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**Industry's Growth Architects**

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**An Analysis of an Emerging European Industrial Policy**  
**in a Classic National Domain**

von

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## Abbreviations

AI	Artificial intelligence
BCC	British Chambers of Commerce
BDA	Confederation of German Employers' Associations
BDI	Federation of German Industries
BIS	Department for Business, Innovation and Skills
BMU	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
BMWi	Federal Ministry for Economic Affairs and Energy
CBI	Confederation of British Industry
DGB	German Trade Union Confederation
EC	European Commission
ECC	European Economic Community
ECSC	European Coal and Steel Community
EMU	Economic and Monetary Union
EU	European Union
FDI	Foreign direct investment
FSB	The Federation of Small Businesses
GA	Governance architecture
GDP	Gross Domestic Product
GM	Growth model
GVC	Global value chain
GWK	Joint Science Conference
HMG	Her Majesty's Government
HMT	Her Majesty's Treasury
HTS	High-Tech Strategy
IGM	Industrial Union of Metalworkers
IO	International organization
IP	Industrial policy
KfW	Credit Institute for Reconstruction
NRP	National Reform Programme

R&D	Research and Development
SB	Social bloc
SEM	Single European Market
SME	Small and medium-sized enterprise
STEM	Science, technology, engineering, and mathematics
UK	United Kingdom
UKRI	UK Research and Innovation
VDA	German Association of the Automotive Industry
VoC	Varieties of Capitalism
WTO	World Trade Organization



# 1. Introduction

The Eurozone crisis revealed several weaknesses inside the European Union (EU). Unbalanced state budgets as well as uncontrolled financial markets were identified as large causes of the crisis. Consequentially, Brussels announced tougher regulation on financial markets and propagated the idea of cure-all austerity. Furthermore, the European Commission (EC) revised its pre-crisis Lisbon Strategy and released 'Europe 2020', the contemporary strategy of the EU. With this release, the Union not only formulates comprehensive answers to solve the crisis, but also develops plans to eliminate the exposed vulnerabilities and generate new possibilities of growth. One of the instruments is industrial policy (IP).

While regulations for financial markets were introduced in a looser way than expected and the hype of austerity as medicine to cure the origin of the financial crisis in 2008/2009 ended in the conclusion that this hard pill had huge side effects such as demonstrated by the Greek example, the benefits of industrial policy continue to be discussed. The re-emerging of industrial policy was not unheard by Member States of the Union. Leading economies released their very own strategies in this classic national domain, such as the United Kingdom (UK) in 2017 and Germany in 2019 (HMG 2017a; BMWi 2019). This brings up questions of the origin of current ideas in national industrial policy and of how to identify industrial policy itself. This work wants to resume the so far scholarly overlooked scope and use of European industrial policy and help to understand if the EU had an impact on national principles of industrial policy.

This thesis will use the 'Governance Architecture' (GA) approach by Borrás and Ra-daelli (2011) to analyse the strategy of Europe 2020 and identify concrete goals plus ideas of EU industrial policy. This concept displays how supranational principles are adopted by EU Member States – thus defining Europeanization (Schmidt 2002: 896). Concerning the adoption of EU industrial policy on national level, this work will further base its thoughts on the 'Growth Model' (GM) approach by Baccaro and Pontusson (2016) and analyse if growth models are persistent with a EU industrial policy, or if industrial policy is shaped exclusively by domestic actors. Both concepts stress that the adjustment of national organizational structures must be legitimized. Here

the dominant 'social bloc' (SB), formed by a ruling coalition of private and public actors, plays an influential role. Without the legitimization of these actors, Europeanization of industrial policy is unlikely.

Based on Mayring's (2015) structural content analysis, this work qualitatively analyses contemporary public accessible documents of EU, Germany and UK context to detect how concepts of industrial policy are presented, what determines European industrial policy and if a Europeanization of these ideas can be detected on national base. Germany and the United Kingdom serve as cases to conduct the analysis. They are not only having a leading economic role in Europe, but most importantly represent contrary growth models; export-oriented and consumption led, which is useful to determine if Europeanization unfolds differently when being met by diverging national growth models. This thesis argues, that due to the process of European integration and the importance of EU policies for its Member States, European ideas of industrial policy are influencing national ones, while national growth models determine the adoption of these ideas. Hence, the research question of this work is:

How do national growth models influence the adoption of European industrial policy under the strategy Europe 2020 in Germany and the United Kingdom?

This work will start by developing a definition of industrial policy. Based on current typologies of industrial policy, this thesis will develop a very own one, which centres on which policy targets are part of industrial policy and on which level they intervene, to display which state's action can be considered IP. Hereafter, the theoretical concepts of governance architectures and national growth models are presented. The adopted theoretical framework opens a view on how national economies generate growth in different modes and how this in consequence shapes industrial policy. Moreover, the theoretical ground is useful to display how the European Union influences national structures and concepts. Based on the method of a qualitative structured content analysis, categories are constructed. Prior to presenting the findings of the full-scale analysis, the categories are tested on EU, UK and German data. Overall, 31 current strategies and other documents concerning the defined domain of industrial policy are analysed. This analysis identifies patterns of industrial policy and of how national growth models determine the adoption of ideas of EU industrial

policy. Finally, a discussion and summary deliver to answers towards the hypotheses and research question of this work.

## 2. Conceptual Framework

This chapter serves to review understandings of industrial policy. Based on the typologies of Warwick (2013), O'Sullivan et al. (2013) and Andreoni (2017) an own typology is developed to clearly mark how contemporary policies by the state can be identified as industrial policy. This section highlights how the conceptualisation of industrial policy has changed, from directly subsidising a certain manufacturing sector to a comprehensive process involving production of goods and services.

### 2.1 Understandings of Industrial Policy

Defining industrial policy in a comprehensive way is a difficult task. Some scholars even come to the conclusion that a clear and common definition of industrial policy is not possible at all, due to its sheer complexity (Aiginger/Sieber 2006: 582; Ambroziak 2017: 3). What scholars are certain about, is that industrial policy aims at various sectors of the economy and its understanding has changed over time. Andreoni (2017: 253) points to three waves of industrial policy. From 1940-1970, the classic time of prospering classic capitalism, followed by times of neglecting industrial policy in the 1970s and 1980s, at the high times of neo-liberal capitalism, when state interventions were reduced on all matters. Industrial policy was re-activated in the 1990s to early 2000s and in the current phase from 2005 onwards.

Certainly, industrial policy is not an invention of contemporary capitalist economies. In former times industrial policy was already used to anticipate structural change (Välilä 2006: 15). Back then, measures were introduced to specifically build national champions or other support key national industries. The idea of protecting infant industries has already been developed in the 18<sup>th</sup> and 19<sup>th</sup> centuries and had the principle of giving an industry training wheels until it is ready to safely manoeuvre on the road of competition by itself. Hence, in that sense, industrial policy is used to protect a certain and domestic new industry in the early stages, to become robust and strong enough to compete on international scale. Also, to manifest the national comparative advantage.

The contemporary understanding of industrial policy differs marginally from this approach, since it is seen as an instrument to protect certain sectors or businesses from market failure (Välilä 2006: 15). Yet, technological innovation contributed to the change of the understanding of industry, going beyond production methods and also including services (Brösse 2016: 10). Thus, in its classical meaning, industrial policy is a sectoral policy, intervening in particular markets and promoting industries (Cohen 2006: 85). Hereby, the objective is to create sectoral priorities and incentives, which in the manner of a pure top-down approach involves the setting of national economic goals without involving private actors (Rodrik 2014). Additionally, the stage of economic development determines the use of industrial policy. Developing economies use a 'best-practice' policy to help their domestic economy to catch up to more advanced ones, while developed economies tailor very own policies, fit for their industry (Ambroziak 2017: 6).

Noman and Stiglitz (2017: 1) define industrial policy as a set of public policy instruments, reallocating and influencing the accumulation of resources along with shaping the choices of technologies. Industrial policy, accordingly, entails influencing a variety of sectors and advocating specific economic activities, by enabling wide structural developments (Rodrik 2008: 2). Industrial policy does not purely consist in a macroeconomic framework, but also bears the introduction of microeconomic components, thus making it a comprehensive policy able to affect every part of the economy. Naudé (2010: 4) echoes these assumptions and moreover sees industrial policy as a process to affect the structural characteristics of the national economy. Therefore, industrial policy can be understood in a classical sense, where it is aimed to solve structural coordination problem and market failures, and in a neo-industrial policy sense, by also addressing systemic failures (Andreoni 2017: 253). From only calling for interventions in the so-called classic sector of manufacturing, industrial policy moved to including measures towards the service industry as well (Rodrik 2008: 2).

With the shift towards "a new public sector capable of providing customized and flexible public goods and enabling private agents to compete globally" (Kuznetsov/Sabel 2011: 8), both private and public actors are put into the picture. The state is not only meant to provide favourable conditions for private actors, so they

can act freely on the market, but also to be an actor steering the market itself. Public institutions are designed to be flexible and continuously auditing their processes, making them more able to adapt to market developments and notice errors and correct them (Kuznetsov/Sabel 2011: 8). This process of dialogue and collaboration contrasts with the classical top-down understanding. The question is of who is developing the ideas in which direction an industry should move, which will be addressed when introducing the theoretical framework of this work.

In a contemporary understanding of industrial policy, it is thus not only picking individual winners of IP measures, but a more liberal approach of providing guidance for companies and sectors, which they are free to follow. Compared to other economic policies such as “monetary, fiscal, trade or competition policies, industrial policy does not have an established and permanent institutional framework” (Välilä 2006: 9). It also does not aim at generating price stability or per se low levels of unemployment, but rather microeconomic objectives, such as stimulating the rate of research and development (R&D) or providing incentives to invest in certain fields of technology (Beath 2002: 221). Industrial policy thus appears as differently labelled, yet widely used (Rodrik 2008: 2).

Following the understanding, this work conceives of industrial policy as those policies which are designed to affect principles of the national economy and its structural corpus. Since the grounds of the economy should be formed according to the state’s interest, industrial policy includes state activities which create favourable conditions for specific businesses or whole sectors of manufacturing or service.

## **2.2 Identifying Instruments and Developing a Typology of Industrial Policy**

There are three ways for the public authority to impact the behaviour of entrepreneurs. Creating a binding legal framework, which determines economic activities, shaping the political climate to propagate the economic goals of the government and using direct measures, like financial incentives or reallocating resources to desired sectors or companies (Ambroziak 2017: 3). Similarly, instruments of industrial policy can be divided into vertical and horizontal ones (Kuznetsov/Sabel 2011: 7). Horizontal instruments follow a ‘spray gun’ approach, covering the whole sphere of

industry, while vertical measures target certain sectors, businesses or actors. An example for classic vertical industrial policy is the protection of infant industries by the state. It creates favourable rent-seeking opportunities, so that the cost of the entrepreneur is reduced, due to state protection through distorting the price mechanism in the market. These rents can then be invested in firm-level learning, which gives an advantage against competitors in the market or compared to other sectors. Ambroziak (2017: 12) points out that all direct instruments, such as subsidies, R&D funding and quotas or tariffs, are following the vertical approach. Overall, direct instruments of industrial policy always represent a type of discrimination and can be politically motivated to address the performance of a specific economic sector or business type (Ambroziak 2017: 12).

With vertical instruments, domestic industries or certain companies can be pumped up to become 'national champions'. Those companies will have an advantage on the international scale, since credibility is lent to the producer by the state as well as resistance, since the company does not have to take a total cost analysis into account, thus achieving rents (Välilä 2006: 13). This rent shifting can be criticised, since the domestic gain of national champions results from losses for outside competitors, global producers' surpluses are undermined, due to the lack of free competition and it can have a negative effect on the national economy, if the public action does not contribute to gross gain of the domestic economy (Välilä 2006: 13). Further difficulties are created by state capture tendencies. Politicians might want to fulfil their political desire, without considering the industry's needs. A central and microlevel decision-making of public actors thus creates difficulties, to react flexible to market developments and not only follow their certain political interests.

In contrast, horizontal industrial policy aims to fix market failures and generate overall framework conditions (Kuznetsov/Sabel 2011: 7). Classic examples are the reduction of the regulatory burden, creating easier market access and funds for venture capital. For instance, after the Second World War the German *Credit Institute for Reconstruction* (KfW) was designed to provide such capital for various purposes of the economy. Other examples are access to resources, such as energy or the provision of infrastructure. The focus on this type of industrial policy lies on the macrolevel, setting the framework for the whole industry to benefit. Difficulties arise

however from lower incentives for private actors to invest, if the horizontal industrial policy distort market forces (Kuznetsov/Sabel 2011: 7).

Horizontal instruments or “aggregate policies are addressed to the realization of economic objectives that affect all sectors” (Ambroziak 2017: 13). Due to its more neutral and wide approach, horizontal industrial policy does not only affect the manufacturing sector, but impacts “the entire supply side of the economy” (Ambroziak 2017: 15), thus creating spill-over effects. This can be illustrated by the common horizontal industrial policy of infrastructure provision. Creating access to roads, rail or other basic infrastructure benefits all parts of industry. Scholars like Välilä (2006: 11) come to the conclusion that horizontal IP even can be considered as public goods provision. For instance, by enhancing the skill set of the population, knowledge is created. This can be considered as a public good, since no rivalry or excludability is present by the consumption or distribution of knowledge. Furthermore, private actors would not be capable of providing this public good in the same manner as a public actor. They would invest into knowledge to a point, where a maximum of profit is achieved and not where the highest social outcome would be generated and spill-over benefits would be maximised (Välilä 2006: 11). In this example, the state would use instruments such as granting patents to inventors, to generate a high incentive for private actors to invest in R&D, since they strive for being granted a temporary monopoly status (Välilä 2006: 11).

To identify industrial policy measures within a policy package, a typology for industrial policy is needed. The below developed typology is based on the work of Warwick (2013), O'Sullivan et al. (2013) and Andreoni (2017). The table of the developed typology can be found at the back of this chapter.

Overall, the commonalities of Warwick's (2013), O'Sullivan et al.'s (2013) and Andreoni's (2017) typologies are two-fold. Firstly, a variety of policies, and not only those which are explicitly labelled industrial policy as such, may be considered under the umbrella of industrial policy (O'Sullivan et al. 2013; Warwick 2013). Ergo, industrial policy does not only consist in direct subsidies for a certain sector, but also in education policies or wage subsidies, which affect the labour market and have consequences to certain industries or the whole framework of industry (Warwick 2013: 27). Secondly, the existing and considered typologies divide industrial policy

along various dimensions, such as in supply and demand-side measures, in policy domain and policy orientation and in vertical and horizontal IP.

Andreoni (2017) discusses the variety of industrial policy and uses a taxonomic framework to classify IP in different states. The scholar identifies industrial policy packages as an important measure of state governance to secure the state's competitive advantage (Andreoni 2017: 246). Moreover, according to Andreoni (2017: 259) measures of industrial policy either target the supply or the demand side of economy. Supply side measures list specific fields, such as the technological sector, education policies, classic manufacturing policies or policies targeting the financial markets. Also, general structural policies, aiming at standardization or infrastructure, are considered to be supply side policies. The demand side covers extensions, such as public procurements and external factors, like international market development (Andreoni 2017: 259). External factors are also taken into account, since global competition has led countries to push their domestic demand or support export-oriented companies or sectors (Andreoni 2017: 299). These two dimensions make it possible to put certain policies into a matrix, dependent on the measure alignment, i.e. the field and the level the policy is introduced to.

Other scholars follow a similar logic of splitting industrial policy in a two-way matrix. Warwick's (2013) broader concept is based on the two dimensions of policy domain and policy orientation. Regarding the policy domain, industrial policy instruments link output to input factors (Warwick 2013: 25). These instruments either concern the product market or the factor market, and are thus focused on labour, capital, land or technology (Warwick 2013: 17). Concretely, the scholars identifies five domains: Product markets, labour and skills, capital markets, land, technology and systems/institutions (Warwick 2013: 27). The aspect of policy orientation is further split between horizontal and selective targeted policies (Warwick 2013: 29). Horizontal policies affect framework conditions and can contribute to reduce coordination problems by improving flows of information or creating processes for firms and state to communicate. For instance, cluster building or the development of competitiveness strategies can be promoted by the state, aiming at the policy domain of systems or institutions (Warwick 2013: 28). Vertical measures towards the product markets are the support of national champions or price



regulation for certain goods (Warwick 2013: 27). In addition, Warwick (2013: 17) sees different motivations in using vertical instruments, since they can be chosen as reactive or defensive to market pressures, but also as strategic instrument to reach certain political goals. For strategic use of selective industrial policy, the time aspect is considered as well. The instruments might support existing comparative advantage of the industry or are designed to establish new economic interests, shaping the long-term goals of the state. Andreoni (2017: 261) argues similarly, also taking a time horizon into account. He defines transformation cycles as influential in the long-term development of industrial policy. These cycles are based on the idea of a policy cycle. The scholar argues that by considering the time frame, the dimensions of the whole industrial policy package, which is currently active, becomes visible. Furthermore, the cycle helps to identify when states change their national industrial policy.

In between the broad distinction from Warwick (2013) and the finer one from Andreoni (2017) lays O'Sullivan et al.'s (2013). The scholars also separate between horizontal policies, targeting the macroeconomic framework, and vertical policies that favour a particular manufacturing firm or a sector. They define this dimension as "Intervention Levels" (O'Sullivan et al. 2013: 437). Additionally, it is taken into consideration that vertical policies can affect cross-sectoral manufacturing developments, thus are not always clearly distinguishable. Besides the intervention levels, the dimension of 'factor inputs' is presented, grasping same aspects as Warwick's (2013) policy domain. O'Sullivan et al. (2013: 437) mark five factor inputs: Knowledge, labour, production capacity, resources and infrastructure as well as finance.

Firstly, falling under the factor 'knowledge', policies that foster innovation, in fields such as production, technology and products itself are either direct efforts to boost companies' investments in R&D or cross-sectoral cooperation. The latter, such as by state funded centres, like the German Fraunhofer Institutes, develop individual technical solutions on behalf of businesses (O'Sullivan et al. 2013: 450). Here developed innovations aim at influencing different sectors of industry as well as research fields. Secondly, the factor labour concerns the quality and quantity of the workforce. Policies such as skill development influence the size of a high-educated workforce, but

also, how technologies and management practices might be adopted in companies (O'Sullivan et al. 2013: 454). Referring to the industrial success of East Asia on the basis of innovation, Naudé (2010: 5) argues that education and the development of skills for the workforce is essential to absorb and successfully implement new technologies. Education and skill development policies do not only strengthen the labour market, but also lay the grounds for higher rates of innovation.

Thirdly, the factor of production capacity not only signifies the access to production equipment, but also efforts such as the support of small and medium-sized enterprises (SMEs), since direct export assistance or support for the transformation of production are supposed to foster the production capacity as well. Fourthly, the factor input 'resources and infrastructure' takes policies into account which aim at the provision of natural resources and infrastructure, such as e-mobility by the government (O'Sullivan et al. 2013: 455). Whereas, fifthly, the factor 'finance', concerns the access to capital in general. The scholars lastly consider the demand factor 'global manufacturing systems and markets' as a field of industrial policy, concerning how governments are adapting to globalisation pressures and thus consideration on how to place industries in global value chains (GVCs) or how to protect sectors or companies (O'Sullivan et al. 2013: 456).

Based on the conceptions of the scholars, this work will use different aspects of each typology, to identify industrial policy within a general policy strategy. The aspect of time is neglected since it will not be included in this work's analysis. Along presented scholars, this work will classify industrial policy according to two dimensions. The dimension Warwick (2013) considers as policy orientation will be labelled 'Intervention Level', following the formulation of O'Sullivan et al. (2013). The dimension differentiates between on the one hand, industrial policy targeting the macroeconomic framework, thus being horizontal IP and on the other hand, vertical IP measures aiming at specific firms or sectors.

Along Andreoni (2017), the second dimension will be labelled ‘Policy Target’, yet following the identification of such targets by all presented scholars.

		Policy Target					
		Innovation	Education	Labour	Resources and Infrastructure	Finance	Market development
Intervention Level	Firm						
	Sector						
	Macroeconomic framework						

Table 1: Typology of industrial policy (based on: O’Sullivan et al. 2013; Warwick 2013; Andreoni 2017)

This work defines to find industrial policy in the fields of innovation, education, labour, finance, resources and infrastructure as well as market development. While education policies influence labour policies, as pointed out by Warwick (2013), they will be treated separately in the following. This brings the possibility, to separate industrial policy measures which aim to qualify the workforce, considered under the policy target of education, from measures which aim at the labour markets, targeting wage building mechanisms for instance (Warwick 2013: 7). Thus, such measures which shape the labour market or the provision of labour for certain sectors. However, education means the qualification of the workforce and the general production of knowledge and skills.

