methodology is known as the *inductive* method. English-language and especially post-war economics has been almost unique among the research disciplines in its refusal to adopt the scientific research method and instead adhere to the deductive method based on axioms and unrealistic assumptions (Mill, 1843).

Scholarship in the history of economic thought is largely in agreement that this deductive methodology was introduced in the nineteenth century by David Ricardo, who was a retired London banker and the "wealthiest economist in history" (Skousen, 2001):

> Ricardo literally invented the technique of economics (Blaug, 1978, p. 140).
>
> Ricardo conquered England as completely as the Holy Inquisition conquered Spain (Keynes, 1936, p. 32).
>
> That able but wrong-headed man, David Ricardo, shunted the car of economic science onto a line, however, on which it was further urged towards confusion by his equally able and wrongheaded admirer, John Stuart Mill (William Stanley Jevons, 1871, p. lxxii)
>
> The origin of the misapprehension upon which the whole of economic theory is based must be traced to David Ricardo (Mayo, 1945, p. 39).

Skousen (2001) calls "the excessive use of abstract model building or the use of false and misleading assumptions to 'prove' the results one desires" (p. 92f) the "Ricardian vice", since Ricardo made "all kinds of limiting and dubious assumptions in order to get the results he was looking for" (p. 93). By relying on artificial and unproven axioms and assumptions, the deductive methodology is rendered uniquely prone to manipulation concerning its conclusions and policy recommendations (Werner, 2005). The classical approach to economics was also characterised by its static nature: Having been developed when the United Kingdom was the number one economic and military power in the world, it was not concerned with growth and development, but instead focused on the efficient distribution of existing resources.

It is one thing to introduce an unusual and counter-intuitive research methodology in English-language economics. It is another to see it widely adopted. Ricardo had the financial means to make his approach influential. He became a friend and financial sponsor of other noted classical economists, including Malthus, Jeremy Bentham, James Mill and his son John Stuart Mill. The Ricardian vice became the methodological foundation of English-language economics.

During most of the post-war era, the orthodox economics profession has maintained the canonical view based on the unchanged new classical model that economic policy should

focus on ensuring free markets and minimising any kind of intervention – since the theoretical dream world assumed by the economists could not fathom any policies that would improve an already assumed optimal state. Instead, policy should emphasise deregulation, liberalisation and privatisation and opening up to free trade and foreign investment, to allow markets to remain at or move as closely as possible to the (theoretical) optimal state. Institutions and history did not matter. Little thought was given to the importance of particular management policies or HRM insights and how they might affect the performance of institutions, explaining why HRM is a relatively young discipline in the English language.

At the same time, during the Cold War the view was firmly maintained among Western decision-makers that only a democratic environment, combined with free markets, could be successful. Especially innovation, requiring sufficient human motivation and inspiration, could surely be expected to thrive only under free and democratic political conditions. Only the prospect of unfettered gains for shareholders could stimulate entrepreneurs to produce innovation, it was maintained. The weak performance of the Soviet Union was cited in support of this claim. This view reached its pinnacle with the fall of the Soviet Union. Some observers were prompted to even argue that the superiority of the free market democracies had been so well established that the "end of history" had arrived (Fukuyama, 1992).

This theoretical approach can be said to have largely dominated government policy in the UK, resulting in few and limited episodes of active industrial policy to enhance economic growth and competitiveness of industry, and with limited support for SMEs and measures to ensure innovation and productivity among them. Such thinking has also dominated policy vis-à-vis developing countries [7].

By contrast, German economic thought, and consequently also the views concerning policy intervention and the need for conscious HRM policies, developed quite differently. In the nineteenth century Germany lagged behind in economic performance and its thinkers were keenly interested in the question of how growth and performance could be enhanced. Friedrich List (1841) published a careful empirical analysis of the key features of high performance economies in the prior millennium. It was a resounding refutation of the idea that free trade and free markets would deliver economic performance and that government intervention could only be counter-productive. He argued that all successful nations had engaged in conscious industrial and trade policy, including, in particular, England itself. He observed the economic development of the fast growing USA and the kingdom of Prussia, which benefited from growth-oriented government intervention. Many German economists followed in his footsteps, equally convinced of the need to apply the scientific research methodology also in the field of economics. Thus the predominant methodology in economics in Germany was the inductive method. This methodology starts by examining the data, and all data is by definition an artefact of history. Therefore, the German approach to economics came to be known as the "Historical School". Since no illusionary optimal world was assumed, in fact almost no assumptions were made, German economists did not expect equilibrium or the permanent superiority of market outcomes. Instead, research programmes focused on the identification of the kind of clever government and management policies that would deliver the desired macroeconomic or firm-level results.

Thanks to the dominance of the inductive, scientific research methodology in Germany, HRM was born and actively pursued by the late nineteenth century in Germany (even though not under this label). Already Prussian King Frederick William I. in 1727 established the first university chairs in "economics and cameral science", in Halle and Frankfurt (on the Oder), in practice what could be considered the first economics and business management chairs at a university. They were tasked to adopt an empirical and practical approach, and stay away from a legalistic approach pursued by jurisprudence (let alone a hypothetical axiomatic approach). The first human resource management rules were introduced in Prussia in 1839, regulating age limits and working hours for youth. Until the First World War, HRM was

largely confined to the principles the Prussian army had developed under what would be labelled *Menschenführung* ("leading people", Fiedler, 1982) and as staff with military background subsequently working in private employment would implement in business. Researchers and practitioners would consider incentive structures and the kind of institutional design that would allow firms to deliver high performance. This non-military application of HRM is documented in the years after the first world war [8].

The underlying research methodology adopted in Germany since at least the nineteenth century in the social sciences, including in economics, management and organisational research, was more conducive to active intervention and conscious institutional design in order to achieve innovation and high performance. We believe it is this methodological divergence between the UK and Germany, having chosen different fundamental approaches (deductive vs inductive) that set the stage for the divergence in subsequent decades of the performance of their firms and economies.