Industrial policy towards innovation includes all efforts by the state to enhance the new development of technologies, production and services. Prominently, such policies target mostly the efforts in R&D, but also pushing the industry towards the adoption of structural changes like digitisation. The aspect of resources and infrastructure considers, how industries should use resources in general, i.e. how the state is providing which type of resource and how the development of infrastructure is anticipated. This concerns classic infrastructure such as roads but also digital ones and the development of science and business clusters. In terms of finance, it is captured how the financial support for industries is shaped and a financial framework

is constructed. For instance, if companies are subsidised, funds created, loans provided or if certain tax policies are introduced.

The sixth factor of market development concerns policies on how the state identifies main markets. Public measures might create or protect certain markets, abroad or domestically. This policy targets captures measures which aim to strengthen domestic markets by protectionism for instance or such boosting the competitiveness in hindsight of global competition.

## **2.3 Conceptualizing Industrial Policy in and of the European Union**

Applying the above developed typology towards European Union industrial policy reveals the evolution of EU's IP towards a liberal shape with focus on generating growth and increasing competitiveness. Furthermore, the typology helps to display the origins of Germany's and UK's contemporary industrial policy by presenting a short overview of the respective developments, highlighting the different principles and steps of evolution. Both the review of European Union industrial policy and of the chosen national context lay the growing for the subsequent theoretical framework.

### **2.3.1 European Union Industrial Policy**

The use of industrial policy in the European Union goes back to the beginning in the 1950s. The idea to create a close partnership between European states rose in the aftermath of the Second World War. To prevent the possibility of a renewed military rise of Germany, the new federal republic was anchored in European cooperation. The creation of a partnership between France and Germany was to develop a single market of coal and steel production, creating the European Coal and Steel Community (ECSC). This coalition used classic vertical industrial policy by subsidising and protecting certain industrial sectors (Aiginger/Sieber 2006: 576).

Besides France and Germany, many European states had to face similar challenges after the Second World War, mainly rebuilding the industrial base of economy. During the war, production facilities of highly involved countries like Germany got destroyed, while winning states, such as the USA, were able to innovate new technology

and generate industrial benefits in comparison (Owen 2012: 5). This technology gap was not easy to dissolve, especially in high-technology sectors, such as aerospace. Other European states saw the ECSC as positive case to overcome these difficulties. Build on this example the European Economic Community (ECC) was formed in 1957. Although not mentioning industrial policy explicitly in the new released treaty, certain sectoral polices were introduced on the one hand and on the other regulated, forming principles of European industrial policy (Aiginger/Sieber 2006: 576). Specifically interventions in the market of aerospace and electronics are examples of new European industrial policy, introduced in the mid-1960s (Owen 2012: 21). Moreover, global trade was taking up pace and with it, the competition forces from low-wage states outside of Europe, which got slowly access to European markets (Owen 2012: 5).

Further liberalisation efforts were taken after growth decreased in the 1980s, away from more Keynesian demand management. Emphasis was laid on the free movements of goods, people and capital as realisation of a single market in Europe (Owen 2012: 23). The release of the Single European Act in 1986 followed more liberalizing principles, targeting the field of industrial policy, such as state subsidies and public procurement, aiming to let market forces work more freely (Owen 2012: 38). Built on these conceptions, the emphasis on competitiveness as principle of industrial policy was introduced with the Maastricht Treaty in 1992, moving this field of policy more towards a horizontal interpretation (Aiginger/Sieber 2006: 576). Introducing the principles of a favourable environment for businesses, hereby emphasizing SMEs, as well as pushing for a higher innovation competence found space in the 1990s EU industrial policy (Aiginger/Sieber 2006: 577).

A turning point for the noticeable revival of EU industrial policy was most certainly the Eurozone crisis, which made decision-makers on national and supranational level rethink the idea of industrial policy. Additional developments such as the ambitious tactics of China and other emerging markets to secure and enhance their positions in key knowledge-intensive markets and future technologies made Member States anxious about the European industry (Wigger 2019: 353).

Reactions to these developments were the signing of the Lisbon treaty and directly after the crisis the current Europe 2020 strategy, the core of the contemporary

European industrial policy. Following the Lisbon Strategy from the 2000s, this strategy was supposed to deliver stronger aims, clearer indicators and more robust instruments to reach the long-term goals of the EU (Ambroziak 2014: 41). Aiming to produce smart, sustainable and inclusive growth, various areas of industry are targeted, not only manufacturing but services as well. Most of the released measures are horizontal in nature, such as “encouraging an environment favourable to entrepreneurial initiative” (Berglof 2016: 338). Continued principles are to increase the competitiveness of the European industry and its entrepreneurs as well as generate overall growth (Ambroziak 2014: 44).

The contemporary European industrial policy is interpreted differently. Wigger (2019) argues it is characterized by an authoritarian neoliberal style, built to enhance the influence of the market and reduce the ability of state organs to shape developments. She interprets implemented EU policies as acts to cut labour costs and identifies the European industrial policy as a tool to reach the goals of the competition policy. Wigger (2019: 359) claims that intense competition on the European market can lead to an overall improved competitiveness, therefore following neoliberal principles build its core. Ambroziak (2014: 42) interprets the new goals, such as higher levels of employment or new green rules for the industry, in opposition to a neoliberal competitiveness approach. Increased labour costs and higher environmental standards create more regulation and hinder the global competitiveness. Wigger (2019: 354) strengthens her interpretation by underlining that a lower taxation regime for corporation should help companies to achieve a higher level of competitiveness at the global market which is a sign of the neoliberal agenda of the EU. Berglof (2016: 338) also echoes the principles of competitiveness and growth. The scholar sees principles of European industrial policy on the horizontal intervention, not affecting one particular sector or company. These horizontal efforts are seen by Wigger to boost the European industry’s competitiveness by cutting costs for industry such of “capital, energy, electricity, raw materials” (2019: 358).

### 2.3.2 Industrial Policy in Germany and the UK

Germany’s industrial policy heritage is clearly based on the ordo-liberal principles of its economy, adopted in the young years of the Federal Republic (Owen 2012: 5). Limited state interference and believing in the benefits of competition on free

markets laid the principles of horizontal shaped industrial policy. In the 1970s, under social democratic administration, vertical policies were adopted, largely due to the heavy oil price shocks (Owen 2012: 5). Before, long-term state support was done towards the science sector with the German Max Planck Society and creation of vocational training (Owen 2012: 18). Vertical industrial policy towards certain companies was later adopted in the 1980/90s, supporting sectors of biotechnology and aerospace firms, forming the German part of the European project of Airbus (Owen 2012: 34). Not only was the aim to generally strengthen these sectors, but also to enhance their innovation ability. Especially in the late 1990s and early 2000s innovation was done by large companies, rather than small start-up like businesses. This was seen as disadvantage, since large firms followed the idea of innovation to generate “rationalisation and cost reduction rather than developing and introducing new products” (Owen 2012: 36).

To achieve this transformation, strategies were released to enhance the innovation abilities, especially for SMEs, by releasing a ‘High-Tech Strategy’ (HTS) in 2006, and continued updates over the years (Owen 2012: 37). A large step in shaping the current German industrial policy was the formulation of the strategy ‘Industrie 4.0’, creating framework conditions for the digitisation of manufacturing and other sectors (Rehfeld/Dankbaar 2015: 497). What Germany and UK had in common, was to be less intervening into the market with industrial policy than other economies, such as France, which has a tradition of using vertical industrial policy (Beath 2002: 221).

UK’s emphasis on the use of industrial policy was more active under Labour than Conservative administration. Especially after the oil price shocks, this became obvious. When Margaret Thatcher became prime minister in 1979, UK’s industrial policy was transformed away from Keynesian demand policy, which had a vertical quality, towards neo-liberal, focusing on business needs and achieving price stability (Owen 2012: 24). The principle of competition was drawn into focus in that times and even fostered in the 1990s (Owen 2012: 27). National monopolies in sectors of telecommunication, steel and aerospace were privatised (Owen 2012: 24). The attraction for foreign direct investments (FDI) was raised by less regulated labour markets and business favouring finance policies, in nature neglecting vertical industrial policy and implementing horizontal industrial policy, if state action were taken at all. This

was designed to boost the incentives for businesses to invest in R&D for instance. These neo-liberal principles were not discarded when Labour claimed office again in the 1990s (Owen 2012: 27). Which has not changed either was the switch from manufacturing to a more service-oriented economy (Owen 2012: 28). The principles of UK industrial policy are thus based on a competition principle to increase productivity, growth and innovation. Innovation should also be fostered rising the skill set of the British workforce (Beath 2002: 237).

Overall, both cases show an industrial policy reaction during the oil price shocks, and a liberal quality. Apparent is that Germany has a record of implementing vertical measures while the UK mostly targeted framework conditions. These diverging outlooks shall serve to test the below developed hypotheses regarding the Europeanization of industrial policy that stem from a theoretical framework combining a European with national perspectives.

### 3. Theoretical and Empirical Embedding

Considering the above outline of both European Union and two different national industrial policy designs, the below presented theoretical framework is based on two approaches. Firstly, the principles of current long-term EU strategies will be scrutinized by relying on the concept of governance architectures by Borrás and Radaelli (2011). This enables to display how European Union industrial policy manifests itself as well as illustrate the mechanisms of their national adoption. Subsequently, the approach of Baccaro and Pontusson (2016) unveiling states' principles to shape their economy is presented. It allows to trace mechanisms of how these principles can be changed by social blocs and is thus compatible with the Europeanization assumptions of Borrás and Radaelli (2011).

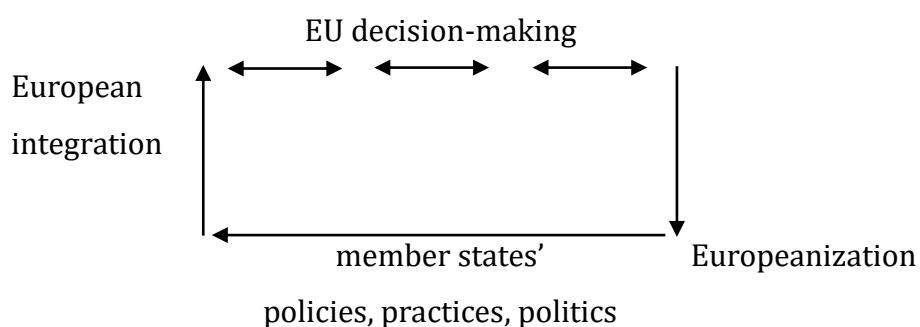
#### **3.1 Accounting for Governance Architectures and Domestic Policy Adjustment**

Based on the Lisbon Strategy of the European Union, Borrás and Radaelli (2011) present the concept of governance architectures, to analyse strategies launched by international organizations (IOs). The scholars stress, that all these strategies serve a long-term and holistic approach towards complex international policy problems,



while focusing on output-oriented goals as well as adjusting existing organizational structures (Borrás/Radaelli 2011: 463). For the case of the European Union the Single European Market (SEM) project and the Economic and Monetary Union (EMU) can be identified as such strategies to achieve long-term goals for economic growth (Borrás/Radaelli 2011: 464). Borrás and Radaelli define governance architecture as: “strategic and long-term political initiatives of international organizations on cross-cutting policy issues locked in commitments about targets and processes” (2011: 464). The scholars focus on the instruments the Lisbon Strategy introduced, such as the Open Method of Co-ordination, European Integrated Guidelines, national reform programmes (NRPs) and individual and collective monitoring of implementation progress (Borrás/Radaelli 2011: 465).

Moreover, Borrás and Radaelli (2011: 467) conceive of Europeanization as the way in which EU policies lead to domestic change. This change and adoption of EU principles does not have to unfold equally in every Member State. Ergo, every European state sets its own path to reach a common goal and co-ordinate itself with other members of the EU. Europeanization can be seen as a top-down process and differentiated from European integration, which is the “process of [...] EU construction and policy formulation by a wide range of actors” (Schmidt 2002: 896) from national to supranational, governmental and non-governmental levels (see figure below).



*Figure 1: Europeanization vs. European integration (Schmidt 2002: 896)*

“Revealing the architectural dimension of the Lisbon Strategy, examining its nature, its effects and its implications for EU politics” (Borrás/Radaelli 2011: 467). Borrás and Radaelli (2011: 468) place their concept in between multi-level governance and concrete policy programmes. The concept of governance architectures captures the output-oriented types of governance activities along three main features: the identification of problems in a long-term, holistic and strategic perspective, the setting

of output-oriented goals and the combination of old with new organizational structures (Borrás/Radaelli 2011: 468).

<b>Concept</b>	<b>Scope of problem identification</b>	<b>Type of goal-setting</b>	<b>Implementation design</b>
<i>Multi-level governance</i>	Generic and unchanging problem associated with core values of IO	Broad and implicit goals	Multi-level distribution of authoritative decision making across multi territorial levels
<i>Governance architecture</i>	Strategic, holistic, cross-cutting, long-term problem definition	Goals and output-oriented targets in dimensions of problem	Combination of new/old organizational arrangements
<i>Policy programme</i>	Problem definition within one policy area	Precise goals within one policy area	Mix of policy instruments within the same policy area

*Table 2: Levels of governance arrangements (Borrás/Radaelli 2011: 469)*

Following an architectural logic, a governance architecture is “made up of ideational and organizational components” (Borrás/Radaelli 2011: 470). The ideational component involves general concepts or ideas, ideational repertoires and discourse which relate to each other as follows. General ideational repertoires can be captured in terms such as “competitiveness’ [...] and [...] ‘market’” (Borrás/Radaelli 2011: 470), but it is up to political actors to define and legitimize them. By defining them, actors can re-interpret them, to point out new aspects and to reframe certain issues. Legitimation of ideas is achieved via discourse, which can lead to acceptance of the ideational component of a governance architecture or fail to do so (Borrás/Radaelli 2011: 471). In other words, an actor or a coalition of actors is trying to implement their new set of ideas in a public discourse, legitimize their framing, thus bringing their desired change into reality.

The organizational component is based on institutional arrangements and the selection of policy instruments. The arrangements determine how the ideas and “discourses are in fact defined and patterned” (Borrás/Radaelli 2011: 471). For instance, in the case of EMU, the organizational arrangements manifest themselves on the “independent role of the European Central Bank [...] and its relations to the Eurosystem [...] as well as to the European System of Central Banks” (Borrás/Radaelli 2011: 471). The “selection of policy instruments and their procedural requirements” (Borrás/Radaelli 2011: 471) determine how actors implement their ideas inside the organizational structure, such as directives, legislative acts or procedural instruments.

Accounting for the effects of European governance architectures on the national level, i.e. assessing conditions, leading to Europeanization is closely connected to the outlined two-fold components of governance architecture. On the one hand, domestic change is likely, when differences between policy ideals at organizational level lead to ideational pressure. This manifests itself in a change of the “domestic policy paradigm, both in terms of ideational repertoires and political discourses” (Borrás/Radaelli 2011: 477). On the other hand, organizational pressure might be created through procedural requirements of the policy instruments (Borrás/Radaelli 2011: 478). Drawing upon Europeanization research, Borrás and Radaelli (2011: 478) develop four hypotheses on how governance architectures may influence national policy concepts.

First, Borrás and Radaelli (2011: 478) state that the more open the content of the governance architecture is, the greater the chance that it will fit on existing national goals and concepts, making a domestic adaption to the supranational goals likely. Second, the principles of ideational repertoire and discourse come into play. If a national actor or reform coalition wants to adopt to the governance architecture, it will frame the new policy accordingly to the national policy legacies, creating a path-dependent narrative to avoid the impression that these new ideas were introduced by an outside actor (Schmidt 2002: 900). Accordingly, the discourse of key actors has to legitimize and support the addressed policy change on domestic level.

Third, Borrás and Radaelli (2011) point to the organizational components and partly to the first hypothesis, stating that organizational structures on the national level

that are akin to the ones the governance architecture is implying, increase the likelihood of domestic policy change. Fourth, the authors point to the policy entrepreneurs of the supranational ideas inside the national organizational structure. If this or these actors are well situated, the more likely change will occur.

### **3.2 Europe(anization) 2020**

Since governance architectures are defined as “strategic and long-term political initiatives of international organizations on cross-cutting policy issues locked in commitments about targets and processes” (Borrás/Radaelli 2011: 464), this concept can be applied to analyse a variety of strategies and initiatives and most certainly the successor of the Lisbon Strategy, Europe 2020. The following outline shall demonstrate how Europe 2020 reflects the core of contemporary EU industrial policy, which according to the above established typology appears a cross-cutting policy.

Developed after the beginning of the financial crisis in 2008/2009, Europe 2020 emphasizes a review of the macroeconomic elements of the Lisbon Strategy, which according to European actors have resulted to be not strong enough (Becker 2011: 6). The crisis has made the main weaknesses of the then implemented strategy clear. The new strategy should therefore help to modernize the European economy to overcome its vulnerabilities and to strengthen it for modern challenges. Building upon the Lisbon strategy, Europe 2020 provides new elements and processes, such as “innovation, green technologies and social cohesion [...] based on common targets, national reform programmes and monitoring” (Borrás/Radaelli 2011: 465). Newly added elements are not only ‘flagship initiatives’, which are accompanied with targets and indicators, but also the European Semester, a tool to strengthen the European economic governance by setting a policy coordination framework and developing country specific advice (Armstrong 2012: 287). Concerning economic monitoring, Europe 2020 revised NRPs from the Lisbon Strategy’s three-year to an annual cycle for Member States to present their plans and for the European Commission and Council to give feedback. The national plans display which measures they will take to reach the defined national goals and how occurring domestic problems will

be solved. The NRPs represent the framework of how the Europe 2020 strategy will become reality (Becker 2011: 14).

The strategy consists of three priorities, five main targets, seven flagship initiatives and ten integrated guidelines (Becker 2011: 9). Based on a knowledge and innovation based economy, smart growth should be achieved jointly with a resource efficient sustainable growth and inclusive growth, where large parts of society profit from higher levels of productivity (EC 2010: 5). The resulting three priorities are smart, sustainable and inclusive growth.

Since the principle of smart growth is to develop a knowledge- and innovation-based economy, it aims at education policies and the development of experts and innovators to transform the European economy into a knowledge-based one in the long term. Innovation is supposed to be supported with various measures to reach the set goal of 3% of the EU's Gross Domestic Product (GDP) expenditures in R&D (EC 2010: 5). Hereby, the Commission calls upon the Member States with its flagship initiatives 'Innovation Union', 'Youth on the move' and 'A Digital Agenda for Europe' to achieve this priority. In concrete terms, Member States are supposed to reform national systems of innovation, mainly developing new skills by reforming systems of education. In this respect, the states should prioritise free movement of students and young professionals as well as higher investments towards innovation in general. Moreover, education should focus on enhancing the skills needed on the labour market. Public investments and creating incentives for public and private cooperation should be generated as well (EC 2010: 13).

Although the principle of sustainable growth emphasizes resource efficiency and on being 'greener', the principle of competitiveness also falls under this priority to "fostering a high-employment economy delivering social and territorial cohesion" (EC 2010: 5). By 2020, 75% of the main workforce, people between the age of 20-64, should be employed and "20 million less people should be at risk of poverty" (EC 2010: 5). The flagship initiatives 'An Agenda for new skills and jobs' and 'European Platform against Poverty' urge the Member States to redesign labour market entry conditions, especially for minorities at risk of exclusion (EC 2010: 19).

It is clearly visible, that Europe 2020 relies on a growth principle for the EU and names industrial policy as one of the instruments as a flagship initiative build “for the globalisation era” (EC 2010: 6). Mainly targeted are framework conditions for businesses, and within mainly SMEs. Improved framework conditions entail a reduced administrative burden for companies and strengthened intellectual property rights. Furthermore, cooperation between various stakeholders is to be enhanced by the Member States (EC 2010: 17). Finally, the sustainable growth related flagship initiative ‘Resource efficient Europe’ is calling on the members of the EU to work on infrastructure and implement market-based incentives, to reduce consumption of resources (EC 2010: 16).

The initiatives and guidelines are instruments intend to address the following main objectives: employment security, research and development extension, climate protection, as well as poverty reduction and education (EC 2010: 6). Europe 2020 clearly follows a growth principle relying on industrial policy. Increased “production and consumption is seen to lead to both economic stability and increases in welfare or well-being” (Daly 2012: 278). Important EU actors, such as former Commission president Juncker, consider the industry as an important vehicle to reach European economic goals (EC 2017).

In general, Europe 2020 can be considered to be in line with the principles of its predecessor, the Lisbon Strategy. As a governance architecture, Europe 2020 was clearly built on the Lisbon Strategy and shares similar components, thus follows its logic (Becker 2011: 7; Armstrong 2012: 287). In sum, industrial policy is seen as an important factor to achieve the European Union’s ambitions for growth.

### **3.3 Accounting for National Growth Models and Selection of Cases**

Since this work will analyse if national industrial policy is influenced by the above outlined European principles inherent to Europe 2020, it has to be defined on what grounds states build their IP. Certainly, industrial policy can be viewed as part of the general principles of national economy. Resulting from an answer to the influential approach of Varieties of Capitalism (VoC), Baccaro and Pontusson (2016) develop different models on how western countries produce economic growth. In their

approach the scholars look on the demand side, which marks the first and big difference to the VoC-approach, which identifies the supply side, in this case firms, as main drivers of growth. Next to considering the cases of Sweden and Italy, Baccaro and Pontusson (2016: 176) look on the UK. Here the scholars identify household consumption as growth driver, defining this economy as a consumption led growth model. Germany on the other side generates growth through high exports, creating an export-oriented growth model. The UK and Germany represent the stereotypes of the two identified growth models defined by the scholars, whereas Sweden is marked as a combination of both models and Italy failed to develop a consistent one at all (Baccaro/Pontusson 2016: 176). Along Baccaro and Pontusson, Germany and the United Kingdom both are the analysed cases of this work, due to their representation of a coherent growth model. Both are capitalist economies, however, following different economic principles, shaping the state's actions individually and differ in how the state interferes in or shapes the economy.

The scholars' analysis shows, that the German "services accounted for the same share of total exports in 2007 as in 1996" (Baccaro/Pontusson 2016: 190), whereas the United Kingdom shifted from exporting goods towards relying on the development of services. The German economy created a vast surplus in exporting goods, yet a deficit in services, while contrary goes for the British economy (Baccaro/Pontusson 2016: 190). Especially the export of financial services of the British economy is most notable, while Germany set high records in exports of the manufacturing sector, which marks the base of the German export-led growth model (Baccaro/Pontusson 2016: 191). Although, the British economy exports services, especially financial ones, the British GDP is not that dependent on exports as in the case of Germany. However, the rise of financial services in the UK led to rising high-end earnings, which was supported by the absence of union led or centralized wage bargaining (Baccaro/Pontusson 2016: 196). The same goes for high-skilled workers, who benefit if individual wage bargaining is made possible, due to minimized union power. Germany aims at holding back an increase in wages, to not jeopardise the cost advantage of German export goods. Contrary to the export-led growth model, the UK follows a consumption-led one. By increasing consumption with private household debt and rise in wages, this model sets less focus on creating a cost advantage of

goods, as the export-led model does. In sum, it is fair to say that the German and British economies reflect the mirror images of neo-liberal economies (Baccaro/Pontusson 2016: 186).

Although Baccaro and Pontusson argue, that their distinction of different growth models applies to pre-crisis times, this work points out that the crisis had not only pressured the EU to reshape its strategy, but is likely for countries such as Germany and the UK to adopt their economic governance as well – in this case towards European principles of industrial policy. Despite that the scholars do not explicitly refer to industrial policy, this work argues, that growth models are approaches that are used to develop national industrial policy strategies. Since growth models display the fundamentals of the national economy, i.e. how production is shaped and how outcomes are generated, it is argued, that this approach is able to explain how national industrial policy is formed.

### **3.4 Accounting for Ideational Change in Growth Models**

After having established that Baccaro and Pontusson's (2016) growth model approach is suitable to account for national industrial policy, the remaining issue to be dealt with is how the EU's IP relates to the latter. Hereby referring back to Borrás and Radaelli's (2011) understanding of Europeanization is useful. On the one hand, domestic change is likely, when differences between policy ideals at organizational level lead to ideational pressure. This manifests itself in a change of the "domestic policy paradigm, both in terms of ideational repertoire and political discourse" (Borrás/Radaelli 2011: 477). The Europeanization process, that is of interest for this work, is of ideational nature, so that type of domestic adaption at the centre of this analysis is supposed to consist in a change in the domestic industrial policy paradigm. With the latter manifesting itself in national growth models, the interest of analysis of this work ultimately lies in accounting for the ideational change of growth models.

According to Baccaro and Pontusson (2016) such change of growth models can occur, if the 'dominant social bloc' shifts its preferences. This leading coalition represents and sets socio-economic interests and models and differs in each state. Such alliances determine wage building and are influenced by class interest and the



ability of those to be institutionalized. Baccaro and Pontusson (2016) present references to identify members of the dominant social bloc in Germany and UK. In Germany, the scholars observe a dominance of export-sector unions in accordance with a weakness of unions from the service sector (Baccaro/Pontusson 2016: 197). In both cases, Germany and the UK, unions have lost importance, while the British case marks a much higher loss, fuelled under prime minister Thatcher (Baccaro/Howell 2017: 64). The erosion of workers' unions results from power shifts in industrial relation starting in the 1970s and continuing until today.

Identifying all members of a dominant social bloc will exceed the scope of this work. Therefore, the core members of each bloc will be identified and included in the analysis. These core members of the social bloc hold veto power and are therefore crucial to adaptation of the socio-economic model. The major assumption is that a change of national economic principles is possible through a change in the interest of these blocs. A dominant social bloc can influence the overall socioeconomic model of the state and thus impact the principles on which the industrial policy is arranged. Moreover, social conflicts arising from such changes can be regulated by the dominant bloc (Amable et al. 2012: 11). According to Amable et al. (2012), the preferences and ideas of the dominant social bloc determines the national socio-economic concept and so the principles of economy. This coalition answers to the demands of the public and of key actors in the economy and the state by directing overall developments. Besides the dominant bloc, other social blocs attempt to claim this dominant position. This may lead to a systematic crisis, if none of the competing blocs is able to claim a hegemonic position (Amable et al. 2012: 29).

When identifying the dominant social bloc in the German example, Baccaro and Pontusson (2016) refer to the work of Anke Hassel (2014). Hassel sees co-operation between unions and the state as pact building actors. In this sense, the British case with the absence of influential unions displays an exception for the building of a dominant social bloc (Hassel 2003: 718). German workers are represented by the umbrella workers association *German Trade Union Confederation* (DGB), and – especially for the high-skilled workers – *Industrial Union of Metalworkers* (IGM). Further highly influential actors towards industrial policy are the business associations of *Federation of German Industries* (BDI), *German Association of the Automotive Industry*

(VDA), and the *Confederation of German Employers' Associations* (BDA). These organizations represent the interest of a leading exporting industry, such as the automobile sector by the VDA, overarching industry interests by the BDI and employers' interest by the BDA. This work defines those actors as core members of the dominant social bloc in Germany.

The British social bloc is formed differently, although the scholars stay vaguer compared to the identification of the German one. Marked crucial to the British social bloc is the involvement of the financial sector. This central sector is able to continually to keep the principle of building deficits to support consumption (Baccaro/Pontusson 2016: 200). Actors from this influential area of the economy include several interest groups, or in the UK named 'pressure groups'. One central pressure group is *TheCityUK*, which lobbies for the interest of the Londoner financial sector (Christensen et al. 2016: 260). Self-declared to be the "Britain's most powerful financial lobby group" (TheCityUK 2020), this group presents core interest of the financial industry in the UK and thus is an important actor inside the dominant social bloc. Another actor is the "UK's most [...] influential business organisation" (CBI 2020), the *Confederation of British Industry* (CBI). This trade association serves as interest' communicator for businesses in general and across various sectors. Another national representative of different chambers of commerce marks the *British Chambers of Commerce* (BCC). For SMEs the organization *Federation of Small Businesses* (FSB) acts as delegate for their interests. These actors are to be defined to have a veto position inside the dominant social bloc. Ergo, if these actors do not legitimate addressed changes, adaptations of the socio-economic principles will not occur. For the British case representative actors of employees and workers are not included, due to the identified weakness of union representation and thus not claiming a veto position inside the dominant social bloc.

In sum, the core members of the dominant social bloc in the case of Germany are associations of the exporting industry and organizations of workers' unions. For the UK, due to the minor influential role of trade unions, these actors will not be considered as core members. Here, members of the financial sector and other trade associations are identified. The role of the state and its political actors will be also taken

into account, considering politicians as crucial members of each dominant social bloc.

### **3.5 Formulating Hypotheses on Basis of Governance Architectures and Growth Models**

Both theoretical strands, this work relies upon, have shown that ideational components are important for constructing and changing of socio-economic structures. If ideas are adopted and legitimized by a variety of key actors, changes of industrial policy are possible. This work will focus its analysis, on how European ideas of industrial policy are presented and if those are adopted at the national level, by developing four hypotheses based on the outlined theoretical concepts.

Firstly, when constructing the null hypothesis, it is argued that ideas and concepts presented by the European Union do not affect the Member States at all:

H0: The formulation of EU industrial policy has no impact on the national level.

As stated, Borrás and Radaelli (2011) formulate the hypothesis, that Europeanization is likely if national structures harmonize with European ones. Regarding industrial policy, the principles of national industrial policy have to be similar enough to those industrial policy ideas the EU is presenting. Given that for Europeanization to occur, an ideational repertoire has to be shared by the EU and national actors, the first formulated expectation is as follows (Borrás/Radaelli 2011: 470):

H1: Since the European Union, Germany and the United Kingdom share fundamental principles of economy, the respective national formulations of industrial policy reflect the EU's ideational repertoire in this aspect.

With H1 highlighting the national and supranational legacy of industrial policy, Borrás and Radaelli's (2011) attention towards discourse through which the adoption of changes is determined. The scholars stress that actors who are in favour of adjusting national policy will put these changes in context with the state's legacy, even if the changes are actually externally created and not path dependent. Furthermore, the scholars state that such policy entrepreneurs must be well situated within the national structures to implement changes. Since Borrás and Radaelli (2011) stay unclear on the nature and location of such actors Baccaro and Pontusson's (2016)

concept of social blocs is drawn upon to identify such. For the cases of this work, the already described core members of each dominant social bloc will thus serve the analysis. They will be referred to by their individual name, as dominant social bloc or solely social bloc.

Both theoretical approaches of this work make clear, that policy change or general adoption of concepts, such as of industrial policy, have to be legitimized by range of different stakeholders. This work assumes, that these stakeholders refer to similar concepts of industrial policy, thus making the implementation of European industrial policy likely. To capture these assumptions, a further expectation is formulated.

H2: When core members of the dominant social bloc legitimize ideas of European industrial policy, those ideas are adopted at the national level.

Not only does this work use the concept of social blocs but it will also transfer the approach of Baccaro and Pontusson's (2017) growth models of economies on the formulation of the principles of industrial policy. Suggesting that national growth models are shaping industrial policy, H3 is constructed as follows.

H3: National growth models determine states' industrial policy.

Since Member States are comprehensively embedded inside the EU, European ideas influence the national construction of policies. This work expects that ideas of European industrial policy lay out the basic framework and show a direction where individual policy targets should lead to, based on the conditions presented by Borrás and Radaelli (2011) and included in H1 and H2. The ideas and goals of the current Europe 2020 strategy define how policy targets should be used to lead to the desired outcome, resulting from the three growth variants. In other words, the European governance architecture Europe 2020 formulates how the policy targets are arranged and interacting with each other, thus presenting a blueprint on how the policy targets are supposed to be structured at the national level. Assuming that national accordance with the EU's story line is a sign of Europeanization in the domain of industrial policy, the following expectation is established.

H4: Due to the Europeanization of industrial policy, policy targets at supranational and national level are structured in a similar way.

Finally, growth models lay the individual base of each economy and so shape industrial policy and its policy targets. Germany's export-oriented growth model highlights the role of flexible labour markets with an expanded low-wage employment in certain sectors (Baccaro/Pontusson 2016: 177). Concerning the industrial policy target of labour, this work expects that Germany will thus emphasize the flexibilization of labour markets and the repression of wages. Since Baccaro and Pontusson (2016: 177) point to the UK's favourable labour market conditions for unskilled workers, it is assumed that regarding the industrial policy target of education, less emphasis will be noticeable than in the German case, where the export sector is dominated by high-skilled workers (Hassel 2014: 61). Furthermore, the UK's focus is set on a strong financial service sector, the policy target of finance is to be expected to be referred to more prominently than in the German case (Baccaro/Pontusson 2016: 191). Resulting from these considerations, H5 is formed:

H5: National growth models determine the adoption of EU industrial policy targets.

The outlined theoretical concepts and herewith connected empirical considerations and hypotheses, contribute to the establishment of categories for data analysis which are presented within the scope of the subsequent section, concerned with further empirical considerations and procedures of this work.

## 4. Developing a Qualitative Structured Content Analysis

This chapter presents the work's method, based on Mayring's (2015) content analysis approach. It is displayed which material is selected from EU, German and UK sources. The plan of analysis, details how the categories are built from the theoretical approaches of this work and tested before the main analysis.

### 4.1 Procedure

Generally speaking, content analysis is used to survey and analyse data (Steigleder 2008: 17). This work will follow the principle of a qualitative content analysis after Mayring (2015). The scholar's assumptions of this type of analysis are most influential among German speaking scholars (Steigleder 2008: 40). Originally developed for

psychology research, Mayring (2015) develops different steps for his approach, which due to its flexibility, may work for various scientific research in different disciplines.

Mayring's intention is to analyse empirical data systematically and according to qualitative criteria of social sciences (Steigleder 2008: 28). Moreover, a qualitative content analysis is able to identify "themes and core ideas" (Drisko/Maschi 2016: 68), and not only the sole content. Mayring (2015: 23) sees the purpose of qualitative analysis not only to deeply analyse single cases, but moreover to test theoretical assumptions. When conducting a content analysis according to Mayring (2015: 51), both abiding to certain rules as well as staying open to the respective research question, selected case and collected material is necessary.

At the core of any qualitative content analysis is the identification of clear categories, to be able to comprehensively analyse the material on pre-defined ground (Mayring 2015: 29). However, a qualitative content analysis is a technique which has to fulfil some criteria, but also needs to be adapted to the selected material and the research question (Mayring 2015: 51). Therefore, the first step is the selection of the material. It must be defined which material is suitable for the analysis and what are the reasons for it (Steigleder 2008: 23). Moreover, it has to be declared what kind of material exists, in which context the material was developed and what type, e.g. interviews, newspapers, constitutional texts, party programmes or video material, will be analysed. These steps do not only guarantee a comprehensive scientific valid outcome, but also explain the processes of the analysed developments (Steigleder 2008: 26).

Along the outlined steps, the following section will clarify the focus of analysis. The focus can either be set by the author, the context in which the material was developed or by the thematic aspects of the material (Mayring 2015: 58). This thematic focus mainly results from the theoretical framework and/or the research question and leads to the cornerstone of the method, the setting of the categories (Mayring 2015: 58). These categories help to highlight certain aspects of the material (Steigleder 2008: 30). To identify such parts, Mayring (2015: 97) delivers the concept of 'anchor examples', which are parts of the material which show the prototype of the wording of a category. Also, it must be set how different categories or parts of the

material can be separated from each other, setting coding rules. To approach the material, it is necessary to define the units of analysis, which are the *coding modules*, that select the smallest unit to be analysed in the material, thus the smallest part of a text, which can fall under a category. Already single words can function as a coding module, such as 'liberalizing' or 'centralized' and producing a certain framing for the audience. The *context unit* regards to the largest part of the material, which can fall under a category, for instance a complete text. The *evaluation unit* sets in which order which parts of the material are to be analysed, for instance chronological or author wise (Mayring 2015: 61).

Mayring's (2015: 67) analytical approach relies upon three types of interpretation techniques which can be used individually or combined: summarizing, explication and structuring. While summarizing means, extracting the material and paraphrasing the main content of the material, explication collects additional material, which helps to understand the context and therewith the meaning of the base material. A structured content analysis filters the text according to a defined set of criteria. These categories are based on theoretical assumptions, which structure the empirical material and make it structurally analysable (Mayring 2015: 67).

To scrutinize the defined categories, a test run is done for instance at one document of selected material, to check whether definition, anchor examples and coding rules function properly (Mayring 2015: 97). Afterwards, the category system and its definition may be reshaped (Mayring 2015: 99). This should prepare the analytical framework to be applied on the whole material. The structuring of the findings may also vary. Formal structuring will display the materials' inner structure, while content-related structuring will highlight and extract certain thematic topics of the material (Mayring 2015: 99). A typecasting structuring seeks to identify and describe certain aspects, to build up a typology of the material, and lastly a scaling structuring will build a scale to estimate aspects of the material (Mayring 2015: 99).

The strength of a qualitative content analysis lays in its ability to show the different steps of interpretation, which helps to understand the empirical deduction and avoids subjective interpretation (Mayring 2015: 61). On the contrary, Mayring's approach is criticised towards his vague setting of the revision of the set categories (Steigleder 2008: 57). It stays less clear when and to what extent categories should

be adjusted. Moreover, the interpretation of the findings heavily depends on the context as chosen by the scholar (Steigleder 2008: 57). Despite these limitations, one has to bear in mind that within the different existing methods of qualitative data analysis, a qualitative structured content analysis serves to identify associations, i.e. to recognise the co-occurrence of concepts in the data. When aiming for a formulation of expectations or building theory there are further and more suitable qualitative data analysis methods that are beyond the scope of this work such as grounded theory.

Following the outlined procedure after Mayring, the first step of analysis of this work consists in setting the unit of analysis. This step is strongly intertwined with data selection which will be presented in the following section. After having set the unit of analysis, the second step lies in developing the core of the content analysis, the construction of categories. These are built from the theoretical base and research scope of this work. By choosing the structural type of content analysis after Mayring (2015: 67), a defined order of interpretation is used to identify aspects which fit the defined criteria resulting from the theoretical framework presented above. This work's content-related structuring extracts certain topics and aspects of the material and summarizes them. Thus, focusing on thematic aspects of the material. First the material will be analysed according to the set of categories and then by paraphrasing summarized. First with the sub-categories, then by the main categories (Mayring 2015: 103).

Since this work analyses if European principles of industrial policy are adopted in contemporary national material, the *evaluation unit* is not set to a chronological time frame. Since most of the material is issued in a short period of time, large differences in the introduction of ideas are not to be expected. Material is chosen on current release after the financial crisis of 2008/09, where the oldest was released in 2010. The first run and thus testing of the categories will be done with most current strategies. The *context unit* is set to whole texts, since single publication may contain content referring to only one category of industrial policy. Specifically, material from the social blocs are in such short length. The *coding modules* will be set to single words, referring to the conception of ideational repertoire by Borrás and Radaelli (2011: 470).



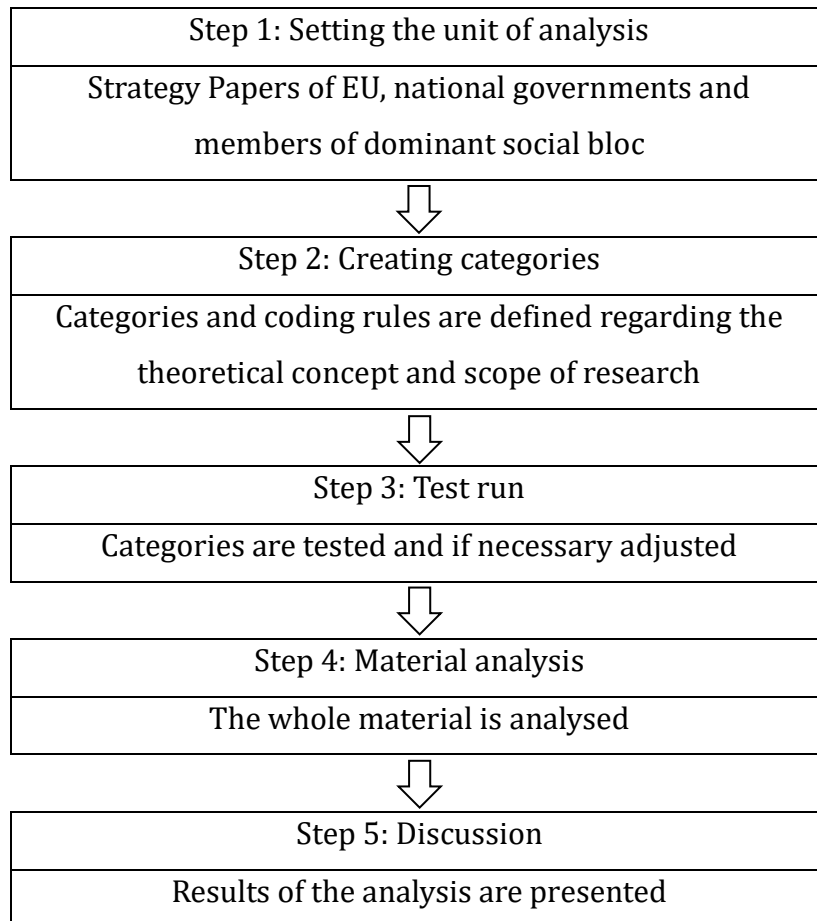


Figure 2: Plan of analysis (based on: Mayring 2015: 98)

Starting with the hypotheses of Borrás and Radaelli (2011), several main-categories, subcategories and clear definitions will be developed. Anchor examples will be selected from the basic material, which will then be tested in the first run. Similarly, further main categories are developed from the growth models approach and diverted into subcategories. Additionally, definition of the categories with fitting anchor examples are provided.