An early post-war empirical discovery in English-language economics should have served as a warning that the deductive methodology – today still dominant in English-language economics– was not very productive: It was found that between 80% and 90% of economic growth was not due to land, labour or capital, as static mainstream economics had argued, but technology (Abramowitz, 1956; Solow, 1957). For many years this fact and its implications were ignored by English-language economics. It was only in the early 1990s that macroeconomics began to acknowledge the need for a theory of economic growth (sometimes called "endogenous growth theory", while the earlier growth narratives are now retrospectively and euphemistically called "exogenous growth theory", i.e. a theory of growth that does not explain growth). This meant that the development of technology and innovation had to be explained. As a result, some economists conceded that some form of government intervention, at the very least in the form of patent laws and investments in education, were needed for economic growth (Romer, 1991; Lucas, 1988). However, such insights have not had a discernible effect on policy advice and the mainstream research agenda in economics, as the continued dominance of the deductive research methodology operates to "immunise" mainstream economics from empirical evidence.

4. Fundamental driver of high performance: institutional design that maximises motivation

Strategic HRM can be said to be about the design of appropriate incentive structures that ensure the delivery of the overall desired result for the organisation. No matter the type of organisation and the specific goal, performance is enhanced if the people in the structure and exposed to its design and incentive configurations are highly motivated to strive for that common goal, and do so using all their capacity – of which, in the pursuit of performance, innovation is one of the most important components.

The HRM literature has identified high performance HR practices (as opposed to traditional HR practices) if (1) it is ensured that "skilled and motivated employees are directly involved in determining what work is performed and how this work gets accomplished; (2) employee skills are enhanced via training and hiring; (3) motivation is enhanced by merit-based promotion or pay and by preventing arbitrary treatment (MacDuffie, 1995; Huselid, 1995; Delaney and Huselid, 1996; Ichniowsky *et al.*, 1997; Bae *et al.*, 2003, as summarised by Visser, 2010).

Among the oldest human institutional forms requiring workable HRM solutions and on which relatively detailed historical records exist over long time periods are (1) the army, (2) the Church (i.e. Church organisations, such as the Vatican, bishoprics and abbeys/monasteries) and (3) public fiscal administrations. In this contribution the reader is invited to

consider the first case. Subsequently we shall visit a recent example from the third case as robustness check.

Visser (2010) was one of the first within the recent HRM literature to attempt to identify explicitly the HRM principles that can be derived from comparative army performance in battlefield conditions. Comparing and contrasting German and US army organisation and HR practice during the second world war, Visser used Dupuy's (1985, 1986) battlefield evaluation from the Italian war theatre to identify the higher performance HRM configuration.

Visser reported that the first and foremost feature used by the German army is that of decentralisation, whereby individual initiative, independent thinking and local responsibility were encouraged at all levels of command. Secondly, the German army focused on combat effectiveness, not administrative efficiency, hence the principle to minimise bureaucratic burdens of officers in the field (ten-day reports of a brief and high-level nature, rather than detailed daily reports). Other principles were to keep units as regionally homogenous as possible (the regional principle); the use of the General Staff with officers rotating continuously between staff and field command positions, ensuring good information flow. The General Staff produced post-action reports based on frank and often critical reports from lower ranks, whereby criticism would never result in punishment of any form (thus requiring a high degree of trust). There was an important emphasis on training and selection in a way that enhanced cohesion and morale, rather than organisational efficiency.

While in the German Army decentralisation and local autonomy were dominant features, the US army used centralisation, managerialism and top-down decision-making including detailed orders and focused more on administrative efficiency, rather than combat effectiveness.

Visser (2010) concludes that, based on the quantitative evaluation by Dupuy (1985, 1986), "The differences in HR configurations between both armies could be reasonably related to battlefield performance, with the German Army rather consistently outperforming the US Army, even in spite of its final defeat" (p. 347).

While some researchers argue that parts of the HR configurations only found their way into German business practice and HRM in the post-1945 period (including Visser, 2010), we argue that this transfer into business HRM already happened much earlier, likely in the nineteenth century and was further accelerated during and in the aftermath of the first world war. For what Visser (2010) described for the German Army in the second world war has its historical roots in the Prussian army over a century earlier: The institutional design of the German army was based on the structure of the Prussian army (upon which subsequently the Prussian civil bureaucracy, as well as the administration and HRM of Prussian and later many German companies would come to be based). Prussia was a relatively new power and its rulers had been experimenting with institutional design for decades, in their goal to enhance overall performance for their country on many levels. One of the most important institutions of Prussia was its army. Its principle and organisation were modified and changed in light of empirical evidence on its performance. In 1812, a new principle was formalised and promulgated in the Prussian army regulations, as it had performed well in battlefield practice: *The principle of subsidiarity* (Kingdom of Prussia, 1812). It is this principle that, without identifying it, Visser and others observed in their descriptions of the observed high degree of decentralisation and local decision-making in the later German army.

The principle of subsidiarity has important implications for institutional design, motivation and performance: The officer in the field was given a task in the pursuit of the overall common objective, but was also given as much autonomy as possible to decide how to accomplish that task. The reason is that only the officer in the field is aware of the actual circumstances that strategists cannot predict in every detail.

When a number of German states unified under Prussian leadership in 1871 to form Imperial Germany, the principle of subsidiarity was introduced into the German army. In the

seminal study by Samuels (1995), on first world war experience, subsidiarity is identified as the crucial difference in the philosophies of combat in the British and German armies, whereby the British army leadership at the time prior to and during the first world war considered combat to be structured, so that it was imperative to maintain order. This had the advantage that less training of individual soldiers and officers was needed. By contrast, the Prussian and later German army operated on the premise that "the infinite variety of combat made chaos inevitable and unavoidable" (p. 283), requiring a different HRM philosophy, which enabled successful combat despite the 'fog of war' and in chaotic circumstances. This resulted in the German system of "directive command" ("*Auftragstaktik*", as opposed to detailed orders – "*Befehlstaktik*" or "operational command") focusing on overarching goals, while giving operational flexibility to the local unit, versus the British system of restrictive control via operational command.