In the following, all subcategories will be evaluated, perhaps adapted or discarded, if they cannot be identified in the material. This work's analysis is based on six main categories with the first half of categories stemming from the governance architecture framework and the other half from the growth models approach. The categories based on the governance architecture approach are labelled *GA* followed by one-digit number for main categories and for subcategories, for example: *GA1.1*. The same principle goes for categories built from the growth models approach which are labelled *GM*. Since the categories are partly modified after the test run, a separation

between non-adjusted and adjusted categories is used. The non-adjusted categories used in the test run will be marked with a '\*' at the end, e.g. 'GA1.4\*'. The adjusted categories used in the main analysis will not carry the star symbol. The analysis is conducted with the data analysis software MAXQDA.

## **4.2 Data Selection**

This work's aim is it to analyse if and how ideas of European industrial policy are adopted at the national level. To answer the research questions, how national growth models influence the adoption of EU industrial policy, the above outlined method relying on Mayring's approach, serves to detect thematic aspects in the complex field of industrial policy formulation. It will help to lay out national principles, European ones and how the national domain of industrial policy reflects European influence in terms of shifts of ideas and frames.

Europe 2020 has been identified as the core document pinning down contemporary European industrial policy. With its release, the monitoring of the EU's Member States has been strengthened, such as through the yearly release of individual National Reform Programmes by the national governments. Here the states display which policies they implemented over the year to comply with the demands of the EU to fulfil targeted goals. Therefore, in terms of national documents, the data selection of this work is based on their reference in the respective NRPs. This work opts for analysing written material from the EU and two presented national cases. The selection of further material, such as interviews, would have been beneficial, yet exceeds the scope of this work, considering that a variety of actors had to be interviewed to guarantee comparability. Regarding the documents issued by members of the dominant social bloc, material selection either depends on their reference to government documents or contemporary releases, displaying positions considering industrial policy. The selected material is not only addressing stakeholders of industry and economy, but also the broad public. All material is aiming to display positions on industrial policy of the individual actor.

Material from the European Union is first of all the Europe 2020 strategy (EC 2010) itself. The development and release of this strategy has already been discussed above. Moreover, the current industrial strategy 'Investing in a smart, innovative and

sustainable Industry' (EC 2017) will be selected, which is one strategy paper resulting from the development of the Europe 2020 strategy. Also, the report of the high level 'Industry Roundtable' (EC 2019) will be chosen as material. This group was another consequence of the release of the contemporary strategy of the EU. Members include representatives from companies, universities, government bodies and trade associations, who released a report in 2019 with views on industrial policy of and inside of the EU (EC 2020).

For the two cases of Germany and the UK, material addressing overall concepts of industrial policy making will be selected. This brings the ability to detect several categories compared to material focusing on one aspect only, such as a specific law. Such laws might be an implementation of European law into national one, making it more difficult to distinguish EU from national influence. Moreover, their selection would not serve the interests of analysis, which does not lie in the transposition of EU regulation but in the adoption of policy ideas as a result of ideational processes of Europeanization, as outlined in the theoretical framework of this work.

For the case of Germany, the 'Industriestrategie' (BMW 2019) as the most current government release concerning national industrial policy is picked and further be used for the first test run. Other material is selected, based on the mention in Germany's NRPs. German NRPs released in 2011 until 2019 were checked for national policies, e.g. laws and strategies, which relate to industrial policy. Herby relying on the table at the end of every German NRP, where all introduced policies are listed. It has to be noted, that several policies get mentioned not once, but appear in several NRPs. This occurs, if the policy or part of it is adapted or if on the basis of a strategy a new initiative is introduced. Particularly the 'High-Tech Strategie' example is mentioned on several occasions. Here the most current HTS from 2014 is selected (Bundesregierung 2014). Besides the HTS, the government programme for electro mobility will be used as well (Bundesregierung 2011). This document is selected regarding the importance of the automotive sector for the German industry.

Besides the current strategy from the ministry of economy in 2019, two more documents from the ministry are selected, both targeting policies towards Germany's 'Mittelstand' SME businesses (BMW 2016a, 2016b). From the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), the strategy

towards climate protection is chosen, because of its important stand inside the NRPs (BMU 2016). Moreover, the contemporary strategy towards research released by Joint Science Conference (GWK), which was established by the federal government and the heads of government of the *Länder*, is selected (GWK 2019). Concerning the structural transformation of industry, Germany initiated the concept of 'Industrie 4.0' to react to changing global value chains, digitisation and general structural changes affecting industrial conceptions, affecting economy, labour and society (Plattform Industrie 4.0 2019a: 3). The introduced institution 'Plattform Industrie 4.0' functions as link between state and businesses to advocate the anticipated changes. From this institutions two documents are selected concerning the positions towards industrial policy (Plattform Industrie 4.0 2019a, 2019b).

Concerning the German dominant social bloc, material is chosen based on its reference in selected government material or displaying contemporary positions towards industrial policy. Contrary to government material, documents of the social bloc towards concepts of industrial policy are limited. Material from the employers' associations BDI and BDA is used which partly react to the issued contemporary strategy of the German government, similar to the VDA, the association of automobile manufacturers (BDI/BDA 2010; BDA 2018; BDI 2019; VDA 2019; VDA et al. 2020). Other members of the dominant social bloc in Germany are the worker's unions of IGM and DGB. Both have issued positions towards ideas of contemporary industrial policy or its development (IGM 2019; DGB 2019).

In contrary to the German NRPs, the UK does not list the introduced policies. Material was selected by working through each NRP, hereby selecting fundamental strategies by the government towards growth, digitisation and switching to a 'greener' version of industrial policy. Similar to the German case, the most current 'Industrial Strategy' of Her Majesty's Government (HMG) from 2017 is selected for the first test run and main analysis (HMG 2017a). Along with this 256 pages long document, the government released in the same year its 'Clean Growth Strategy' and 'UK Digital Strategy', which will be analysed as well, since these strategies have an effect on the conception of the national industrial policy too (HMG 2017b, 2017c). Previous to this material, Her Majesty's Treasury (HMT) also released two documents affecting principles of IP: 'The Plan for Growth' in 2011 and 'Fixing the Foundations' in 2015,

laying out key principles to reform Britain's economy and industry (HMT 2011, 2015). Other selected government material is issued by the British Department for Business, Innovation & Skills (BIS) and the in 2018 established organization UK Research and Innovation (UKRI). Both bodies aim at contributing approaches towards innovation and growth inside of industrial policy. Here the BIS issued in 2010 the document 'Skills for Sustainable Growth' and the UKRI in 2018, a document stating its future principles (BIS 2010; UKRI 2018).

For the material of the dominant social bloc, less documents are selected than for the German case, due to its limited reference to industrial policy by the government or overall positions concerning industrial policy. The centre of the dominant social bloc lays in the finance sector. Here, TheCityUK represents the key voice. Two documents are selected, representing their reaction towards the government's industrial strategy and thus the stance of the finance sector towards industrial policy (TheCityUK 2017, 2018). Other members of the dominant social bloc in the UK are the BCC issuing its position regarding Brexit and its impact on trade and related sectors (BCC 2017). Material from the business organizations CBI and FSB are selected on the basis, that the documents refer to government strategies. By analysing these documents, it is possible to identify the positions towards the discussed principles of industrial policy (FSB 2018; CBI 2019).

To identify the anchor examples and test the setting of the main and subcategories, the two current national industrial policy strategies of UK and Germany will be analysed (HMG 2017a; BMWi 2019). The analysis will be done, by reading the material and thematically marking words or whole sentences. Thus, not every sentence will be coded, only those which actually refer to the theme of one of the codes. The analysis will detect themes or ideas which are used and in which combination these ideas appear. After evaluating the first analysis, categories and material selection might be adapted. Next, national and European strategies and other policy material will be analysed based on the adapted categories.

For the first run and thus testing of the categories on the case of Germany, the current German industrial policy strategy "Industriestrategie 2030" by the Federal Ministry of Economic Affairs and Energy (BMWi) released this white paper in 2019

(BMW 2019). This strategy can not only be seen as strategy towards the German industry but also towards the European concept of industrial policy.

For the UK, a similar, yet more detailed white paper from 2017 will be used to test the categories in the first run (HMG 2017a). Same as the German one, the British 'Industrial Strategy' is designed to answer pressures from enlarging GVCs and minor growth rates. This strategy paper must be seen in context with the UK leaving the European Union. Although the conditions of the 'Brexit' were at that point unclear, the result of the referendum was accepted. It is likely that this has consequences in the wording and framing of the strategy's concepts and will appear different to the German strategy.

For both cases current industrial policy strategies are chosen, since it seems probable that European ideas of industrial policy have been implemented and are likely to be more detachable, compared to older material. Accordingly, findings for categories will be more obvious to detect, but also can be adapted to be more robust and be more clearly defined, to be applied on other material. The testing and adoption of the categories will further bear to detect overlaps and the chance to differentiate the categories from another.

Both strategies are issued as specifically industrial ones. Other material addresses however, according to the presented definition, only partly industrial policy, thus making it harder to detect categories. A table with all used documents is displayed in the appendix.

#### **4.4 Building Categories for Data Analysis**

Categories are the core of a content analysis. This work, will as presented, build them on theoretical assumptions based on both the governance architecture and growth models approach. The governance architecture approach makes the development of categories easier, since the authors offer concrete hypotheses of how Europeanization can be observed by tracing back the effects of European governance architecture on national level. The concept by Baccaro and Pontusson (2016) however, is mainly based on empirical evidenced, which makes it more challenging to develop categories, which help to detect growth models by a content analysis.

#### 4.4.1 Categories Derived from the Governance Architecture Framework

Borrás and Radaelli's (2011) first hypothesis concerns the openness of the European goals and thus the implementation ability of EU policies. The more open the targets and policy of the EU is, the more likely it will be transferred into national strategies. Developing an analytical category from this hypothesis is problematic, since a clear definition on how actors frame the idea of 'openness' is hard to grasp. Nevertheless, this overarching hypothesis influences the building of categories, which are mainly conceptualized based on the second, third and fourth hypothesis.

The third governance architecture hypothesis focuses on national structures and sees a higher chance of the adoption of supranational ideas and policies, if the national ones are similar to the newly introduced ones by the supranational institution. From this, the category 'Existing legacy' is formed and named GA1\*. It serves to analyse if ideas and principles of contemporary European industrial policy are akin to the principles of the individual national industrial policy. The definition for the category is: 'What are the economic principles of industrial policy?' and thus includes the subcategories of a 'Liberalization' (GA1.1\*), 'Growth' (GA1.2\*) and 'Competitiveness' (GA1.3\*). These subcategories are constructed to identify the underlying perceptions of industrial policy by different actors. Moreover, they reflect the concept of the ideational repertoire of Borrás and Radaelli (2011: 470), where general principles of socio-economic concepts are represented by specific terms. The subcategories are derived from the above presented literature review. Including them in the analysis should help to identify, if these concepts are reflected in contemporary industrial policy and how these are presented specifically and if the cases do it in a similar way. To identify how contemporary ideas of industrial policy are formulated, a further main category is built.

Together with the third governance architecture related category, GA2\* 'Creating legacy' is based on the second and fourth hypothesis, which focus on discourse, policy entrepreneurs at the national level and on the adoption of supranational policies. GA2\* can be seen in line with the category of 'Existing Legacy' (GA1\*) since both serve to detect principles of industrial policy in the material. However, GA2\* should display how newly concepts of industrial policy are introduced. Borrás and Radaelli

(2011: 479) argue, that favouring actors will work on convincing the public of the change of policy. GA2\* is defined as: 'Are contemporary concepts of European industrial policy put in context with past national concepts of domestic industrial policy?'. Thereupon, creating connection of new ideas and policies with existing ones or trying to frame the supranational ideas within the national legacy. Actors will argue that the external ideas are not off the national path but fit in line with national preferences. Hereby focusing on the European priorities of generating a smart, sustainable, and inclusive growth. From these priorities, the subcategories GA2.2\* 'Smart Growth', GA2.3\* 'Sustainable Growth' and GA2.4\* 'Inclusive Growth' are built. Moreover, another subcategory is constructed, to detect if released policies are put into a 'European Context' (GA2.1\*).

Concerning the change of national industrial policy, Baccaro and Pontusson (2016) present the concept of the dominant social bloc, which has to legitimize the change or introduction of new ideas. The fourth hypothesis of Borrás and Radaelli (2011: 479) emphasizes that the successful adaption of the desired policy depends on the position of a policy entrepreneur within the national organizational structure. The policy entrepreneurs of this work are the outlined dominant social blocs. Therefore, the category 'Legitimate Change' (GA3\*) looks at if key actors of the dominant social bloc legitimize the supranational ideas and refer to the same principles. It is defined as 'How do actors identify problems and how to they legitimize their actions?'. Here, two subcategories are build named 'Time to Act' (GA3.1\*), which captures how actors identify the problem or the need to adapt to certain circumstances and 'Taking Action' (GA3.2\*), to detect references of how these problems are to be solved.

#### 4.4.2 Categories Derived from the Growth Model Approach

The approach of Baccaro and Pontusson (2016) will not only be used concerning the conception of social blocs, but also with regards of the main concepts of national growth models. Resulting from the empirical findings of Baccaro and Pontusson (2016), this work develops three main-categories: 'Demand Seeking' (GM1\*), 'Intervention Level' (GM2\*) and 'Policy Target' (GM3\*). The category 'Demand Seeking' captures, where the state and thus the growth model is aiming at creating a market. According to the theoretical approach, the export-led model mainly aims at



supplying foreign markets, while the consumption-led one aims at generating demand on the domestic market.

In concrete terms, a domestic demand seeking industrial policy is to be found, if the consumers' ability to purchase more goods and services is targeted. If a certain policy is introduced to increase household incomes, then the category of domestic demand seeking will be used. On contrary, if household incomes are not mentioned and instead the strengthening of the export industry is addressed, then the category of foreign demand is used. This might be done by tax cutting for exporting companies, creating better infrastructure to export easier or other measures. GM1\* is defined as: 'Do states seek for their demand on the domestic or foreign market?' holding the subcategories of 'Domestic Demand' (GM1.1\*) and 'Foreign Demand' (GM1.2\*).

GM2\* and GM3\* result from the developed taxonomy of industrial policy and seek to capture how or if national growth models influence the construction of industrial policy. Regarding the use of horizontal or sectoral policies GM2\* is defined as: 'On which intervention levels is industrial policy aimed?'. Here the subcategory GM2.1\* 'Vertical IP' is constructed, capturing industrial policy aiming at particular firms, sectors or type of businesses. 'Horizontal IP' (GM2.2\*) on the other hand will mark such policies, which target framework conditions.

GM3\* will detect which fields of industrial policy is targeted at and is also based on the developed typology and defined as: 'How are policy targets used in industrial policy?'. For instance, according to Baccaro and Pontusson (2016), the export-model relies on a flexible labour market, which refers to the policy targets of labour. According to these theoretical assumptions, Germany's industrial policy in the field of labour should be influenced by this and differ to the case of UK. Six subcategories are used under GM3\*, starting with 'Innovation' (GM3.1\*), 'Education and Skills' (GM3.2\*), 'Labour' (GM3.3\*), 'Resources and Infrastructure' (GM3.4\*), 'Finance' (GM3.5\*) and 'Market Development' (GM3.6\*). All are referring to the definition of the typology. An overview of all subcategories will be presented at the back of this chapter.

## 4.5 Testing the Theory-Driven Categories

Following the outlined steps of analysis of a qualitative structured content analysis, the above developed theory-driven categories are to be tested by running a preliminary analysis. It tests if the categories can be applied to the material, potentially resulting in an adaptation of categories. The purpose is to deliver a clearer definition, to distinguish the categories from one another. The test run displays a broad overview and not a detailed analysis as offered by the main analysis.

### 4.5.1 Germany

To test the developed categories for the case of Germany, the industrial policy strategy “Industriestrategie 2030” by the Federal Ministry of Economic Affairs and Energy is used (BMWi 2019). For the GA categories, GA1\* is evident in the material, since the principles of German ordo-liberalism are often mentioned. Indeed, Germany follows the principle of this type of neo-liberalism since the foundation of the Federal Republic. Particularly, the BMWi refers to the term “social market economy” (BMWi 2019: 5), which implies ordo-liberal principles. Thus, the subcategory of ‘Liberalization’ is found in a larger number than the two other sub-categories. However, evidence for ‘Competition’ and ‘Growth’ is also found. Overall, the category GA1\* appears well defined and proper to use in the following analysis.

GA2\* and its subcategories can be traced on a large scale. The German strategy underscores the interdependence with the European Union regarding matters of industrial policy. GA2.1\* applies to various parts since different policies are put into a European context. Moreover, ideas of the strategy Europe 2020 and its priorities are reflected at several points, confirming the selection of GA2.2\*, GA2.3\* and GA2.4\* as subcategories. The subjects detected focus on innovation and digitisation, job growth and creating a resource efficient industry. These display a heavy overlapping with the subcategories of GM3\*.

Although the main-category GA3\* concerns mainly material from other key actors of the dominant social bloc besides the government, the German strategy already shows examples, which indicate that a dialog by the government with other important stakeholders is emphasized. Overall, the main-category GA3\* will be kept in the analysis.

Concerning the growth model related categories, applying GM1\*, one finds that the strategy highlights the benefit of the Single European Market and the advantages of free trade within and on a global scale for the industry. This is connected to GA2.1\* of 'European Context', since emphasis is put on the internal market of the EU, which yet is a foreign market for German products. It has to be tested, if a similar connection is found in the UK test run. The other aspect of the category, targeting domestic demand, however is not emphasized. These findings lead to the suggestion, that the theoretical base of the export-oriented German growth model has an impact on the national industrial policy. Connection can be traced to the subcategory GA1.1\* of 'Liberalization' since frequent reference to free global trade and the importance of standards of the World Trade Organization (WTO) are found. In sum, the main-category GM1\* will be used in the further analysis.

For the main-category GM2\*, the strategy emphasises sectoral industrial policy initiatives in the automotive sector. Here, not only direct support for companies of certain sectors are to be provided, but also funds and infrastructure. I.e., the strategy outlines the concept of supporting electro mobility, by building infrastructure for loading devices as well as supporting companies and innovation in the field of battery building and research. Moreover, planned investments in the research of hydrogen as fuel and other sustainable fuels are mentioned. In general, the application of all GM2\* subcategories yield results, so that the main category will remain to be used for the main analysis.

The last main-category, GM3\*, contains the most subcategories. The document holds various parts which fall under these subcategories. As pointed out, the subcategories of GM3\* show heavy overlapping with the subcategories of GA2\*, for instance refers subcategory GM3.1\* 'Innovation' to ideas which category GA2.2\* 'Smart Growth' captures as well. Moreover, a high interconnection between GM3.6\* 'Market Development' and the main-category of GM1\* of 'Demand Seeking' is detected as well. In sum, the test run shows that the developed categories can be successfully applied on the document to detected text passages, however their adoption is needed.

#### 4.5.2 United Kingdom

For the case of the UK, the categories are tested by analysing the 'Industrial Strategy' released in 2017 by Her Majesty's Government (HMG 2017a). Findings falling under the subcategories of GA1\* are found in the material at points where the government refers to its previous "pro-market reforms" (HMG 2017a: 5) and where it emphasizes the creation of a competitive environment for businesses, domestically and globally to ensure growth of the British industry. Yet again, the main-category GA1\* and its three subcategories can therefore be applied in the main analysis.

While GA2\* and included subcategories lead to evidence at various points of the document, they overlap with certain subcategories of GM3\*. Considering the reference to the European context, the UK strategy is not emphasizing the benefits of being a member of the EU, but points to the outcome of the British referendum, concerning its membership. Moreover, the government puts UK's positions in various fields in comparisons with its neighbours, for instance the rate of unemployment. There are numerous findings for the subcategories GA2.2\*, GA2.3\* and GA2.4\*. The UK government wants to generate growth based on innovation and digitisation, create more jobs in innovative sectors and conceptualizes measures to reduce carbon emissions. Finally, applying GA3\* reveals that to generate a legitimized adoption of these transformation goals, the UK governments looks forward to coordinate and include stakeholders in the adaption of new policies, marking an evident construction of the category.

In contrast to the previous categories, the findings for category GM1\* vary more from the German ones. The UK governments stresses to strengthen the domestic market and boost consumption with higher wages. Furthermore, the UK's industry accentuates to develop a higher attractiveness for both domestic and foreign investment. Although efforts are addressed to strengthen domestic demand also references towards foreign demand are found. Especially fostering the export of services is targeted. Planned actions to work on open trade point back to subcategory GA1.1\*. Overall, GM1\* seems suitable for the analysis.

Concerning GM2\*, the strategy aims at both intervention levels, vertical and horizontal. Especially targeted are the automotive sector and the connected development of a battery industry. Connections towards resources and infrastructure

(GM3.4\*) become visible since infrastructure for charging devices are planned as well. Next to the mobility sector, different other sectors are targeted, mostly part of producing digital hardware for services. On horizontal level, reforms should generate a more favourable business environment with less regulation, showing a connection to subcategory GA1.1\* of liberalization. Also, the construction of the tax system is to be reviewed.

The mentioned overlapping of GA2\* and GM3\* becomes apparent when applying the subcategory 'Innovation', whereas the strategy does not only reveal the objective of reforming the labour market but also of fostering research and innovation, education and skills to increase digital knowledge. Moreover, infrastructure measures towards the automotive sector and less carbon-based production also falls under GM3\* as well as the subcategory 'Sustainable Growth' GA2.3\*. Other overlapping of categories is found between subcategory GM3.6\* of 'Market Development' and GM1\*. Further, the document refers to the use of various finance instruments such as taxation, falling under subcategory GM3.5\* and partly GA2.3\*.

#### **4.6 Adoption of Categories and Resulting Analytical Framework**

The above presented preliminary analysis reveals that several categories are partially overlapping or cannot be clearly separated from each other, resulting in the difficulty to know when to apply which category. Therefore, the subcategories have to be adjusted or even discarded, to deliver a clear framework in the application of the structured content analysis.

The first overlapping was found between the subcategory GM1.2\* 'Foreign' concerning the demand seeking of the state and the subcategories GA1.3\* 'Liberalization' and GA2.1\* 'European Context'. Since the SEM represents a foreign market and particular for Europeans ones an important one, the connection between demand seeking in foreign markets and a European context will be present throughout the analysis. Yet, since liberalization also concerns trade, it can imply the flexibilization of labour markets or tax regimes and accordingly relates to several subcategories of this work. As a result, GA1.3\* will be kept to trace the idea of liberalization in various fields and be able to trace the abstract liberal idea.

However, a high similarity between the main-category GM1\* 'Demand Seeking' and the subcategory GM3.6\* 'Market Development' was detected. To separate both in the material was less obvious than anticipated. The two categories were formed from the two theoretical concepts of this work. While 'Demand Seeking' arises from the concept of general national economic policy, the category 'Market Development' is developed as part of the taxonomy for industrial policy. Considering the scope of this work on industrial policy the theoretical concept of growth models is cut to focus on this scope. While market development is an important factor of the taxonomy of industrial policy, in the research method of a structural content analysis, both categories aim to grasp the same aspect and therefore are not able to be separated from each other. In consequence, sub-category GM3.6\* 'Market Development' will be erased from the codebook for the main analysis.

Several overlapping was also traced for the subcategories of GA2\* 'Creating Legacy' and the GM3\* subcategories. First, the subcategory GA2.2\* 'Smart Growth' was constructed to capture the ideational concept of the EU that through innovation and efforts concerning R&D as well as investments towards building a knowledge-based economy, smart growth will be achieved, following the definition of the European Commission (2010: 11). The aim with this category is to detect national efforts in the field of innovation and identify if national strategies share the frame and idea of smart growth, as developed by the EU in the Europe 2020 strategy. However, in the first run, this subcategory was highly overlapping with the subcategories under GM3\* 'Policy Target' of innovation and education; GM3.1\* and GM3.2\*. Moreover, the difference between both cases of Germany and the UK uncovered, presuming that those would clearly refer to the Europe 2020 priority smart growth was not evident. To be able to detect different forms of industrial policy in the fields of innovation and education and thus not pre-interpret during the coding, subcategory 'smart growth' will be deleted.

A similar overlapping is detected for subcategory 'Sustainable Growth' with the subcategory 'Finance' and 'Resources' as well as 'Inclusive Growth' and 'Labour'. Resulting from this work's focus on industrial policy, only policies will be taken into account which affect IP. For example, the flagship initiative 'Youth on the move' falls under the priority 'smart growth' and targets to enhance the free movement of

young professionals but does not fall under the definition of industrial policy and is therefore neglected. In sum, the subcategories of GA2\* and GM3\* are overlapping, while GA2\* with its subcategories are not precise enough to detect individual findings while GM3\* is. The category GA2\* does not contribute to the same extent as other categories to the scope of this work, to reveal how ideas of the EU are adopted into national industrial policy. On that account GA2\* will not be used in the main analysis. With the discarding of the main category GA2\*, one of its original subcategories, 'European Context', will be used under GA1\* 'Existing Legacy' to analyse how the legacy shared with the European Union is put in context with the respective national industrial policy and how the relationship with the Union is framed. The adapted categories will further be referred to without the '\*' symbol.

<b>Main Category</b>	<b>Sub-Categories</b>	<b>Definition</b>
<i>GA1: Existing Legacy</i>	Growth, Competition, Liberalization, European Context	What are the economic principles of industrial policy?
<i>GA2: Legitimate Change</i>	Time to Act, Taking Action	How do actors identify problems and how do they legitimize their actions?
<i>GM1: Demand Seeking</i>	Domestic, Foreign	Do states seek for their demand on the domestic or foreign market?
<i>GM2: Intervention Level</i>	Vertical IP, Horizontal IP	On which intervention levels is industrial policy aimed?
<i>GM3: Policy Target</i>	Innovation, Education and Skills, Labour, Resources and Infrastructure, Finance	How are policy target used in industrial policy?

*Table 3: Adapted categories of content analysis (self-created)*

As a result of the preliminary analysis, the above scheme of categories and their respective purposes results. The main-category GA1 is constructed to identify the economic principles on which industrial policy is based. As outlined, four subcategories are formed. Statements towards liberal principles, such as relying on market forces in its industrial policy fall under the first subcategory GA1.1 'Liberalization'. The next subcategory GA1.2 of 'Growth' identifies references to a general growth principle or towards certain policies, such as growth in employment. The third subcategory GA1.3 'Competitiveness' captures remarks towards a competition narrative inside of industrial policy. The last subcategory of GA1 detects if industrial policy is put in a European context and named GA1.4. The next main-category, GA2, is built to detect how the legitimization of industrial policy is framed, so that subcategory GA2.1 captures how actors frame the problems on which basis they demand change and the subcategory GA2.2 serves to detect how these actors legitimize their actions.

The first of the three main-categories developed from the growth models approach, GM1, serves to find if industrial policy targets the domestic or the foreign markets. Consequentially, two subcategories, GM1.1 and GM1.2, are built. GM2 contains two subcategories as well, representing the two possible intervention level of industrial policy. Industrial policy either aims at a vertical level, directly targeting companies, sectors or business models, captured by GM2.1, or targets to influence the macroeconomic framework, identified by GM2.2. The final main-category, GM3, captures concrete measures of industrial policy. The five subcategories catch policies in the fields of innovation, education and skills development, labour, resources and infrastructure as well as in finance.

## 5. Findings

The analysis will firstly present the findings of EU-level material and then move to the material of the cases of Germany and the UK. The analysis first of all introduce the findings resulting from analysing government material and then proceeds to the material issued by the respective members of the dominant social blocs, which also be referred to solely as 'social bloc'. The analysis will be done by a content-related structuring, to identify and extract certain thematic topics of the material as well as



overlapping between certain topics (Mayring 2015: 99). The core findings are also presented in tables in the appendix.

## **5.1 European Union**

At first, material from the European Commission and the Industry Roundtable is analysed, to detect how the Union is positioning itself with the developed categories. This presents a reference for the national cases on how industrial policy of the EU is categorized.

### **5.1.1 A Market-Based Economic Framework**

The EU's economic framework with "market-based instruments" (EC 2010: 15) refers for instance to financial instruments, such as taxation, subsidies and funds, pointing to subcategory GM3.5 (EC 2010: 16). This market-based framework should particularly benefit SMEs and boost innovation, showing a connection to subcategories GM2.1 and GM3.1 of this analysis. Also, liberal efforts should decrease the bureaucratic duty of businesses as well as urging national governments to "reduce labour market segmentation" (EC 2010: 19) by partly liberalizing labour markets and simultaneously developing more security for the workforce – so called 'Flexicurity'. This work defines it as an effort towards liberalizing the labour market and this way influencing industrial policy.

Furthermore, the European Union declares to work on opening trade, especially for green products, technologies, and services as well as works on the international standardization of certain sectors (EC 2010: 25). This international standardization should rely on market-based instruments and help to generate more open trade (EC 2017).

The Industry Roundtable underlines the benefits of an open trading EU, to support Europe's industry, yet making sure to be certain to trade with liberal partners only (EC 2019: 4). Investment from businesses with strong state interference should not be accepted, thus being cautious of selling European technologies abroad which may result then in a weakening of Europe's industry (EC 2019). The actors highlight the benefits of globalization and draw the opportunities especially for SMEs of global trade. Moreover, WTO rules should continue to be the international base of trading

and further strengthened, same as the whole organization (EC 2019). All these represent finding for the subcategory of GA1.1 regarding the case of the EU.

The EU's Europe 2020 strategy is built on three priorities, all are aiming to deliver growth (GA1.2) (EC 2010). The Commission wants economic growth to be beneficial for the different parts of the union, both centre and periphery. When facing new challenges, such as climate change, policies will be adapted, yet growth should continuously be generated. Hence, all flagship initiatives should lead to economic growth. Especially for certain sectors, for instance green technologies, a higher growth potential is detected, thus vertical initiatives are foreseen to extract these potentials (EC 2017). The Industry Roundtable on the other side puts less emphasis to spread a growth narrative as the Commission does and does not refer to generate growth with industrial policy measures.

The principle of competitiveness (GA1.3) is fundamental to the EU's economic and industrial policy (EC 2010). Here, similarities to the subcategory above of growth, GA1.2, can be observed, that for instance generation of sustainable growth is based on the principle of competitiveness and should lead to a more competitive economy as well (EC 2010: 14). This competition base of industrial policy "increases productivity, which in turn ensures [...] economic growth (EC 2017: 14). The Commission refers to the principle of 'competitive advantage' of parts of its economy and hereby highlights the role of SMEs.

Competition also plays a vital role in the global context. The EU sees itself in constant competition with other large global economies, such as China and the USA. In consequence, the EU urges its members to increase their competitiveness and so generate growth (EC 2010: 14). It is stressed that an increased level of competitiveness leads to higher abilities to innovate. Specifically, innovation in the market of green technologies should be achieved by a high level of competitiveness. The European Commission emphasizes that overall competitiveness of the European economy can only be guaranteed if certain sectors, such as the battery and energy sector, are supported; pointing to the themes grasped by the subcategories addressing vertical industrial policy, GM2.1, and resources and infrastructure, GM3.4 (EC 2017). A further important connection appears towards GA1.1, since competitiveness should be generated on an equal playfield, i.e. on liberal principles, without barriers or state

interference. Moreover, creating “framework conditions for investment, productivity-enhancing resource allocation and an improved business environment” (EC 2017: 16) should generate such industrial competitiveness.

The Industry Roundtable sees future European competitiveness build on new technologies, especially in the field of green technologies (EC 2019: 4). Increasing competitiveness and simultaneously decarbonizing the industry is not seen contrarily. The roundtable members are clear that further efforts are needed to create a more competitive business environment, not only inside the EU but also internationally. Here, the emphasis is laid on the SEM as tool to generate a desired business environment. It is marked clear that “competitiveness in the way we innovate” (EC 2019: 5) laying the core of industrial policy for the EU.

It is obvious that the selected material from the EU puts industrial policy into the European context (GA1.4). According to the Commission, national policies need to be coordinated within the Union (EC 2010). Highlighting the interdependency of the Member States’ economies, one main instrument to reach commonly defined goals is the Single European Market, along with other instruments such as financial measures (EC 2017). To manifest the interconnectedness of the economies, the example of the recent Eurocrisis is referred to show that national policies affect other union states and that coordinated efforts can stabilize economies (EC 2010: 8). To boost the development of new technologies, especially towards the biological sector and future evolution of technologies “European Innovations Partnerships” (EC 2010: 12) are targeted by the Commission.

The interconnection of the Member States and their economies is echoed by the Industry Roundtable, along with highlighting shared European values (EC 2019). The importance of the SEM is underlined and put “at the core of industrial policy” (EC 2019: 6), to generate a reliable market framework for European actors to interact in. The further integration of Member States industries is endorsed, specifically in creating a coalition of state, business and social actors to coordinate the development of skills, which should help to set the goals of economic development (EC 2019: 33).

### 5.1.2 Structural Change Needs a European Answer

The European Union sees a time to act (GA2.1) in its industrial policy due to the event of the “economic and financial crisis” (EC 2010: 2), which revealed structural weaknesses. Moreover, the commission detects industrial transition, due to enlarging global value chains, alteration in global demand and declining natural resources, which affect cutbacks on job creation as well as decreasing industrial production. It is a window of opportunity drawn to counter these developments with industrial policy and generate new ways to produce innovation and value creation in general (EC 2017). Underlined is the current face of digitisation and that contemporary industrial policy must react to that and be shaped accordingly. A specific sector to act in is the automotive one. Further, connection to subcategory GA1.4 is made, that these changes of industrial policy have to be tackled with European coordination.

The Industry Roundtable shares the view, that industry is transforming, in context of structural global changes, such as digitisation, climate change, societal polarisation and also power shifts inside the international community as well as rising protectionism (EC 2010). The actors urge, that a “new European industrial model must ensure Europe remains a leader” (EC 2010: 4) in various aspects of industry, pointing to subcategories such as innovation, education and labour. The EU should work as a champion for its ideas and values on the global scale, yet be able to adapt to its changing environment.

After pointing to the need to adapt, European actors display ideas how these developments must be tackled best, coded under GA2.2. Former EU Commission president Barroso is clear, that a coordinated response of different actors will be needed, including “social partners and civil society” (EC 2010: 3) to reach the targeted European goals. This coordination with stakeholders from the business sector, trade unions, academics, NGOs and consumer organizations as well as from different levels, from regional to supranational, should help to develop a solid framework of industrial policy. To foster dialogue between stakeholders, arenas are built, such as the already presented Industry Roundtable or meetings such as the European Industry Day, which should as well help to address future needs (EC 2017). These forms of coordination and dialogue are welcomed by the mentioned stakeholders, which share a similar argumentation (EC 2010).

### 5.1.3 A Focus on Vertically Supporting SMEs

Merely few findings for subcategories of GM1 'Demand Seeking' are found. The EU highlights the strength of the internal Single European Market as well as the importance of global growth. It is championed, that new markets are required to export European goods (EC 2010, 2017). Thus, an emphasis is put on concluding on-going trade negotiations, as well as on making better use of existing ones (EC 2010). This push to strengthen the foreign demand is not found in the statements issued by the Industry Roundtable.

The intervention level of the anticipated industrial policy will be either on framework condition, affecting all participants of the industry or vertically used to target certain sectors, companies or business types, captured by the subcategory GM2.1. Here, the European Union highlights the importance of SMEs for the industry as a whole, deserving special support (EC 2010). These types of businesses should be helped to compete on the global market, providing goods and services, but also be granted with better access to the SEM. Moreover, the tax and bureaucratic burden should be reduced for SMEs and simultaneously these businesses should benefit from an improved business-friendly environment (EC 2010: 21). Helping SMEs with better access to finance should be done by funds and organizations such as the European Investment Bank (EC 2017: 12). The support of SMEs is also advocated by the Industry Roundtable, defining such businesses as beneficial actors for the whole economy, providing a majority of employment in Europe (EC 2019). Strengthening the internationalisation support is stressed as well (EC 2019: 30).

Special attention is also put on the space, steel and defence industry as well as on the green energy industry, maritime shipping and manufacturing (EC 2017). Hereby using measures to protect these industries from "unfair trading practices" (EC 2017: 5) as well as introducing instruments to boost modernisation of these sectors. Further focus is put on strengthening the European cybersecurity sector and the automotive sector, towards building competence to produce higher efficient vehicles, by setting higher carbon dioxide standards and supporting innovations in drive technology, such as alternative fuels and especially batteries (EC 2017: 11). Establishing a strong European battery industry is of "strategic importance" (EC 2017: 11) to guarantee a competitive automotive industry in Europe. It is hoped to generate

positive spill over effects for other industries, such as transportation and energy. The automotive industry is framed as one of the key industries of the EU by the Commission. This is partly echoed by the Industry Roundtable, while the group is on the same line that support for a European battery industry is needed (EC 2019: 9).

Other vertical measures are aimed at supporting financial technologies (FinTech), which often fall under the category of start-ups, which should be supported in a similar way as SMEs, with reduced bureaucracy burden and better access to risk capital, displaying a connection to subcategory GM3.5 'Finance' (EC 2017: 14).

The Industry Roundtable sees the need to further support the medical biotechnology industry, quantum technologies, additive manufacturing (3D printing) and blockchain technology (EC 2019: 10). Vertical measures targeting these fields or the general support of game-changing technologies, such as artificial intelligence (AI), in the mentioned sectors can create advantages in GVCs and have positive spill over effects (EC 2019: 21). Here, connections are made to GM3.5 and GM3.2, to create abilities to develop such technologies as well as financially supporting this progress. Also, creating a business friendly environment for digital businesses is targeted (EC 2019: 27).

There are lesser references to horizontal industrial policy (GM2.2) found in the material than to vertical IP measures (GM2.1), which is not surprising considering its more abstract conception. As outlined, the aim of horizontal IP is to generally improve framework conditions, such as better access to finance of research and developments, to boost innovation, pointing to subcategory 'Innovation' (GM3.1) (EC 2010: 5). The goal is to "establish an industrial policy creating the best environment" (EC 2010: 16) for the transition ambitions of the EU and its Member States. Moreover, the framework for intellectual property should be strengthened as well as a legal framework which stimulates private investments in high speed internet and general digital infrastructure, relating to subcategory 'Resources and Infrastructure' (GM3.4) (EC 2010: 12). Already pointed out, a connection exists towards subcategory 'Liberalisation' (GA1.1), that the EU targets to develop more of a market-based framework for industrial policy in general. A laissez-faire type of liberalism is not anticipated. Concerning the goal to be more energy and resource efficient, "regulation, [...] performance standards, [...] taxation, subsidies and [...] structural funds"

(EC 2010: 16) should help to reach those goals, by enabling the service and manufacturing sectors for this transition.

The Industry Roundtable underlines the importance of intellectual property protection too, as well as the need to have a consistent regulatory framework to reach the sustainability goals (EC 2019). The group urges for a comprehensive framework for the business, education and science sector to be more interconnected and financially backed up, to reach the targeted goals of smart, sustainable and inclusive growth of the EU (EC 2019: 17). Such a framework should produce sufficient incentives for innovative technologies markets to thrive (EC 2019: 22). Same as in the previous subcategory, the framework should be beneficial especially for SMEs, by reducing transaction costs and better access to finance, such as risk capital (EC 2010: 17, 2017: 14). Access to finance or general improvements for investment framework conditions should be reached by a clear competition policy, pointing to subcategory GA1.3 (EC 2017: 13).

#### 5.1.4 Europe 2020 Shaping Policy Targets

The five subcategories of GM3 capture the mentioning of the defined policy targets of industrial policy. It is further analysed in which context they are put in, if certain measures are used to achieve defined goals and if they correlated with other categories.

The target of innovation (GM3.1) is often used in combination with research and digitisation (EC 2010). A clear goal that “3% of the EU’s GDP should be invested in R&D” (EC 2010: 5) is set with both private and public sector contributing to reach this goal. Innovation is framed as essential driver for growth (GA1.2) (EC 2017: 2). This is echoed by the Industry Roundtable, which states that the innovation principle should be implemented across all policies (EC 2019: 8). Moreover, the roundtable sees the developed industrial policy as tool to generate innovation and be a successful part of the transformation, which are declared in findings for subcategory GA2.1 (EC 2019: 4). The roundtable highlights the role of building digital infrastructure and helping to generate networks and clusters, pointing to subcategory GM3.4 and producing innovation with the digitisation of manufacturing and services (EC 2019:

5). Digitisation, such as the use of AI, should create new opportunities for employment and be beneficial for the industry as a whole.