> Directive command is a command system in which decision-making is decentralised. Commanders at every level are assigned general tasks, allocated resources and then allowed to complete their tasks by means of their own initiative, within the context of the whole. Key characteristics are flexibility, independence and initiative. Restrictive control is based upon the centralisation of decision-making. Commanders are assigned detailed missions, which they must carry out exactly as prescribed. Key characteristics are rigidity, conformity and reliance on exact orders (Samuels, 1995, p. 5).

As Davis (2005) put it in his description of the Prussian army:

> The commander of an army was required, if possible, to show the ground to be fought over to his divisional commanders and to explain his general intent. Details of exactly what each division was to do were to be left to its commander. The rationale being that the commander of a large force could not control all the detailed actions of his subordinate units. . . . Thus the basic principle of decentralised command had become firmly established in the Prussian Army by the middle of the nineteenth century (p. 85).

Under Moltke's tenure as chief of the General Staff (1857-1888) this principle of "directive command" was developed into a full-blown theory that became noted official doctrine:

> Moltke believed that commanders should be given the freedom to fight their own battles guided by general directives rather than detailed orders and as such he played a decisive role in the development of directive command (p. 86).

In the words of Major General Moltke:

> The situations under which an officer has to act on the basis of his own view are diverse. It would be wrong if he had to wait for orders at times when no orders can be given. But his actions are productive, when he acts within the framework of his senior commander's intent [9].

> It is absolutely necessary that subordinate headquarters recognise the object of what has been ordered. This enables them to strive for that object even if conditions make it necessary to act differently from what has been ordered [10].

While commanders had considerable freedom of action, the institution of the General Staff was designed to place limits and ensure conformity with the overall goals. It also helped immunise the institution against the dangers of senior appointments not based on merit, while giving the Chief of the General Staff considerable power to intervene and limit damage from incompetent generals.

Since the German army considered warfare to be characterised by uncertainty, even chaos (hence requiring flexibility on the ground and decentralised decision-making), the corollary was also that a far higher level of training of commanders and troops was required and planned for. As long as this is ensured – as was the case in the Prussian and German armies – a high degree of adaptability, flexibility and improvisation is possible, which fuels innovation and high

performance. The positive side effect of the greater emphasis on education is that this further improves motivation and job satisfaction, as recent research in psychology confirms.

The advantages of an HRM configuration based on the principle of subsidiarity include:

(1) The local decision maker at the "front" is most acutely aware of the actual situation and can use this information advantage only if given sufficient autonomy is granted to react flexibly, as circumstances and fleeting opportunities require, in the pursuit of the overall goal.

(2) Subsidiarity is better aligned to human nature: by granting greater local decision-making power, a larger number of members of the hierarchy feel incentivised to deliver maximum performance, as the devolution of power into their hands has proven to significantly enhance motivation. In other words, both motivation and consequently performance of the agent can be improved if the principal allows the agent to "own" the process and decision-making, in order to achieve an agreed common goal. This is a fundamental principle of successful institutional design (Werner, 1993, 2003a). The contrary situation, whereby local decision-makers are being micro-managed and given instructions that may have become obsolete or inappropriate, results in frustration and de-motivates. Further, it is known in social psychology that greater leeway to make independent decisions results in higher motivation, better satisfaction, as well as greater personal well-being of the actors involved (Rosen and D'Andrade, 1959; Dickinson, 1995). Specifically, in their review of research in psychology, Deci and Ryan (2008) report that "Considerable research has found interpersonal contexts that facilitate satisfaction of the basic psychological needs for competence, autonomy, and relatedness to enhance autonomous motivation." In turn, "autonomous motivation predicts persistence and adherence and is advantageous for effective performance, especially on complex or heuristic tasks that involve deep information processing or creativity. Autonomous motivation is also reliably related to psychological health" (p. 14) [11].

(3) The combination of the above two factors, together with the needed investment in education and training results in both improved short-term efficiency as well as long-term improvements due to greater quantity and quality of re-investments in the enhancement of the process in the pursuit of achieving the overall goal. In this context, the findings of Kyndt *et al.* (2012) are significant, who identified a positive relationship both with motivation and a positive attitude towards learning, while choice independence was also positively related to a deep approach to learning.

Moltke himself headed the academy that trained future military leaders and the General Staff served as a kind of internal consulting and strategic planning unit that had significant power to rein in generals should their decisions be found to be sub-optimal. At the same time the hierarchy of the army created a rank-order competition among peers that, like the Prussian bureaucracy, attempted to favour merit and ability, not connections and informal influence as key principle for promotions. Such rank-competition among peer groups motivates the individual to perform to their best ability (Werner, 1993). Further, the organisation would suffer less from capture by groups of incompetent but well connected, colluding and scheming insiders – a situation common in many organisations and expensive in terms of damage to motivation, morale and performance.

By contrast, the contemporary British army officers and men faced a different HRM configuration: They were given orders not only about the task or goal at hand but also about how to implement it, with limited reliance on improvisation. At the same time, there was not much emphasis on training and skills of lower ranked officers or soldiers. This often proved counter-productive when circumstances had changed and it turned out that the central military

planners had failed to foresee a number of important factors or changes in the environment. Further, networks of insiders, whether related to school or family or money, would dominate the process of promotion. While attempts were made during the first world war to adopt the Prussian model (and formally a Prussian-style General Staff was introduced), it took until the late 1980s for the Prussian command doctrine to be introduced – 180 years later–under the name "Mission Command" (Davis, 2005). The comparative performance of the armies in the two world wars is well documented (Dupuy, 1977, 1984; Samuels, 1995) [12].

The principle of *subsidiarity* was so successful that it was quickly adopted in civilian organisations. Prussian king Frederick William III introduced it in the public sector administration. This was visible in the significant status and autonomy of the bureaucracy serving the country with the explicit goal to work towards the common good:

> The king, who appears to be the top functionary, invariably selects his aides from the intellectual elite of the nation, recognised as such by means of truly or allegedly rigorous examinations. He allows them great independence, acknowledges thereby their co-rulership and, consequently, sanctions a sort of aristocracy of experts who purport to be the true representatives of the general interest [13].

In addition to being a guiding principle of the state bureaucracy, it was also introduced by many of the newly founded companies that emerged in the founding boom years after 1871 and employed retired Prussian military.

The principle of subsidiarity is superior from an information perspective, as well as in terms of motivation: It is more practical and more likely to deliver good performance. A tactical system that utilises decentralised decision-making, motivates and encourages local initiative, is able to respond more effectively to any challenge in order to achieve the overarching common goal. In the words of General von Freytag-Loringhoven:

> A mind that adheres rigidly and unalterably to original plans will never succeed in war, for success goes only to the flexible mind which can conform at the proper moment to a changing situation (Samuels, 1995, p. 5).

The design principle of subsidiarity can also be described with the notion of decentralisation of decision-making structures, such as recognised in the discipline of political economy (Hutchcroft, 2001, who also considers the limits of decentralisation). There is widespread agreement that central planning, as practiced by the Soviet Union and China before the arrival of Deng Xiao Ping, was not very effective, ultimately resulting in the collapse of the Soviet Union. Greater decentralisation of decision-making power, as introduced earlier in Hungary and since ca. 1978 in China under Deng Xiao Ping, including, importantly, in the banking sector, has improved economic performance significantly (Werner, 2018). Thus it can be stated that the principle of subsidiarity delivers higher performance than a more centralised and/or controlled structure.

How does the principle of subsidiarity correlate with the empirical findings on the sources of success of German Hidden Champions? Rammer and Spielkamp (2015) argue that key principles of these high performance and innovative SMEs are the flexibility and speed with which new opportunities are being seized – something only possible with decentralised decision-making and small hierarchies; the speed of first delivery of new products and processes to the market; being willing and keen to constantly re-define and re-configure resources in a dynamic environment, deploying expertise in order to gain competitive advantages. Lehmann *et al.* (2019) point to human capital being a key factor, as well as the degree of decentralisation of decision-making. Venohr and Meyer (2007) identify an autonomous decision-making process in an independent firm as a key factor, allowing firms to react quickly and flexibly to seize opportunities – something that is far more difficult for centrally organised and large firms. Kaudela-Baum *et al.* (2014) identified

the leeway given to staff and the high degree of flexibility as source of innovative success of Hidden Champions – the opposite of a large bureaucratic organisation. Their qualitative study focuses on incentives to increase motivation, and points to flexible working hours, a high degree of autonomous decision-making and freedom to tackle tasks independently and as staff choose to do themselves. They find Hidden Champions give staff the leeway to show their own initiative and self-responsibility and openness to innovation and new ideas – something easier to achieve in decentralised structures. In the HRM literature Beattie (2018), focusing on SMEs in general, also identifies decentralised decision-making as a key performance factor. Rammer and Spielkamp (2019) point out that, among other factors already mentioned, such as flexibility and fast response to changing circumstances, Hidden Champions "are aware that the qualification, training and motivation of employees are necessary preconditions for the accumulation of technological knowledge and the performance on the market" (p. 70). They report that among indicators on managerial and organisational processes, the indicator in which Hidden Champions scored most significantly higher than control SMEs was "strong individual responsibility of employees", followed by "development of new technical solutions", "creativity of employees" and "scope for development via trial and error". In terms of resource deployment, Hidden Champions scored, among other indicators, significantly higher than control SMEs in terms of training expenditure per employee. They conclude their quantitative study by stating that a key ingredient of the success of Hidden Champions is the "HR management practices that mobilise the creative potential of their employees" (p. 64). Given such an overwhelming coincidence of empirical research on the ingredients of success of Hidden Champions on this point, we believe we have identified the central concept involved in enabling these results: subsidiarity.

5. Robustness check: application of subsidiarity in development policies

Can subsidiarity be implemented successfully in different contexts? If this principle concerns humans and their motivation within organisations in general, it should be transferable to all kinds of environments involving humans and needing to motivate them to strive towards a common goal. It was already successfully transferred from the Prussian army to design government bureaucracies and HRM design in many companies in Germany and other countries. But since this happened mostly a century ago, a more recent robustness check of the role of subsidiarity is called for. As mentioned, organisational designs with a long history of gathering experience with HRM include the army, the Church and public finance. Here we consider a recent case study of the introduction of the principle of subsidiarity in the context of public finance and the disbursal of international aid to developing countries [14].

In the past, much of the international development aid was provided on the basis of particular projects that then required close monitoring and performance evaluation, often resulting in a large and not rarely duplicated effort to monitor and assess performance by teams from many donor countries or organisations. This traditional approach to the disbursal of development aid can be called "project-based aid" (PBA).

After several decades of lacklustre success, doubts increased about the effectiveness of the traditional, project-based or "tied aid" approach by countries and international organisations, especially since tied aid had come to be criticised as a way to benefit the donor country by ensuring the money was spent on goods and services delivered by its own national champions (Svensson, 2001; Baffour, 1999; Aryeetey *et al.*, 2003) [15].

In 1999, reflecting the general sense of dissatisfaction with the traditional approach to delivering development aid, the World Bank launched the "Comprehensive Development Framework" (CDF). This was aimed at increasing the effectiveness of aid and the process of disbursal and ensuring suitable accountability of receiver countries for the use of the aid

money. To achieve these, a number of fundamental changes in the process of aid disbursal were considered necessary (for a critical view on the CDF, see Blake, 2000).

The first step was recognition that coordination among donor countries and institutions would reduce the costs of aid disbursal and hence allow more funds to reach receiver countries. Thus the CDF aimed at bringing all partners of a receiver country together to deliberate together with the receiver country how to support its development agenda, dubbed the "Consultative Group". The idea was to replace various, even overlapping, project-tied sources of aid, simplify and streamline the aid process.

In order to coordinate this major initiative, several high level multi-lateral international meetings from representatives of both the funder group (the donor countries and institutions), and the fund recipients, were held, initially in Rome in 2003.