Towards education and skills development (GM3.2), the European Commission aims to reduce the percentage of early school leavers and an increase in tertiary degree holders, hereby focusing on the young generations (EC 2010: 5). Older generation should thus not be neglected, since the EU underlines the need of lifelong learning approach, which is echoed by the Industry Roundtable (EC 2019: 6).

Education policies are essential to generate the EU's 'smart growth', which relies upon a knowledge based economy (EC 2010: 11). The EU emphasizes to ensure "a sufficient supply of science, maths and engineering graduates" (EC 2010: 13) to build a workforce which is able to generate desired developments, such as the already presented principle of innovation. In general, the quality of education and skill development should be raised inside the EU. Also, the openness of the education system and the acceptance of foreign qualification should be improved, to help the labour market to adapt to more flexible work patterns (EC 2017: 6).

Private actors urge to generate a better skilled workforce, to accomplish a technology transformation towards a more digital one, hereby focusing on STEM (science, technology, engineering and mathematics) skills (EC 2019: 10). Also, the group sees the responsibility to develop such skills in the European industry as well (EC 2019: 15). The roundtable sees the need to closer link public and private interest in the education and skills systems. This cooperation should help the system to be flexible enough, to adapt to developments on the labour market, pointing to a connection to following subcategory GM3.3, and the developing of an entrepreneurial skill set.

Labour market policies (GM3.3) are at the centre of the Europe 2020 strategy, since one purpose of the strategy is to create "more jobs" (EC 2010: 2). Thus, the connection between other policies is made, such as that innovation will lead to the creation of new jobs (EC 2017: 4). This argument is also presented in the opposite direction, that reformed labour markets will foster innovation (EC 2017: 16). In concrete numbers, 75% of the EU's population aged 20-64 should be employed and structural problems of unemployment reduced (EC 2010: 5).



As pointed out previously, a connection between the topics of labour and education is detected. Where high-skilled jobs are to be created, an education system for such skills is needed. The Industry Roundtable emphasizes to generate digital knowledge for the workforce, to be able to lead to a successful digitisation of the industry (EC 2019: 15). The Commission stresses that labour markets are to be modernised, by enabling better free movement of workers and being able to “better match labour supply and demand” (EC 2010: 6), thus be more flexible and raise labour productivity (EC 2010: 18). This flexibility or “interoperability of the workforce” (EC 2019: 15) is also demanded by the Industry Roundtable. This group refers here again to the digitisation of the industry and points to the gig economy, which is based on freelancers which are flexible to be used and not restricted to set work conditions, making the connection to the subcategory ‘Liberalization’ obvious (EC 2019: 19).

Also, a thematic connection to subcategory ‘Finance’ (GM3.5) is detected, since the European Social Fund should be used to support the “competitiveness for labour markets” (EC 2017: 7). Often, the connection is made between improved labour market policies and an effective social system to be beneficial (EC 2010, 2017). This is echoed by the Industry Roundtable (EC 2019: 19). European labour markets should also be better accessible for young people and leading in “gender equality and diversity” (EC 2019: 34). In sum, several connections between labour and other subcategories are detected.

The subcategory GM3.4 ‘Resources and Infrastructure’ is found in a large number in the material. It often relates to the sustainable use of resources, to reach the climate goals, to reduce emissions (EC 2010: 5). Such a resource efficient economy works as one condition to fulfil the EU’s goal of ‘sustainable growth’. A “shift towards a low carbon economy” (EC 2010: 6), with an increase in the provision of renewable energy and a modernised transport sector is emphasized. This should help also to overcome the dependency on the import of fossil fuels and the danger of being affected by price shocks (EC 2010: 8). Connections are made to vertical IP, to ensure higher investments in carbon capture technologies and recycling industry (EC 2010: 15). Similar views are shared by the Industry Roundtable, to ensure less dependency on importing raw materials (EC 2019: 23). Other detected vertical IP towards electromobility is also related to the need to build energy infrastructure to load electricity

powered vehicles and develop a low emission mobility (EC 2017: 11). These ideas are also shared by the Industry Roundtable, which underlines the importance of creating a “climate-neutral, circular and resource efficient” (EC 2019: 4) European industry. This reference to sustainability is found in various parts, also towards electric refuelling infrastructure and other fuel production, such as hydrogen. Yet, the group is clear, that a sufficient supply of raw materials has to be secured anyhow, as well as low energy costs (EC 2019: 13).

Already presented is the connection to GM3.1, where innovation and digitisation are linked to building a digital infrastructure, mainly through high-speed internet connection (EC 2010). This should be in principal privately provided, however public funding or structural funds should be used as well, where private actors do not have incentives to invest. Moreover, forms of “industrial internet” (EC 2017: 8) or other digital platforms designed for industrial use, should provide new infrastructure as base for further developments, such as innovation or cooperation. Other digital infrastructure needs are pointed to the 5G standard (EC 2017: 9). A better digital infrastructure is also emphasized by the roundtable (EC 2019: 9).

Other infrastructures to be build are innovations hubs, technology centres or other clusters, where cooperation between private and public actors is targeted (EC 2010: 13). This should lead to better competences in the field of resource efficiency (EC 2017: 8). Similar is referred to such clusters by the Industry Roundtable, which sees them to “ensure better diffusion of knowledge and technologies” (EC 2019: 9), and urges such to be financially backed up. Such hubs should ensure a leading position in developments of AI for instance (EC 2019: 24).

Better access to finance (GM3.5) should be mainly created for research and innovation, by tax incentives and direct support through funds (EC 2010: 5). Here, EU financial instruments, such as the structural funds, are seen as complementary to national contributions from public and private sectors (EC 2010: 15). The commission is clear, that the instrument of direct state aid, contributes to achieve the goals of Europe 2020 (EC 2010: 21). It is referred to “Horizon 2020 and the European Structural and Investment Fund” (EC 2017: 4) to reach the desired goals. Other funds should further benefit the labour market’s competitiveness, as already pointed out before. Sustainable finance is seen as proper instrument to generate more

sustainable investments by private actors (EC 2017: 11). Such European action should work as incentives for more investments of the private space in general.

“Adequate EU state aid” (EC 2019: 18) is also seen positively by the Industry Roundtable. Such financial instruments are seen beneficial to achieve transition, for instance towards a more digitalized and climate-neutral industry (EC 2019: 20). Also, the group declares the need to strengthen the European capital markets by unionizing them (EC 2019: 26). Financial instruments should also be revised for low wage earners (EC 2010: 19). Quite noticeable is here again the focus on SMEs, and the objectives to allow such businesses a better access to finance, specifically for risk-investments (EC 2017: 12). This points back to the connection to vertical used IP and the already mentioned support for FinTech businesses (EC 2017: 12).

An overview of the core findings and connections between the categories is presented in the appendix.

## **5.2 Germany**

### **5.2.1 An Ordo-Liberal Legacy**

Concerning Germany’s existing legacy of industrial policy, applying the subcategories of ‘Liberalization’ (GA1) yields at a similar level like the EU and the UK. Liberalising efforts are aimed for instance to reduce bureaucratic effort for businesses; especially SMEs should be relieved (BMWi 2016a). Simultaneously, the government stresses the need for regulations to be adapted to contemporary industrial changes, thus enhancing the ‘efficiency’ of policies. SMEs and especially young business are urged to be quoted on the stock exchange, which should lead to higher benefits of the economy (BMWi 2016a). Members of the social bloc also focus on SMEs and specifically request more freedom for start-ups, to generate innovation for the economy (BDI 2019).

The idea of high benefits, due to liberal trade is highly consolidated in German industrial policy. Furthermore, the German government plans to reduce market barriers for goods, capital and industry related services both inside the SEM and globally (BMWi 2019: 30). A connection between liberalisation and supporting SMEs is often drawn (BMWi 2016a). German SMEs of the *Mittelstand* are seen as global players,

thus core members of the export-oriented industry. The government often refers to the principles of the WTO and its liberal trade policies. Obviously, connections between the subcategory 'Liberalization' and 'Foreign Demand' (GM1.2) are found. The German government emphasizes working on liberalizing international free trade agreements (BMWi 2016a). This is echoed by members of the SB, to guarantee better access to foreign markets (VDA 2019). Moreover, it is stressed that regulating the market economy will hinder growth, job creation and the generation of wealth (BDI/BDA 2010). A connection to subcategory GM3.3 'Labour' is made, by framing the liberalized labour markets and welfare policies as beneficial for the economy (BDI/BDA 2010: 38).

Further liberalizing efforts can be observed in the sectors of energy, electro-mobility and generally in the field of research (Bundesregierung 2011; BMU 2016). Liberalization should contribute to boost risky research plans, which should lead to new innovations outside the box of current technologies (GWK 2019). These principles of market economy should help to reach the goals of a green industrial policy, including resource efficiency and new forms of mobility, marking a connection to subcategory 'Resources and Infrastructure' (GM3.4). Moreover, these measures contain a vertical aim (GM2.1).

In general, the German government draws strong connections to its ordo-liberal legacy of its *Soziale Marktwirtschaft* and highlights its ability to innovate, generate wealth and guarantee high quality labour (BMU 2016: 28; BMWi 2019). It is pointed out, that the base of new industrial policy must be market principles (Plattform Industrie 4.0 2019b). Germany's Minister of Economy Peter Altmaier strongly emphasizes to an ordo-liberal economy and stresses that "strengthening the market economy is in most cases the best answer to structural change" (BMWi 2019: 5). Members of the social bloc refer to the German ordo-liberal legacy as well, highlighting that Germany relied over 70 years on open markets and generated "unprecedented economic wealth" (BDI 2019: 2). According to the social bloc, these principles of liberalization should be spread on a global scale, leading to lower levels of taxation (BDI 2019). A lower taxation should then lead to a higher demand of the German market for companies to invest in (VDA 2019). Creating a regulatory framework for the market, without interfering with market forces is desired by the SB. Claiming that setting

an abstract framework and overlooking the rules without interfering leads automatically to best results (BDI 2019; VDA 2019). The German government acknowledges the need to make use of economic policy measures, due to foreign states interfering and distorting market forces (BMWi 2019).

Differences between the government and the SB are observed concerning the openness for FDIs and the access to national technologies and businesses, which hold key knowledge in certain sectors. Members of the SB prefer a high level of openness for FDIs and the ability for foreign investors to buy technologies or companies without state restrictions, thus to be able to benefit most from market forces (BDI 2019: 31). Additionally the private actors urge the German government to create pressure on a global scale for other economies to open themselves as well, using institutions such as the WTO as vehicle (BDI 2019: 6). The government pushes for reforms of the organizational structures of the WTO and urging it towards more actively endorsing liberal trade and hindering protectionist measures of its Member States (BMWi 2019). In sum, the German government and members of the German dominant social bloc emphasize liberal ideas towards industrial policy.

Government releases emphasize the importance of industrial growth (GA1.2) and point out that the addressed industrial policy should always lead to such (BMWi 2016a; GWK 2019). In consequence, various subcategories of this work relate to the idea of growth. For instance, boosting external demand should lead to growth as well as liberalising measures towards the labour market or the innovation of new technologies (Bundesregierung 2014). Moreover, similar to the Europe 2020 strategy, the framing of creating a sustainable growth is used (BMU 2016: 24). However, the German government also points out, that an emission-free industry requires separation from the premises of economic growth, thus there is no coherent position about the growth prospects of transforming the industry towards a more sustainable one (BMWi 2019: 24). Specifically, high growth potential is found with SMEs, which are seen as importance actors to generate growth and be beneficial for economy and industry (BMWi 2016b).

The dominant social bloc refers to the same principles as the government, that industrial policy should lead to economic growth (VDA 2019; VDA et al. 2020). Especially industrial policies towards new markets, such as the digital one, will be

beneficial to generate overall growth (BDA 2018: 4). Similarly to governmental material, connections to the topic of innovation (GM3.1) are found in the sense that innovation is supposed to lead to growth (BDI/BDA 2010: 38).

Competitiveness (GA1.3) is seen as base of the German economy, especially in the global and exporting context where the industry's international competitive strength is underlined (BMW 2016a: 4, 2019: 4). Yet again, references towards the legacy of Germany's *Soziale Marktwirtschaft* is made, which relies on a competitive market (BDI/BDA 2010: 7; BMU 2016: 28; BMW 2019: 4). This principle is not only referred to by businesses, but also by the science sector (GWK 2019: 1).

Similarly to previous subcategories, a connection is made to innovation, in a way that the ability to be innovative leads to being competitive itself (Bundesregierung 2014: 11; BMW 2016a: 5). Other similarities are that a competitive framework will lead to a better performance of SMEs (BMW 2016b). Overall, competitiveness of the industry is framed as essential to generate new products, services and technologies and also in consequence growth, pointing to GA1.2 (Bundesregierung 2014: 6). The government aims to increase competitiveness at all areas of industry (Plattform Industrie 4.0 2019a: 3; BMW 2019: 7).

The social bloc has a similar view on the importance of a competitive industry. To achieve innovation targets and high employment, a connection towards subcategories 'Innovation' (GM3.1) and 'Labour' (GM3.3) is detected (BDI 2019: 2; VDA et al. 2020: 1). While the focus lays on global competitiveness, the domestic one is not neglected (BDI/BDA 2010: 30; BDI 2019: 9; VDA 2019: 10).

The European context (GA1.4) is obvious for the current industrial policy of Germany, since the strategy is conceptualized for Germany and the EU (BMW 2019). Not only the deep inter-European relations are stressed, but also the importance to reinforce national interest in Brussels, especially those of SMEs. When issuing their interests, they are supposed to influence new legislation towards an digital European market (BMW 2016a). The importance of the SEM is underlined, also by actors of the social bloc (BDI/BDA 2010; BMW 2019). This connects to statements about the high interdependence of Germany with other EU Member States (BDI 2019).

The results of applying various GM categories reveal a European contextualization, such as in the area of finance. It is aimed to work with European funds and strategies to support the German industry (Bundesregierung 2014; BMWi 2016a: 3). The influence of European recommendations for national policies is seen in the fields of climate and energy, which Germany is willing to follow (BMU 2016). However, the high dependency on coal generated power for the German energy production puts comprehensive compliance in question (BMU 2016). On the other hand, European cooperation is considered fruitful to be fostered in research such as concerning the development of a European battery industry, digital infrastructure and developments of new technologies (Bundesregierung 2014; BMU 2016; BMWi 2019; VDA 2019). The German government is certain, that industrial developments have also to be tackled at the European and not only national level (BmwI 2019).

The social bloc urges Berlin and Brussels to adapt their industrial policy together with regards of competitors such as China and the USA (BDI 2019; DGB 2019). Acting only nationally seems not successful, especially when ensuring the access to world markets for European businesses. In this context, the VDA states that a “successful German industrial policy is only possible, if it is a European policy” (VDA 2019: 10).

### 5.2.2 Private and Public Collaboration to Meet Challenges

Concerning the question how industrial policy measures are legitimized, findings categorized under GA2.1 show that German officials and members of the social bloc see the financial crisis of 2008/2009 as clear sign, that the framework of industrial policy needs to change (BmwI 2019; BDI/BDA 2010). Also, ongoing digitisation is seen as catalysator for change (GWK 2019). Growing globalisation, climate change, demographic change and less high-skilled workers are seen as other factors, which make adaption inevitable (Bundesregierung 2014; BMWi 2016a; BMU 2016). These shifts of production are seen as chance for Germany to create new forms of value creation, by also urging to implement such and not only relying on old patterns of production (Bundesregierung 2014: 14; Plattform Industrie 4.0 2019a). Here, also labour markets and working conditions, which have to be adapted to these new circumstances, are pointed out, especially regarding a higher digitisation, which indicates a thematic connection to ‘Labour’ (GM3.3) (Bundesregierung 2014: 23).

Also, the social bloc identifies a current structural change and stresses to adopt various policies, such as labour (DGB 2019; VDA et al. 2020). The digital transformation will have massive consequences for the economy, labour and society, according to the social bloc (BDA 2018). An adoption of industrial policy is considered urgently needed (BDI 2019: 1).

The German government is confronting these challenges (GA2.2) by opening a dialogue with different stakeholders of business, workers and trade unions, scientists and politicians (Bundesregierung 2011, 2014; BMU 2016; BMWi 2019; Plattform Industrie 4.0 2019a). These actors agree that industrial policy needs to be adopted to master the outlined and perceived changing framework conditions (GA2.1). In high frequency, the importance of dialogue is emphasized, to generate a “social acceptance” (Bundesregierung 2014: 10) for the anticipated changes (BMWi 2019). Such cooperation should be manifested in networks to generate a more energy efficient industry and interaction for instance between universities and businesses (Bundesregierung 2014: 6; BMWi 2016a). Continuously adapting policies to the needs of various stakeholders is seen as essential to generate sustainable change (Bundesregierung 2014; BMU 2016).

The social bloc echoes the need to be included in transforming industrial policy and is willing to cooperate with state actors on these issues (BDI 2019; VDA et al. 2020). Suggestions of members of the social bloc should be implemented without high bureaucratic effort (BDI/BDA 2010).

### 5.2.3 A Coherent Export-Orientation

Concerning domestic demand seeking (GM1.1), only one reference was found. Here it is aimed to implement a higher tax allowance and an increase in funding for students, as part of reforms towards educational policies, connecting ‘Education and Skills Development’ (GM3.2) (Bundesregierung 2014: 41). Neither the government, trade associations nor workers unions mentioned the use of industrial policy to raise wages, increase consumption to boost industrial production at all. These findings are in lined with the theoretical framework of the growth model concept.

Seeking foreign demand (GM1.2) however was detected at various points in the material. The economic strength of Germany on the global level is highlighted and that



it has to be further consolidated (Bundesregierung 2014; BMWi 2019). This reference to the German role in global competition relates to subcategory 'Competitiveness' (GA1.3). In consequence, the German government advocates free trade, which points back to the very first subcategory 'Liberalization' (GA1.1). Yet again, the role of the SEM for the German industry is highlighted which relates to the theme of putting the national industrial policy in European context (GA1.4) (BMWi 2016a, 2019).

It is emphasized, that German SMEs are depended on foreign demand and should be supported to increase their seeking to produce for markets abroad (BMWi 2016a). German Chambers of Commerce support German companies in accessing foreign markets, especially SMEs benefit from those expertise (Bundesregierung 2011; BMWi 2016a: 19). Other organizations, such as the Fraunhofer Institute, provide international capacities to provide support for exporting companies (GWK 2019: 9).

The automotive industry is one of the pillars of Germany's strength of exports (Bundesregierung 2014). Current and future products of this sector should keep Germany at global top levels in production (Bundesregierung 2011). Not only cooperation with other states is seen as an important factor for achieving this goal, but also other industries should be strengthened in exporting, such as the production of microelectronics (Bundesregierung 2014: 36).

Overall, the German export-orientation is variously highlighted, for instance regarding climate-friendly technologies, industry related services and as international destination for scientists (Bundesregierung 2014; BMWi 2016a, 2019: 24). The government sees the need to adapt industrial policy (GA2.1), yet it has to be avoided that such changes negatively affect the export-orientation (BMU 2016: 52).

The social bloc echoes the German export-strength by referring to Germany's attributed role of an "Export World champion" (BDI/BDA 2010: 5). It is framed as essential for the German wealth to have access to and strongly perform on international markets (BDI 2019: 2; VDA 2019). Especially in government material this connects often to ideas of 'Liberalization' (GA1.1) in general and 'Growth' (GA1.2) in particular. The social bloc urges the government to guarantee access to foreign markets. Key exporting industries, such as the chemical, manufacturing and automotive sector are seen as the base of German wealth (DGB 2019; VDA 2019).

#### 5.2.4 The Focus on Vertical Industrial Policy

The material provides a large number of references towards the use of vertical industrial policy (GM2.1). The German government defines 'key-technologies' that need to be particularly supported, for instance with direct funding and through building agencies to support business with their breakthrough (Bundesregierung 2014; BMWi 2019). Here, both existing and new sectors and technologies are mentioned, such as the support for AI and microelectronics, as well as the German concept of 'Industrie 4.0'. Such technologies are not only to be supported, but also to be protected which yet again, refers to notions of liberalization (GA1.1) and manifests itself for example in the willingness to develop security technology for the purpose of securing new digital infrastructure (BMWi 2019). Yet, the German government is aware that national and European direct investments are at a low level on the global scale, which is considered a disadvantage.

In this context, the German government lists important and support worthy sectors, starting with the automotive, steel, chemical, manufacturing, energy technology and space industry (BMWi 2019: 11). Whereas towards the automotive sector various measures are anticipated, the architecture of battery manufacturing, including a connected recycling industry and loading infrastructure, are of major concern (Bundesregierung 2011, 2014; BMU 2016; BMWi 2019: 23). In general, mobility is supposed to be more sustainable, based on hydrogen and synthetic fuel as well as on electricity powered vehicles (Bundesregierung 2014; BMWi 2019: 23).