Twelve countries were selected to participate in the pilot stage, which had been decided at Consultative Group gatherings in Paris in 2005, culminating in the Paris Declaration on Aid Effectiveness, recognised by more than 100 countries and donor organisations, and "an ambitious plan to reform the system of aid delivery" (OECD, 2006, p. 4). The Paris Declaration was based on five tenets aiming at allowing aid to better serve development, namely:

(1) Ownership: Developing countries exercise leadership over their development policies and plans.

(2) Alignment: Donors base their support on receiver countries' development strategies and systems.

(3) Harmonisation: Donors co-ordinate their activities and minimise the cost of delivering aid.

(4) Result-orientation: Developing countries and donors orient their activities towards achieving the desired results.

(5) Accountability: Donors and receiver countries are accountable to each other for progress in managing aid better and in achieving development results.

A key idea in this process is that the receiver country should elicit stronger commitment to development and reform if it can have a greater sense of "ownership" (a term often used by OECD and World Bank staff to describe this change in approach).

Already the Rome meeting confirmed that the methodology and institutional design behind the aid disbursal and monitoring would be changed fundamentally, in order to deliver accountability and performance. Tied aid was dropped and it was agreed that aid, loans and grants, including most categories of financial and project support, for instance for sector assistance, capital equipment or import support, would be opened to international competitive bidding.

With the aim to improve the efficiency of performance evaluation and fiscal accountability, an alternative governance approach was adopted, which has since become prevalent among European and North American donors: In order to achieve the aims of enhancing efficiency and ensuring accountability, an approach was sought that would more fundamentally engage donor and receiver countries, but not in a domineering relationship that enhances dependency (a problematic issue well recognised in the development economics literature), but by facilitating a sense of "ownership" of the whole aid and spending programmes by the receiver countries. This was done by shifting aid to "direct budgetary support", also known as "multi-donor budgetary support" (MDBS): Instead of tying aid to particular projects and spending on particular goods and services, aid was going to be "tied" to achieving the ultimate development objectives and the joint engagement in achieving efficient public financial management (PFM) and improved public sector governance, which took the form of technical assistance.

Methodologically this innovative change in the approach to aid disbursal can be identified as a re-design in the incentive structure provided to receiver countries, so that several goals could be achieved at the same time:

(1) A simplification of, hence increase in the efficiency and reduction in cost of the aid disbursal process and the monitoring and audit framework delivering accountability for the resource use.

(2) An increase in the local autonomy and independence of the receiver countries, while not compromising the above goals.

(3) An improvement in the general quality of PFM institutions in aid receiver countries, their accountability and their effectiveness.

The solution to the institutional design problem was to take the radical step of abandoning project-based aid (PBA) and adopting the opposite design based on the principle of subsidiarity. The literature has not identified it by its name, but found empirical support for the effectiveness of devolved public funds. Faguet and Wietzke (2006) examined the question of optimal institutional design in the case of social funds provision and found in favour of decentralised models. Pöschl and Weingast (2015) analyse the implications of decentralisation for the design of fiscal systems. Moore (2007) found that the motivation to collect taxes can incentivise local officials to promote growth and respond to residents' needs. Overall there is a significant literature on decentralisation and fiscal federalism that discusses how fiscal systems should be designed to ensure improved resource allocation, greater efficiency and increased accountability.

Applying this institutional design principle of subsidiarity to the aid dispersal process, it had been noted in the literature that intrusive monitoring by many inspectors from donor countries on an individual project-basis is prone to cause resentment among receiver countries, as it conjures memories of what is often a dark colonial history (Sabaratnam, 2017; Langan, 2018). For receiver countries the issue of sovereignty has thus been of fundamental importance and must rank analogously to the sense of autonomy in individual motivation in HRM systems.

The new formula meant that instead of intrusive inspections of progress with individual projects by teams from many countries, the sovereignty of receiver countries was recognised explicitly and an incentive structure was fashioned that would give the receiver countries greater responsibility in managing their own affairs, in return for adhering to agreed principles of good public financial management practice.

A fundamental change in aid disbursal governance thus occurred, which switched from project-based disbursal and monitoring mechanisms, which involved greater micro-management, more resources, while potentially also causing resentment in the receiver countries, to so-called budget based support, namely disbursal to the general budget of the recipient country's fiscal administration, giving the receiver countries the responsibility and political authority to disburse the funds as had been agreed. In order to achieve the declared goals of the aid donor countries, which include avoiding waste of aid funds to inefficient or undesirable use, instead the receiver countries were asked to implement reforms that would in any case be in their interest, namely a robust public financial management structure that ensured effectiveness of the fiscal administration and a certain level of accountability.

In the process of requiring aid receivers to implement a specific programme for public financial management, an increasingly elaborate and comprehensive set of public financial management performance indicators was now needed in order to increase transparency and accountability by conducting and publicising regular performance evaluations of the public financial management system. This was in recognition of the principle, noted above, that a

decentralised structure (whether in the army or in public fiscal management) requires a higher level of training of everyone involved. The concrete result of the adoption of the budget support approach in aid disbursal and the concomitant increased recognition of the importance of public financial management of developing countries was thus the provision of technical assistance to improve training and capacity in public financial management, as well as the creation of the so-called Public Expenditure and Financial Accountability (PEFA) programme in 2001, initially by seven countries and international organisations involved in supporting developing countries, namely the IMF, the World Bank, the European Commission and the governments of France, Norway, Switzerland and the United Kingdom (still the partners managing the steering committee and being funders; the Slovak Republic joined this group in 2019). A PEFA secretariat was established in Washington, D.C. and in Brussels in 2001, and performance evaluation tools were developed to assess the PFM systems, which were first published in 2003. According to the PEFA secretariat,

> PEFA began as a means to harmonise assessment of PFM across the partner organisation. It was created to establish a standard methodology and reference tool for PFM diagnostic assessments. PEFA was also expected to provide a basis for dialogue on PFM reform strategies and priorities as well as a pool of information that could contribute more broadly to research and analysis of PFM. Since 2001 PEFA has become the acknowledged standard for PFM assessments (PEFA, 2016).

The PEFA programme is "a framework for assessing and reporting on the strengths and weaknesses of public financial management (PFM) using quantitative indicators to measure performance" (PEFA, 2016, p. 1). So the ultimate goal is to help governments improve PFM practices. The nature of this framework is to provide, in regular, multi-year intervals, snapshot PFM performance measurement, but using "a methodology that can be replicated in successive assessments" PEFA (2016) and thus allowing observation of the performance over time.

Mear and Werner (2020) report tentative evidence that the decentralised aid disbursal via budget support and the simultaneous investment in education, training and raising the human resource capacity of developing countries' public fiscal management, as measured by the PEFA evaluation framework, is bearing fruit. This suggests that subsidiarity as a design feature of an incentive structure is likely robust to differing time periods, countries and settings.

6. Implications for HRM and innovation at SMEs

In terms of scale, environment, competition, command and control and HRM, military organisations as well as public fiscal management are vastly different from each other as well as SMEs. The recent case of deploying the principle of subsidiarity in the disbursal of aid and investing in upgrading the human resources, systems and capacity in public financial management demonstrates the versatility of this principle. Good institutional and organisational design shapes incentive structures such that a desired outcome is achieved. In this paper, the principle of subsidiarity has been emphasised as a key feature of successful institutional and organisational design that such different organisations as the military, public fiscal management and companies share in common.

Innovation is an unsettling process, highlighted in Schumpeter's concept of "creative destruction" and in line with the "philosophy of chaos" adopted by the Prussian army for an effective HRM strategy that was based on an institutional design which would encourage individual decision-making and autonomy, and in return emphasise training and education.

The central insight of subsidiarity and the decentralisation and local autonomy it entails can be implemented in HRM of all sorts of organisations, including small firms. Line managers can be made aware of this principle and encouraged to give as much decision-

making power to their sub-ordinates as possible, while ensuring that their staff are well aware of the overall goals and receive sufficient training and development opportunities. This also requires a management style that gives opportunities to staff to regularly contribute their ideas, insights and suggestions.

As cited above, the empirical evidence by researchers on Hidden Champions has shown that they do indeed implement the principle of subsidiarity. Many SME owners are even explicitly aware of this concept, even the term originating in the Prussian Army ("Auftragstaktik"). This can be seen in an interview by Mr Moritz von Soden, owner and CEO of a globally successful specialised manufacturing SME (Bornemann Gewindetechnik producing thread components), who had hosted a cohort of business school students at his firm whose project was to advise the firm on how to improve its performance. He reports that he chose to give full access to the students, but give them no specific instructions, in order to allow their creativity to flourish. And in justification he cites the concept "Auftragstaktik" (Priddy, 2020).

HRM research agrees that policies often work as parts of a bundle. Subsidiarity works hand in hand with the need to continually train and develop staff. However, there may be another tool that is required for subsidiarity to deliver best results: Research on high performance economic systems has shown that rank-order competitions among peers for promotion based on merit operate as important motivational HRM configuration (Werner, 1993, 2003a, b). Such rank competition among peer groups is a general motivational device used by both centralised and decentralised hierarchies and organisations. While traditional economics assumes solely materialistic motives, i.e. maximisation of "utility" or pay, and that individuals are not influenced by others nor care for others, empirical observation suggests that humans are, to the contrary, easily influenced by others (the billions of dollars in advertising spending every year appear to be proof), but also care about their own position in the ranking of their various social groups. Empirical (inductive) experimental economics has shown that rank matters and there is a desire to rise in rank, in order to receive recognition (e.g. Fehr and Gächter, 2000). Thus arranging peer competitions is an effective way of enhancing motivation, including in terms of abstract ideas and innovations. Studies in psychology have found this to be highly effective and it is widely used in English primary and secondary schools when groups of pupils are made to compete against each other in various types of groupings, including for "house points" (e.g. Ryan, 1985).

This raises some problems for small firms. While there should be an emphasis on making promotion dependant on merit, not on connections, this can often be difficult in family-owned firms, especially when family members are part of the staff. Another challenge is that large companies can create various types of internal competitions, especially between different departments or groups. Innovation-oriented technical staff could be arranged in parallel groups and the groups made to compete with each other. Small firms may not have sufficient scale to implement this. So not only is it harder for SMEs to enjoy the benefits from scale which are often involved in fundamental research, but it is more difficult to arrange for peer group competitions, competing for rank in a small organisation.

There is an alternative mechanism for small firms to achieve motivational benefits from rank order competitions of peer groups. It may solve another research puzzle in economics, economic geography and related disciplines concerning the observation that in many countries certain industries are located together in geographical clusters (Porter, 1998a, 1998b). It has been recognised that such clustering allows firms to share intermediate inputs, share a pool of suitable qualified labour, gain from knowledge spill-over due to social interaction of staff with those from other firms in the local area and thus provide a joint labour supply. Thus SMEs may benefit by locating themselves in areas where there are other SMEs operating in the same industry – direct competitors, especially when it comes to innovation-based firms, as seen with Silicon Valley. This is in line with the findings of Shaw (1998) on the importance of social networks for SME staff.

Yet, there is no clear evidence that German Hidden Champions tend to cluster. This may be explained by the many trade fairs that are common in Germany and that may act as a substitute for a lack of local industry clusters in the vicinity of the various small firms. However, there may be alternative or additional explanations and further research is needed. We suggest that other necessary conditions for high performance of SMEs may need to be identified, which may act as substitutes within an HRM configuration bundle. SMEs face many obstacles to innovation, including high fixed costs of conducting R&D and limited access to external financing. A fundamental factor of corporate success that is more important for small firms than for large firms is finance: There is a large literature on small firms being credit-rationed, due to their small scale and higher risk premia, especially in concentrated banking systems dominated by a small number of very large banks, which are not interested in lending to SMEs (Mkhaiber and Werner, 2020).