Further direct investments are planned towards lightweight technologies and developments of new materials as well as wind and solar energy technologies (Bundesregierung 2014; BMWi 2019: 26). The support towards such technologies is one tool towards the support of the development of energy-efficient technologies and business models (BMWi 2016a; BMU 2016).

The idea of maintaining and building 'industrial champions' is also visible, yet not only on national, but also at the European level (BMWi 2019: 10). Such champions do not only deserve support but also protection. This protective principle is also used in context of the disposal of national technologies or companies towards foreign investors. The German government fears a global disadvantage and sees the need to interfere in the future, if such cases are detected (BMWi 2019: 28).

The analysis reflects the importance of SMEs for the German industry, which are either framed as “Hidden Champions” (BMW 2019: 10) or considered an essential base of the German economy (GWK 2019). Such businesses are to be supported further on, by developing directly targeted national strategies such as protecting them from strong climate regulation (BMW 2016a, 2019: 15). Further supporting instruments that are presented are the provision of high-skilled workers, direct funding and reduced bureaucracy (BMW 2016a, 2016b).

The social bloc shares the need to support the automotive industry while developing low carbon mobility (BDI 2019; VDA et al. 2020). Similarly to the government material, the architecture of a battery industry is addressed (VDA 2019). To support the manufacturing industry, AI technology and lightweight technology is mentioned as well (BDI 2019). Also the need to invest in key-technologies is emphasized, to create ‘game-changers’, especially towards green technologies (BDI 2019: 16). Biotechnology is seen as a further essential part (BDI 2019: 24). A further share view is the need of direct support for SMEs (BDI 2019; VDA et al. 2020). However, the social bloc also mentions doubts about the support of ‘industrial champions’ or the sale of technologies or businesses (BDI 2019; VDA 2019).

Horizontal industrial policy (GM2.2) was less detected than vertical IP. Here, the horizontal framework should be constructed towards the needs of business and technological change (BMW 2019). Already the findings of the GA categories ‘Liberalization’ (GA1.1) and ‘Competitiveness’ (GA1.3) showed that such a market-based and low bureaucratic framework is addressed. Horizontal IP should for instance be introduced regarding taxation and the support of the industries competitiveness in the global context, referring to subcategory ‘Finance’ (GM3.5). Another connection is detected to the topic of labour (GM3.3), that an adopted IP framework should help to recruit high-skilled workers (Bundesregierung 2014; BMW 2019: 15).

New horizontal IP should feed the need of an ongoing structural change and the demand of creating a sustainable industry (BMU 2016; BMW 2019: 19). It should also be beneficial to generate good conditions for high quality research and innovation (Bundesregierung 2014; GWK 2019). Moreover, the framework should help to generate new services in various sectors and ease the way for businesses to get access

to finance (Bundesregierung 2014). The protection of intellectual property should also be strengthened with the adapted IP (Bundesregierung 2014: 43).

Conceiving of state intervention as a distortion of the market (GA1.1), the social bloc would prefer industrial policy with a horizontal character (BDI/BDA 2010: 15; VDA 2019).

#### 5.2.5 Europeanized Policy Targets

Digitisation along with R&D often stands in the centre of innovation (GM3.1) (BMW 2016a, 2019; GWK 2019). Concrete examples of digitisation, that are mentioned, are the development of AI and the potential of 'Industrie 4.0', to integrate digital technologies in current production methods. Also, the digitisation of renewable energy production is displayed as consequential step (BMU 2016). As already mentioned, innovation in the automotive sector is considered particularly important, especially towards electric drive technology (Bundesregierung 2011). Moreover, the support of R&D is put in a context with efforts of the EU and fostering R&D is seen as core asset to increase the innovation ability of the whole industry (BMW 2019; GWK 2019: 20).

Innovation in the general production of goods and in the provision of services still needs to be reinforced (BMW 2019). The German government seeks to introduce social innovation, like new forms of work life balance. This should target not only industry but society as well (Bundesregierung 2014: 4). Innovation effort ought to be supported with taxation instruments and funding (GM3.5).

The already mentioned vertical use of innovation policy guided at SMEs (GA2.1) is supposed to contribute to the innovation ability of SMEs in terms of digitisation (BMW 2016a, 2019; GWK 2019). Start-ups are seen as important providers of innovative input (Bundesregierung 2014: 6). Moreover, innovation in energy-efficient technologies are considered as highly needed (BMU 2016; BMW 2019: 24). The creative industry is seen as important provider for innovation ideas as well (BMW 2016a: 18). In general, a high innovation ability is seen as essential towards future competitiveness (GA1.3) (BMW 2016a: 5).

Overall, the social bloc confirms the importance of building an innovative industry as well as that successful digitisation is at the basis of innovation ability (BDA 2018;

BDI 2019; DGB 2019; VDA et al. 2020). Reflecting the government's position, the inclusion of AI into the industry is seen as essential (BDI 2019). An innovation friendly, liberal framework in combination with sufficient monetary support is framed as an important base to generate innovation (BDI 2019: 3). The German strength in R&D should be supported by the state to strengthen the innovation ability of companies, for instance towards eco-friendly technologies and basic innovation (BDI 2019; VDA 2019).

Furthermore, the German government mentions the importance of education and skilled people for a well working industry (GM3.2) (BMW 2019; Plattform Industrie 4.0 2019b). The German dual education system is referred to be a well working base to provide a skilled workforce. The transmission of digital knowledge should be improved and higher numbers of graduates in STEM subjects generated (Bundesregierung 2014). A highly educated society is seen as essential to generate innovation in the development of products and services and provide opportunities for future jobs (Bundesregierung 2014).

The government sees the necessity to include the idea of lifelong learning and guaranteeing equal opportunities for every class, to generate a successful structural change of industry (BMW 2019: 14; GWK 2019). Both a more open education system as well as strategies towards more competition in the education sector, should help to generate better education standards as well as application oriented research (Bundesregierung 2014; GWK 2019).

To generate higher education standards, cooperation with stakeholders from business and worker unions is targeted (Bundesregierung 2014: 41). This is positively answered by the social bloc. Members of the social bloc see the need for an open and lifelong ability to build up skills (BDI/BDA 2010; VDA et al. 2020). An enlargement of the share of the highly educated population is stressed, especially towards digital skills development (BDI/BDA 2010; BDI 2019; IGM 2019). Similarly to the Government, the social bloc sees the need to adopt education towards the economy's needs (BDI/BDA 2010: 19; VDA 2019).

Concerning labour policies (GM3.3) analysis reveals that they mostly concern the labour market. The government highlights the role of social partners of the German

economy, leading to “reasonable wage building” (BMWi 2019: 7). Although the use of a minimum wage is underlined on one side, it is urged on the other side, that high wages have negative effects on production and the ability to be innovative (Bundesregierung 2014; BMWi 2019). Also, the spending for social security should be reduced, which is echoed by the social bloc (VDA et al. 2020). It is emphasized to further increase the flexibility of the German labour market. This flexibility is framed as inevitable to be able to benefit from digitisation and from ongoing structural changes and to guarantee high rates of employment (Bundesregierung 2014; BMWi 2019: 14). One of the measures is to extend the working hours. Although conditions of the labour market should change, the goal is to generate a competitive economy with high rates of employment (Bundesregierung 2014). Nevertheless, fair wages and the creation of new jobs should be guaranteed (BMWi 2016b).

The labour market should also benefit from more access to high-skilled workers. It is emphasized to level the value of academic degrees and such from vocational training (BMWi 2016a). At the same time, not only skills and education are supposed to be provided (GM3.2), but also access to such workers from the global labour market needs to be ensured. Easing the access to visas and recognizing foreign qualification should guarantee such outcome (BMWi 2019: 15). To identify which qualifications are most needed, the government wants to closely cooperate with actors from business and worker unions (BMWi 2016a: 3). Especially SMEs should benefit from the provision of skilled workers (BMWi 2016a).

A further addressed issue concerning the area of labour policies (GM3.3) is equality. Women should be supported, for instance to claim managing positions (Bundesregierung 2014; GWK 2019: 3). Diversity and equality is marked as important asset for labour policies by the social bloc (BDI/BDA 2010: 43). Creating more openness of labour markets, should also help to recruit foreign high-skilled workers, displaying a similar view to the government’s one (BDI/BDA 2010).

The members of the social bloc as well as the government highlight the importance of high levels of employment (VDA et al. 2020). The crisis measures of reducing working hours but guaranteeing employment is seen as powerful instrument, which should at all times be included in the framework of labour market policies. They urge to have a flexible access to this tool, without the necessity of state’s permission (VDA

et al. 2020). Providing more flexible working hours is not only seen as proper tool to react to imbalances of economy, but also fitting for modern working time models (BDI/BDA 2010: 46). However, the workers union favour this idea, they are the only ones demanding high wages (DGB 2019; IGM 2019).

Findings of subcategory GM3.4 are regarding measures towards infrastructure and resources. Classic infrastructure measures towards transport is part of German industrial policy, yet the emphasis is clearly laid on digital infrastructure. A full digital cloud infrastructure and high-speed internet connection is targeted, as well as combining new and existing infrastructure and building modern transport infrastructure for autonomous driving (BMW 2016a; BMU 2016; BMW 2019). Moreover, the mentioned focus on electricity powered vehicles requires the building of a charging infrastructure. This should be fed by energy from renewable sources (Bundesregierung 2011). A digital infrastructure is based on sending data, which need extra protection from illegal access. At the same time, it is emphasised that such an infrastructure needs open-access and comprehensive availability, mobile and stationary (BMW 2019; Plattform Industrie 4.0 2019b).

Also, knowledge infrastructure, such as innovation hubs and technology centres should be provided (GWK 2019). Hereby specifically supporting those concerning the needs of SMEs (BMW 2016a, 2019: 22). Such infrastructure and the provision of open access should also be beneficial for research in various disciplines and in consequence generate valuable outcome for the whole industry (Bundesregierung 2014; GWK 2019).

Concerning the provision of resources, the German government lays a clear path for more sustainable and low-emission use without affecting the access or prices (BMU 2016; BMW 2019). Here high investments towards electricity infrastructure becomes necessary as well as support to build an efficient circular economy for raw materials, however not affecting the access to raw materials per se. Particularly towards the production of batteries this access is marked crucial (Bundesregierung 2014; BMU 2016; BMW 2019: 23).

The social bloc supports the idea of creating cluster infrastructure to connect knowledge of science, business and state (BDI/BDA 2010; VDA et al. 2020). In

general, the need for a working digital infrastructure, with fast connecting internet, is underlined (BDI/BDA 2010). Reliable data access is seen as essential for new digital infrastructure (BDI 2019: 3). Classic infrastructure, such as transport and energy, should not be neglected and the government is urged to foster investments here as well, since it will continue to play an important part in industrial transition (BDI 2019: 3).

Building new infrastructure for renewable energy is supported, yet the affordability and access to energy supply should be prioritized (BDI/BDA 2010; VDA 2019). Moreover, access to raw material in general, which is marked not only crucial for current production, but also for developing new technologies, is considered crucial (BDI 2019: 14). A circular economy is seen as beneficial provider and complementary to current resource provision (BDI 2019: 25; DGB 2019). Further investments towards recharging infrastructure of electricity powered vehicles is endorsed (BDI 2019: 29).

As already pointed out, the financial framework conditions of industrial policy (GM3.5) aim to reform corporate taxation and the provision of funds (BMWi 2016a, 2019). Such funds should help the digitisation of the industry, the development of 'game-changer' technologies and other innovations. Vertical financial instruments should be applied on electromobility (Bundesregierung 2011). Moreover, it is strongly endorsed that open access to risk capital should be enhanced, particularly targeting start-ups and other SMEs (Bundesregierung 2014; BMWi 2016a).

Subsidies are planned for research and the development of resource efficient production (Bundesregierung 2014; BMU 2016; BMWi 2019). Here, financial incentives in general should be developed, to endorse a change towards an eco-friendly industry (BMU 2016: 9). Towards the demand-side, subsidies for electricity powered transportation are targeted (BMU 2016).

According to the social bloc, successful industrial policy and thus innovation development requires the government to provide sufficient funding and financial incentives (BDI 2019: 3). The need for a better provision of risk capital is echoed, as well as the support for battery production (BDI 2019; VDA 2019: 5). The social bloc



further urges the government to secure credits, which are issued to export high valuable goods (BDI 2019: 12).

## **5.3 United Kingdom**

### **5.3.1 The Thatcher Legacy**

The British government states, that its “bold, pro-market reforms” (HMG 2017a: 5) of the 1980s are a clear sign for the continuation of the liberal path underlying the history of the UK’s economy (GA1.1). The government clearly voices its willingness to continuously follow the setting of a liberal, business led market economy (BIS 2010: 5; HMG 2017c: 5). Ideas that are often referred to are free, flexible and open markets without extensive regulation, regarding both the domestic market and trade (HMT 2015). Taking actions to reduce the bureaucratic burden for SMEs is brought up as concrete example (HMT 2011: 24).

More concrete liberalizing measures should be applied in various fields, such as in the “commercialisation of research” (UKRI 2018: 42) and in welfare and infrastructure, addressing subcategories ‘Education and Skills Development’ GM3.2 and ‘Resources and Infrastructure’ GM3.4 (HMT 2015). Other efforts towards the de-regulation of labour legislation points to subcategory GM3.3 (HMT 2011: 53). Liberalizing efforts are also detected towards Brussels, in terms of the declared aim to push for more overall deregulation of EU legislation (HMT 2011: 23).

The social bloc favours the efforts towards actions for liberalizing trade (BCC 2017). Furthermore, the actors are certain, that market forces are beneficial to achieve goals to decarbonize the British industry, hereby urging for company’s tax reliefs to generate investment incentives (TheCityUK 2017; FSB 2018; CBI 2019).

Industrial policy measures are seen as proper tool to generate growth (GA1.2) (HMG 2017a). The concept of generating growth is also used in combination with newly developed strategies, such as to reduce carbon emission – creating the principle of ‘clean growth’ (HMG 2017b). Moreover, sustainable growth is targeted as well, relying on a digital data-driven and innovative economy (GM3.1) (HMG 2017c: 5; UKRI 2018). Creating knowledge and thus a skilled workforce is seen as asset for growth and higher productivity (BIS 2010: 3; HMT 2015: 3; UKRI 2018: 8). The social bloc

puts growth at the cross line of its addressed industrial policy statements (BCC 2017; TheCityUK 2018). It is emphasized that all measures must lead to higher growth prospects, especially the chances for SMEs to grow should be increased (FSB 2018).

Growth should also be achieved by a competitive surrounding which relates to the issue of 'Competitiveness' (GA1.3) (BIS 2010; HMG 2017b). The government is clear in relying on "the power of the competitive market" (HMG 2017a: 21) to generate higher rates of productivity, that should lead to economic growth (HMT 2015). Industrial policy should help businesses to improve their competitiveness (HMT 2015; HMG 2017b: 63). Sectors specifically targeted to foster competition, are the digital and the financial one (HMT 2015: 57; HMG 2017c). Competition policy is believed to be the right tool to enhance innovation in business and research, which relates to innovation (GM3.1) (HMT 2015; UKRI 2018). Furthermore, creating a limited tax regime is considered crucial for the general competitiveness of industry and economy (HMT 2011: 4). It is highlighted, that SMEs should benefit from a better competition policy (HMT 2011: 75).

The social bloc favours the efforts to generate a more competitive business environment, both domestically and globally (BCC 2017; TheCityUK 2018: 6). This should especially be beneficial for innovation and cost reduction (CBI 2019: 5). Particularly increasing the competitiveness of the financial sector should create positive effects for the whole economy (TheCityUK 2017: 6).

A European context (GA1.4) is mostly notable in recent material referring to the outcome of the Brexit referendum (HMG 2017a). It is highlighted, that this decision will not affect industrial policy paths, such as creating a more ecological friendly industry (HMG 2017b: 10). The addressed protection of the domestic labour market will lead to the need to develop policies for domestically generating more high-skilled workers (GM3.3) (HMG 2017c). However, future cooperation with European partners is aimed on innovation and science. Also, national programmes of education and research should follow the model of EU programmes, such as Horizon 2020 (UKRI 2018: 50).

Material issued before the Brexit decision contains statements that reflect a positive stance towards the EU's efforts to conclude free-trade agreements and to further strengthen the SEM (HMT 2015). The British government sees beneficial potential in opening markets, especially for the service sector (HMT 2011: 59). The European Commission is addressed to decrease the influence of EU legislation on national law making (HMT 2011: 23).

The social bloc hopes for a deal with the EU, which will not have more negative terms than the status quo. The dominant social bloc highlights the importance of the EU market for the UK, especially for SMEs (BCC 2017; FSB 2018). Similarly to the government's position, it is urged to develop a concept how high-skilled workers will be provided for the industry after leaving the EU which will result in barriers for the labour market (BCC 2017: 15; TheCityUK 2017: 31). It is also underlined to develop funding programmes following and replacing those of the EU (FSB 2018: 7).

### 5.3.2 Finding Answers for the Digital Transformation

The British government sees structural changes of both the economy and society, which require action (GA2.1). Especially the digital transformation of industry has to be addressed, by creating new markets and industries (HMT 2011; HMG 2017a). This is echoed by members of the social bloc, who see such transformations as chances for the industry (TheCityUK 2017, 2018). The importance of research and boosting innovation is clearly underlined (UKRI 2018). Thus, relying on a knowledge-based economy is seen as essential.

Concerning concrete measures responding to current challenges (GA2.2), the analysis reveals that the UK government wants to react by building a coalition with business, research, society and politicians (HMG 2017a; UKRI 2018). This dialogue should lead to concepts on how to benefit from those changes, for instance through the transition of industry towards resource efficiency and through approaches to handle the digitisation of businesses (HMG 2017b, 2017c).

This invitation of dialogue is very much welcomed by members of the social bloc from the financial sector, which shares the view in including key stakeholder to develop concepts for a changing industry and economy (TheCityUK 2017, 2018).

### 5.3.3 Strengthened Domestic Consumption

The domestic market (GM1.1) is clearly addressed in contemporary industrial policy conceptualizations of the UK, aiming “to raise our game at home” (HMG 2017a: 12). Domestic consumers are put in centre-stage and addressed as key stakeholders (HMT 2015; HMG 2017a, 2017b). Industrial policy should generate higher paid jobs in future fields, specifically in digital ones. Overall, higher real wages are targeted (BIS 2010; HMG 2017c). A correlation between higher rates of productivity with higher household incomes is displayed by the government, which in consequence leads to a higher consumption ability by the households (HMT 2015). Especially tax credits should be reformed for low income households, to contribute to a rise in consumption as well (HMT 2015: 49).

The social bloc puts the consumer on a similar level as businesses (CBI 2019: 6). Not only should industrial policy generate more innovation, but also be customer centric. An advanced domestic market is seen as advantage, in creating sophisticated goods and services, which strengthen global competitiveness of British business as well as attracting businesses to settle in the British market (TheCityUK 2017). Industrial policy should have the focus of “serving domestic needs” (TheCityUK 2017: 11), and thus support consumers with a sufficient supply of services and goods. The member of the social bloc ‘TheCityUK’ (2017: 21) highlights the importance for domestic financial services for the finance industry.

Foreign demand seeking (GM1.2) is addressed by highlighting the need to support free trade as presented earlier (GA1.1) (HMG 2017a). Promoting higher exports in the fields of “AI and data business” (HMG 2017a: 40) is one of the aims of British industrial policy, while also highlighting the exporting strength of the British electric car industry. Overall, an increase in exports of British goods and services is intended (HMG 2017a, 2017b, 2017c). Not only the focus to better export British financial services is referred to, but also measures to create digital trade hubs, to help businesses export (HMT 2015; HMG 2017c). Overall, boosting exports should lead to a counter balancing effect on trade (HMT 2015: 65). A focus is set on the markets of emerging economies and exporting services (HMT 2011). By providing help with government institutions, SMEs should be encouraged to seek foreign demand (HMT 2011).

The social bloc supports the idea of strengthening British exports. To do so, the UK governments should provide direct help for exporting businesses and work of further liberalizing trade, specifically to improve the access to developing economies (BCC 2017; TheCityUK 2018). Similar to the government, the social bloc highlights the role of the finance industry and sees a potential to export services towards ‘green finance’, which includes environmental factors into the financial decision making and development of financial products (TheCityUK 2018; CBI 2019: 12).