How do Germany's Hidden Champions deal with this problem? We find that the principle of subsidiarity once again appears, this time in the form of the design of the German banking sector. For the past two hundred years, the German banking sector has been dominated by thousands (recently hundreds) of small local banks that operate independently and only lend locally, mainly to SMEs. While large national banks exist, they account for only less than 15% of bank deposits (compared to ca. 90% in the UK). Instead, local community banks (either of the co-operative or local savings bank type) account for ca. 70% of deposits, 80% of the number of banks and well over 90% of SME lending. Since they are absent from the UK, the dearth of Hidden Champions in the UK may be explained (Werner, 2013a, b). Further, German SMEs may be able to substitute for other weaknesses by having access to this local funding. The many small banks in Germany are the strongest financial supporters of SMEs and have enabled these small, often family-owned firms, to become global champions, contributing significantly to Germany's world-record sized exports.

Successful SMEs need to constantly innovate and upgrade technology. Such practices are costly. Schumpeter (1912) argued, the entrepreneur can and will only be able to play his/her central role in capitalism that Schumpeter has identified, if he/she is supported by the banker who provides bank loans to implement the upgrading to the new technology or funds whatever innovation the entrepreneur has produced. Thus the design feature of subsidiarity, this time in the guise of a decentralised banking system, may once again be an important explanation for the unusually large number of Hidden Champions. This also allows for local, decentralised decision-making, money creation and accountability, important features of the German post-war social market economy.

7. Discussion and conclusion

This paper focuses on HRM in highly successful, globally active SMEs, known as "Hidden Champions". In doing so we contribute to the research on the link between HRM and innovation [16]. The research question is how German SMEs could have been so highly competitive and innovative in general, over a long time period, and in particular why Germany has managed to nurture such an unusually large number of Hidden Champions compared to any other country in the world. We are particularly interested in the role of institutional and incentive structure design in high performance systems – how staff can be motivated to innovate.

To dispel the idea that the German phenomenon of Hidden Champions may be recent or ephemeral, we provided evidence that Germany did not achieve such an outcome over a short time period, such as the post-war era (when circumstances are often thought to have favoured German firms): When Germany was vanquished in 1945, the victors spent considerable resources on locating and obtaining its technologies, innovations, blueprints, prototypes and thousands of engineers and staff, since German technology was many years ahead of other

countries. Hence we adopt a wide scope for our research question and consider the past two hundred years. We also took a comparative and interdisciplinary perspective, mostly comparing the German experience with the UK.

Over these past two hundred years, contrasting methodologies concerning economic research and government policy had developed in the UK and Germany. This set the institutional stage for what followed. In the UK the deductive axiomatic approach was adopted in order to advance the ideological (fact-free) predetermined agenda of free markets with little government intervention and few conscious attempts to shape institutional and incentive structures in a way that would enhance performance. In Germany by contrast the declared goal of decision-makers had been to enhance performance, and to achieve this, the scientific (inductive) methodology was applied, in order to learn the ingredients of success and implement them. In search of the advanced HRM configurations that could deliver success for SMEs, we observed that the earliest identifiable HRM policies in Germany in these two hundred years were those empirically developed and applied and improved upon by the Prussian army. The principles of institutional design were reflected in the type of practical and applied economics produced by German economists in the decades before 1945.

The key institutional design features were formally enshrined in army regulations by the early nineteenth century. They proved to be highly successful. Among them, we identified the principle of subsidiarity as the central HRM configuration implemented by the Prussian army that enhances motivation and innovation, while it also contrasted starkly with the opposite principle having been dominant in the UK. Subsidiarity was subsequently implemented in German businesses, likely as early as the nineteenth century, but with documentary evidence from the end of the first world war.

The economic thinkers considering such matters include Schumpeter, the originator of the modern meaning of the word "innovation", who had a particular interest in the role of entrepreneurs and small firms in the process of innovation and economic growth (Schumpeter, 1912). His well-known theory of "creative destruction" was consistent with the Prussian organisational philosophy of the need to handle chaos and the 'fog of war'.

Since subsidiarity is based on decentralisation and local independence, this principle already is suggestive of a particular form of industrial organisation, namely one encouraging many SMEs in every sector of the economy, within which it would again be used to motivate employees by giving them a high degree of autonomy. It also requires greater dedication to training and development of skills by staff, which was recognised and implemented.

We next conducted a robustness check by examining whether there are any successful present-day implementations of subsidiarity as incentive device, and we could provide the example from public financial management organisations and the recent switch to a subsidiarity-based policy of disbursing international development aid.

We finally compared our conceptual and analytical insights with the young but growing body of empirical research on Hidden Champions and the even smaller body of research on HRM at Hidden Champions and found them well supported. Our findings provide a firmer theoretical underpinning for the empirical studies on successful SMEs and HRM at Hidden Champions, which are found to be consistent with our thesis.

We can say that we have identified a bundle of high performance HRM practices that are conducive for motivation and hence innovation, centred around the institutional design principle of subsidiarity, together with an emphasis on education and training, allowing firms to give staff greater individual responsibility and decision-making ability, thus boosting motivation and productivity. The comparative cases and robustness checks provided in this paper have, we believe, established the centrality of subsidiarity in enhancing performance of organisations, both in a micro- and macro-setting. We believe HRM research on Hidden Champion SMEs should further be expanded, since it is an important strand of the literature.

The final considerations concerned the need for further research on other components of the HRM configuration centring on subsidiarity, which is harder for SMEs to implement: the staging of internal rank-order competitions among peers for promotion based on merit. We suggested that this may be a reason for the puzzle of the geographic clustering of firms of the same industry, as the competitions are effectively taken out-of-house and network effects are achieved as experts can socialise out of work with colleagues from other firms and that this may have been replaced by specialised trade fairs where staff at competitors could meet. We also suggested a further ingredient explaining the success of German SMEs in general and Hidden Champions in particular, namely the provision of finance: Since small firms are credit rationed, they cannot thrive if they are embedded within a financial infrastructure based on five dominant big banks (to use the UK example), since large banks wish to deal with large companies (Mkhaiber and Werner, 2020). But if the financial sector also is designed in line with the principle of subsidiarity and consists of hundreds of small, local banks specialising in lending to their local SMEs, then the problem of financial constraints to pay for the necessary upgrading of technology and expenditures for R&D and innovation can be solved. Schumpeter's (1912) seminal work on growth emphasised the importance of a close relationship between the (small firm) entrepreneur and the (local) banker [17]. Notably, the other successful exporting nation, China, thrived once Deng Xiao Ping abandoned the Soviet centralised banking system and created thousands of local banks in the years after he rose to power. 40 years of double-digit economic growth followed, while the Soviet Union collapsed.

It thus appears that the principle of subsidiarity is relevant in many dimensions. Policy-makers interested in supporting SMEs, especially after lockdown, large-scale firm bankruptcies and a significant rise in unemployment, would be well advised to consider it and act accordingly. After all, SMEs account for the vast majority of global employment.

Notes

1. For further research on Hidden Champions, see also Audretsch *et al.* (2018), Voudouris *et al.* (2000) and Lee *et al.* (2014) on Greece and Korea. Rammer and Spielkamp (2019) provide sectoral information on Hidden Champions in Germany, where there are most in the machinery industry, followed by the electronics industry (including semiconductors, computers, communication technologies, instruments and optical products), the glass, ceramics, concrete, metals industry, those in medical and other products, and the chemicals and pharmaceuticals. They find that in their sample the export share, at 64%, is twice as large as that of comparable "normal" SMEs. The average number of employees is 502, compared to the control group SMEs with 418.
2. Simon (2009) also reports that Germany, Switzerland and Sweden account for 80% of all Hidden Champions (p. xv).
3. Vannevar Bush, an influential scientist engaged in the government-private sector cooperation as director of the Office of Scientific Research and Development, in the exploitation of technical knowledge, proposed on 28 August 1944 in a letter to the Secretaries of War and Navy that the United States obtain "German technical information of an industrial nature" from the occupied countries and Germany. He believed that a race would ensue, as "Great Britain is doubtless preparing to obtain this type of information for her own industry" (Gimbel, 1990, p. 5).
4. As quoted by O'Reagan (2014), p. vii.
5. Memorandum by Dr. Kilgores, dated 10 January 1947. US National Archives. Photographically reproduced by Georg (2008, p. 120).
6. As Klamer and Colander (1990) put it, "economic research was becoming separated from the real world" (p. xv).
7. In the postwar era, the mantra of the IMF, World Bank and other Washington-based institutions (such as USAID, the US Treasury, the Inter-American Development Bank, etc.

collectively known as the "Washington Consensus" institutions) has been deregulation, liberalisation, privatisation and open economies, which was rigorously enforced as "conditionality" for financial support to developing countries. Those policies were enforced in over 159 independent cases by the IMF alone in its structural adjustment programmes. This figure is based on Lee and Rhee (2003) and thus does not cover the last two decades. Using data from the IMF Annual Reports, they identify a total gross number of programmes of 455, consisting of 345 standby arrangements, 42 extended fund facility (EFF) arrangements, 44 arrangements under the structural adjustment facility (SAF) or the enhanced structural adjustment facility (ESAF) and 21 combined programmes of two or more such facilities. They reach the net number of programmes by subtracting double-counting and prior ongoing programmes before crisis-related programmes were commenced.

8. An influential thinker and practitioner concerned with institutional design for overall high performance was Walter Rathenau (see Werner, 2003b). More directly concerning HRM examples include the work on "leading people" (*Menschenführung*), for instance by the association of German steel workers (Verein Deutscher Eisenhüttenleute, VdEh), whose machinery committee (later business management) was founded in 1918 and published a programme on this, discussing the need for measures to increase motivation and productivity via methods that appear to be based on psychological and pedagogical insights, including ongoing training and development and developing future leaders (see Däbritz and Dickmann, 1935).

9. Moltke, as quoted in Widder (2002), p. 4.

10. Moltke, as quoted in Hughes (1993), p. 230 by Davis (2005).

11. On the impact of devolution, decentralisation and delegation on motivation and job satisfaction in healthcare, see Franco *et al.* (2002).

12. Dupuy (1977) demonstrated statistically that the German army was over 20% more effective than the British or American Army, in both the first and second world wars "...for consistent excellence in combat performance the German army set a standard which none of its rivals could match ... the German army had one important advantage over its British rival. Ever since 1806, German practice had incorporated a system of directive military command which devolved the control of battle to the subordinate commanders" (Gooch, 1995, p. vii). "...In terms of both attack and defence ... the speed with which the German army identified and analysed the new problems of attack and defence and evolved effective answers to them is quite remarkable" (Gooch, 1995, p. vii).

13. Quote from a letter by Otto Camphausen, a Prussian administrative official in the Rhineland, writing to his brother Ludolf in 1843, describing the system of Prussian state bureaucracy, as quoted in Gillis (1971), p. 22.

14. This is described in greater detail elsewhere (Mear and Werner, 2020).

15. Furthermore, post-1945 development aid has followed the principles promulgated by the IMF and the World Bank, which have supported free market and free trade policies, together with deregulation, liberalisation and privatisation, as the key policy advice. Such advice was based on the deductive and unscientific research methodology, ignoring the fact that no country had ever developed successfully using such policies, and instead successful high performance countries, including in their day Germany, the US, Japan, Taiwan, Korea and China, had all failed to adopt such free trade and deregulation policies prior to their high growth periods. On East Asian high growth economies, see Werner (2003a).

16. How exactly employees' ability, motivation and opportunity channel innovation is an important question for future research (Seeck and Diehl, 2017).

17. After 1945, however, the US occupation ensured that German economics would henceforth conform with the deductive English-language tradition, largely bringing a long history of inductive economic research in Germany to a close. This does not mean that such research was not undertaken elsewhere (see Werner, 2003a).

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