#### 5.3.4 Vertical Measures in a Competitive Framework

The documents display a variety of vertical industrial policy (GM2.1) measures. Emphasized are efforts towards artificial intelligence, the automotive manufacturing sector and the finance sector, securing the London’s leading position as a provider for finance services (HMT 2015; HMG 2017a). Other industrial policy measures should be implemented in the aerospace sector and the service sector in general (HMT 2011: 8; HMG 2017a). Regarding modern sectors of industry, the fields of cybersecurity, microelectronics and biotechnologies are highlighted (HMG 2017a: 33). Further attention is laid on the development of decarbonizing the industry and thus on supporting “greenhouse gas removal technologies” (HMG 2017b: 13) as well as on building a leading battery building sector to achieve a sustainable transformation of the automotive sector (HMG 2017b; UKRI 2018). Here, strict regulation such as the ban on “sale of all new conventional petrol and diesel cars [...] by 2040” (HMG 2017b: 87) combined with vertical policy towards the provision of a charging infrastructure should urge the industry to adapt. Additionally, the promotion of sustainable fuel should contribute a decarbonization of the industry as well. SMEs are particularly supported to contribute to the change to, and development of, energy efficient technologies (HMG 2017b).

With regards of the ongoing digitisation of industry, the government proposes vertical measures, such as providing digital skilled workers (GM3.2) and supporting new business models in strong sectors. Concerning the latter, a special emphasis is put on FinTechs in the financial sector, to support the start of digital businesses (HMT 2015; HMG 2017c). This also affects the aim in the automotive industry, to change mobility towards autonomous driving. The development of autonomous vehicle technology should bring advantage to the British industry.

Further vertical industrial instruments are aimed at other parts of a more digital industry, such as supporting UK's creative industry and enhancing competences in the sector and towards cyber security. Especially SMEs should be better included in the digital industry and overall better supported with finance policies (HMT 2015: 12; HMG 2017c). Here, tax reliefs should work as incentives for SMEs to invest in innovation and digitisation, whereas general funding is supposed to strengthen them overall. Furthermore, those businesses should be supported to increase their export ability (HMT 2011). Building a fund for strategic investments is used as instrument for vertical IP (UKRI 2018: 22). All vertical industrial policy need to be designed by business leadership to be successful, confirming the liberal principle guiding the UK economy (GA1.1) (HMG 2017c).

The need to decarbonize the industry and thus directly enforce the change towards new technologies is shared by the social bloc (CBI 2019). Emphasis is put here on the automotive sector. Producing alternative drive technology, such as new fuels or electric powered cars, is addresses as well as building the necessary charging infrastructure (CBI 2019). The need to vertically support exporters and particular SMEs is underlined in a similar way as by the government (BCC 2017: 13; CBI 2019). Such businesses should be helped to have better access to credit by commercial banks or to state funding. Especially after the leave of the European Union, the social bloc urges to continue funding possibilities similar to the EU's (FSB 2018).

The government made it obvious, that FinTech businesses deserve special support, which is echoed by the SB, placing it as future contributor for UK's trade (TheCityUK 2018). Vertical industrial policy should also aim at the cyber security sector, the service sector and supporting AI technology development.

Creating a subjectively good business environment may be identified as horizontal industrial policy (GM2.2) used by the UK government (HMG 2017a). Adaptions of the tax system are addressed, to create incentives for a higher rate in R&D expenditure, which should lead to more innovation, anticipatorily referring to subcategory GM3.1 (HMG 2017c). Barriers for private investment towards digital communications infrastructure should be abolished, thus contributing towards a competitive digital economy (HMT 2015: 35).

Further horizontal policies are planned to deliver incentives for businesses to change production and technology development towards a more environmental friendly one (HMG 2017b). A “framework that supports cost effective low carbon investments” is planned to be implemented (HMT 2015: 33). Also, a higher rate of entrepreneurial activity should be achieved by adjusting framework conditions, such as introducing a new fund for businesses (HMT 2015: 69; UKRI 2018).

As described with regards to competitiveness (GA1.3) the social bloc favours horizontal industrial policy based on the principle of enhanced competition. Such principle should also be used to generate innovation, by setting competitive framework conditions, which confirms the views of the government. Another similarity is, that especially eco-friendly innovation, relying on an incentive creating investment environment, is anticipated (CBI 2019).

Industrial policy should also help business to generate higher levels of exports and improved access to external finance (BCC 2017; FSB 2018). Overall, investments in infrastructure, both physical and digital, are to be prioritized as well as a simplification of the tax regime (TheCityUK 2017: 8).

#### 5.3.5 Europeanized Policy Targets

The analysis of government material demonstrates that the idea of running a successful economy, relying on an innovative industry (GM3.1), is strongly supported. To boost innovation, special efforts regarding research and development are stressed, such as increasing public investments and providing funding possibilities for businesses (BIS 2010; HMG 2017b, 2017c). But also other earlier stages of innovation are to be supported, such as education and skills development (GM3.2) (HMT 2015). This effort of generating the base of innovation development are to be helped by building ‘innovation hubs’ and technology centres for different actors to interact, such as the UK’s ‘Catapult Centres’, where businesses and researchers are able to collaborate to generate innovations (UKRI 2018).

The government underlines the importance of not only generating innovative ideas, but also of commercializing them and producing economic growth, which “for developed economies [...] can only come from innovation” (UKRI 2018). Also, data-driven as well as more eco-friendly innovation are targeted, both in products and

services (HMG 2017a, 2017b). The ambition “for the UK to become the most innovative country in the world” (UKRI 2018) displays the deeply rooted perception of creating innovation through industrial policy.

It is thus unsurprising that innovation is also displayed as one of the pillars of growth, by the social bloc (TheCityUK 2018: 8). Innovation potential is seen in developing new finance products and services, highlighting here the role of FinTech businesses to develop such (TheCityUK 2017: 8; FSB 2018). Moreover, innovation is considered as connected with a more digitised industry (TheCityUK 2017).

Considering the policy target of education and skills development (GM3.2), the UK government wants to enforce the development of such, pointing to the “UK’s skills weakness” (HMT 2015: 8). The government plans for establishing a technical education system, is a reaction to the UK’s shortage of STEM skilled graduates (HMG 2017a: 11, 2017b: 37). The skill development of older people is further to be enhanced, to increase their ability of adapting to changing industrial circumstances (HMG 2017a: 41).

Skills in coding and cyber security need to be fostered, to make use of the potential of a digitised economy (HMG 2017c). This is planned for pupils and adults, who seek skill development in these fields. Such actions should manifest the UK’s position as a “leading knowledge economy” (UKRI 2018: 6) and ensure a high-skilled workforce.

The decision which skills are particularly needed, are to be based on the demand of the private sector (BIS 2010; HMT 2015). Education should produce “work-ready skills” (HMT 2015: 8), so that graduates can be directly hired without additional vocational training. Although, basic and open education should lead to better chances on the labour market, for people of all parts of society, the decision to seek education is considered to be done by the individual itself. The state should provide the education service and chances to finance this with the provision of credits (BIS 2010). In other words, further liberalizing the education system (GA1.1).

Further liberalising efforts are aimed at the higher education sector, by removing the cap on student numbers and by opening the “higher education market to more new entrants stimulation competition” (HMT 2015: 9). Also, an increase of the quantity of apprenticeships in the UK should lead to better skills development in the UK.



An increase skillset of the labour force is demanded by the social bloc, for instance through a higher quality in apprenticeships. Such skills developments should be supported by state funding, so that employees can expand their skill set also at older ages (BCC 2017). Financial and entrepreneurial skills are to be taught at school, to help the industries generate growth (FSB 2018: 8). Further echoed is the need for the development of digital skills, to create knowledge for new technologies, such as AI (TheCityUK 2017: 11).

Concerning the policy target of labour (GM3.3), the UK government aims to increase employment and a real wage growth. Creating higher wages goes hand in hand with a lower welfare society (HMT 2015: 7). Both should function as incentives for people to work, so “that the taxpayer does not subsidise low pay” (HMT 2015: 11). A real wage growth should also be increased by reforming the tax regime in favour of lower incomes, as well as raising the minimum wage (HMT 2015: 11).

The flexible conditions of the British labour market are presented as a clear asset and are to be extended, which should lead to higher employment (HMG 2017a, 2017c). Young and long-term unemployment should be avoided by stronger monitoring and faster reduction of financial support (HMT 2015: 51). High employment is a clear goal of the UK, drawing clear connection to the objective of economic growth (GA1.2) (HMT 2015: 5). Flexible working hours are another instrument of the government, to include more people into the labour market (HMT 2015: 52).

Addressed policies, such as pushing for innovation, as discussed under GM1.1, and so creating new digital and green industries, is supposed to contribute to the increase in employment (HMG 2017b). These future developments should lead to a rise in the creation of high-skilled jobs. These jobs should be taken by domestic workers, since the access to foreign high-skilled workers will be restricted after the UK is leaving the European Union. Therefore, the labour market has to be strengthened, so that no gap appears for high-skilled workers at that time (BIS 2010; HMG 2017c). Here, especially SMEs are targeted to provide apprenticeships and thus, to self-supply such workers (HMT 2011: 38). Nevertheless, the analysis reveals inconsistencies in the government’s material, since the government also wants to attract skilled workers from abroad (UKRI 2018).

The social bloc is uncertain of the consequences for the labour market, due the UK's leave of the EU and urges for a "pragmatic future immigration regime based on economic need" (BCC 2017: 7) to ensure the provision of sufficient skilled workers for the industry. It is clearly underlined, that the UK's industry is dependent on access to high-skilled labour from abroad (TheCityUK 2017). The labour market has also to be strengthened by creating high-skilled workers domestically (GM3.2) (TheCityUK 2018). The cost of labour should be held at a lower level, and not negatively affecting the prices of the produced goods and services (TheCityUK 2017: 6).

The British infrastructure and access to resources (GM3.4) should be better adjusted to business needs. Changes in mobility are planned as well as the support of digital infrastructure (HMG 2017a, 2017c). Mobility should change in a way to be based on electricity powered vehicles and able to operate autonomously (HMG 2017a: 48). The aim to establish a large charging infrastructure for electric vehicles was already presented in previous subcategory. Building a digital infrastructure is seen as critical to generate the addressed changes of industry (HMG 2017c). An increase in structural funds will be used as tool to accomplish these goals, and also to provide investments for classical infrastructure, such as roads and rail (HMT 2011; HMG 2017b).

The use of resources should be done more efficiently, as well as changes in energy infrastructure, to reduce the release of carbon from the industry (BIS 2010: 5; HMG 2017b: 68). Business models "which encourage resource efficiency" (HMG 2017b: 111), such as recycling enterprises and those which develop resource efficient materials and production processes, are supported. The provision of funds should be done by different institutions, such as the newly established 'Green Investment Bank' (HMT 2011: 83). Nevertheless, the government has to ensure a sufficient supply of raw materials and energy at a low price, to ensure the productivity of the industry (HMT 2015: 10).

Furthermore, the building of networks, through the provision of technology centres and innovation hubs is issued. Not only should this expand the digitisation of manufacturing, but also lead to the development of new goods and services. Mostly the use of the Catapult Centres should contribute to these developments. Emphasized are digital technologies, such as AI and data-driven ones, where the use of blockchain

technology and strengthened cybersecurity are highlighted (HMG 2017c; UKRI 2018).

The social bloc demands higher contributions for digital and physical infrastructure, thus high-speed internet connection and a modernized road and rail infrastructure (BCC 2017; TheCityUK 2017). Furthermore, the social bloc demands support in developing a charging infrastructure for electricity powered vehicles. To yet guarantee an efficient use of resources and achieve the net-zero emission goal by 2050, power should be supplied by nuclear and renewable sources (CBI 2019: 3).

To provide more financial service for the whole state, the finance infrastructure should also be expanded by building regional financial centres (TheCityUK 2017). Similar to the government, the social bloc sees benefits in creating “industrial partnerships between employers and educational institutions” (TheCityUK 2017: 61) for industrial developments.

The use of finance (GM3.5) policies was already referred to in several parts of the analysis for the UK. The adaption of the UK tax system towards corporate tax cuts should contribute to a rise in investments towards R&D, and thus lead to innovation, already referred to under subcategory GA1.1 (HMT 2015: 20; HMG 2017a, 2017c). Also, strategic funds should intensify the efforts towards more R&D spending (UKRI 2018). With both measures particularly SMEs are targeted (HMT 2011: 7). Overall, corporate taxation is to be cut back, “bringing business and investment to Britain” (HMT 2015: 8). It is framed, that a higher level of corporate taxation is a barrier of generating competitiveness of the British industry (HMT 2011). Emphasis is made to create ‘green finance’, thus finance policies, such as funds, which especially contribute to resource reduction and the support of resource efficient technologies and business models (HMT 2011; HMG 2017a, 2017b). Direct subsidies should be used on ultra-low-emission vehicles to consolidate the market for such (HMG 2017b: 87).

As outlined concerning the issue of infrastructure (GM3.4), new funds are created to support the development of digital infrastructure (HMG 2017c). Other policy targets, which are combined with finance, are education and skills development (GM3.2). Access to student loans should not only create a higher number of young

students, but also the development of skills at future education and employment stages (BIS 2010: 11; HMT 2015: 9).

Access to green finance is seen as a positive development by the SB, yet it should be accessible to every business, to deliver broad incentives to invest in R&D and help to develop various technologies and services for producing less emissions (CBI 2019). Overall, better access to finance should be created for SMEs. The example of the German development bank *KfW* is referred to as a blueprint (FSB 2018: 7). Funding FinTech businesses is emphasized in social bloc material (TheCityUK 2017). Overall, corporate tax cuts are supported, contributing to higher investment incentives and increasing the attractiveness to invest in the UK (TheCityUK 2018).

## 6. Discussion

The following section will discuss the above presented findings with regards of the research question and the hypotheses of this work, to interpret the results based on the theoretical assumptions. The discussion follows a structure addressing every main category in terms of how Europeanization can be encountered and which interconnections between the subcategories are found.

### 6.1 An Existing Liberal Legacy

The category GA1 'Existing Legacy' is formed to detect if Germany and the United Kingdom refer to similar principles of industrial policy and to European Union industrial policy formulations. Four subcategories were formed: Liberalisation, Growth, Competitiveness and European Context. For the first three, GA1.1, GA1.2 and GA1.3, wide similarities in the formulations are found. The reference towards the European context differ for the cases, because of the results from the Brexit referendum.

The results for the first three subcategories show, that Germany refers to its ordoliberal principles of '*Soziale Marktwirtschaft*', the UK identifies as first-mover in hindsight of liberalizing the national industry and state, and that the EU believes in the power of free trade both inside the SEM and beyond. In general, all material present similar positions towards a liberal legacy; however, the cases of Germany and the UK lay different focuses. Particularly Germany concentrates on trade issues,

echoing here the EU's emphasis to strengthen global trade and the WTO as an important guardian to do so. The UK also favours free trade, yet the role of the WTO is not underlined in a similar fashion. The British material focuses on liberalizing the labour market and the education system, to increase the attractiveness of the national economy. The notion of a competitive market based on liberal principles is shared by all cases, as well as the willingness to decrease the regulatory burden for SMEs. The documents clearly reveal the stance that industrial policy must ensure high growth possibilities and that competition on the market will lead to the best outcome, whereas the concept of innovation appears with high frequency. In sum, all actors share an ideational repertoire which according to Borrás and Radaelli (2011: 470) makes Europeanization likely.

The differences between the cases mainly concern the reference towards the European context. Germany strongly contextualizes its industrial policy in Europe and stresses that pure national conception of such is not possible. The integration and benefit of the SEM are highlighted, while for the case of UK heterogeneous findings were made. Whereas the British social bloc refers to the benefits of the Union's membership, the government's position does not display a clear picture. The UK dominant social bloc fears negative consequences for the access to trade and especially for EU funding available to the industry. The government does not offer a clear position: on the one hand, less influence from EU law making is advocated, while simultaneously pointing to the need of skilled workers from the EU's labour market. This marks a conflict inside of the dominant social bloc, where the government insists on partly implicit separation from the EU, while other members of the social bloc will only accept a comprehensive Brexit, when certain circumstances, such as funding, will not change.

The findings yielded by the GA1 subcategories do not only show a pattern of connection among themselves but also towards GM3.5 'Finance'. Financial instruments play a large role in liberalizing efforts, to either cut corporate taxes or to provide funding to deliver incentives for businesses to contribute towards state announced targets. Particularly documents from the UK reveal connections between GA1 and GM3.5. Furthermore, it is highlighted that liberal policies should help to generate innovation and that de-regulated labour markets are beneficial for the industry. In sum, all cases

are referring to liberal principles, advocate the benefits of competition and aim for the goal of economic growth. The same ideational repertoire is used, thus verifying the first hypothesis<sup>1</sup> of this work. Considering the name of the category, the industrial policy existing legacy of Germany as well as the UK are in line with the one of the EU.

## **6.2 A Legitimized Change Towards Europeanization**

The category 'Legitimate Change' (GA2) and its subcategories were formed to detect how the need to adjust industrial policy is put and which actions to answer them are considered. The analysed material reveals similar findings for all cases.

All actors are certain that a structural change of industry is inevitable and the time to react to these changes is now. The financial crisis showed the need to adjust industrial policy, especially in light of the dependency of GVCs, as the findings of EU and Germany show. Regarding the export-orientation and reliance of German companies on production sites and trading partners abroad, this framing is plausible. The UK's consume-orientation explains the emphasis of the domestic market, with efforts planned to digitize national industry and generate a knowledge-based economy. Both cases display a problem identification inside the framing of the EU, but an emphasis on individual growth model issues.

Both the governments and the private actors of the social blocs are certain, that these changes must be tackled in coordination and cooperation. This confirms the current understanding of industrial policy as process, where stakeholders are in constant dialogue to shape it, rather than implementing top-down measures. This clearly indicates that the social bloc is willing to legitimize adjustment of industrial policy, which is also reflected by the findings for the following categories. In consequence, the second hypothesis<sup>2</sup> can be verified.

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<sup>1</sup> H1: Since the European Union, Germany and the United Kingdom share fundamental principles of economy, the respective national formulations of industrial policy reflect the EU's ideational repertoire in this aspect.

<sup>2</sup> H2: When core members of the dominant social bloc legitimize ideas of European industrial policy, those ideas are adopted at the national level.

### 6.3 Industrial Policy determined by Growth Models

Category GM1 displays core thoughts of the growth model approach by Baccaro and Pontusson (2016), according to which Germany follows a clear export-orientation while with its consume-orientation, the UK aims towards a strong domestic demand.

Germany clearly puts a focus on supporting the exporting industry. Policies to strengthen domestic demand or sectors which aim at inland consumers are not announced at all. This confirms the assumptions of Baccaro and Pontusson (2016: 176), that Germany represses wages and consumption to not negatively affect the competitiveness of the export sector. Differently are the results for the British case. Here, the domestic consumer is put in the centre-stage and industrial policy is introduced to increase the consumption ability. An increase in real wages, better access to credit and a rise in jobs, are measures proclaimed by the government. This confirms the growth model approach, stating that the UK relies on “real wage growth” (Baccaro/Pontusson 2016: 176) to spur household consumption and in consequence generate economic growth. Nevertheless, Germany’s refusal to shed light on the other type of demand seeking does not apply for the British case. The UK sees a deficit in its exporting ability and wants to strategically strengthen it. This shows new aspects of the British growth model where traditionally exports “do not constitute a large portion of British GDP” (Baccaro/Pontusson 2016: 191). It can be interpreted as reaction to structural changes mentioned under the sections 6.2 of this work. Sectors of finance and its services are particularly emphasized, verifying the findings of Baccaro and Pontusson (2016: 190).

In documents of Germany and UK the importance of SMEs to contribute to increasing exports is highlighted. This can be seen in line with the EU’s emphasis to support SMEs in various sectors of industry. Also, the EU’s aim for free trade is echoed in both cases, yet on higher frequency by the German actors. Regarding the third hypothesis<sup>3</sup> of this work, the material clearly displays that Germany and the UK emphasize the core aspects of the growth models they follow, so that H3 can be verified.

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<sup>3</sup> H3: National growth models determine states’ industrial policy.

#### **6.4 A European Focus on Electromobility and SMEs**

The category GM2 displays on which intervention level industrial policy is implemented. The short overview of the development of industrial policy in the cases implied, that currently horizontal policies are emphasized. However, the results of this work show, that contemporary industrial policy is a mix of vertical and horizontal ones, also concerning individual policy targets.

The EU introduced clear vertical measures towards the automotive sector, urging it to adapt to the use of alternative fuels and specially to boost the development of electrified and autonomous mobility. Financial incentives should help to develop a charging infrastructure at Member State level. The direct support of SMEs is underscored in various fields of industrial policy. Horizontal measures are mainly introduced to develop a framework fostering the innovation ability of the European industry.

Addressed horizontal measures relate closely to the conceptions which were found under GA1. Such framework should be market-based, helping the competitiveness of industry in the global context and seen in a European context. The last element, however, has recently changed at least the government's position in the UK due to Brexit.

The horizontal measures towards a business-led framework is echoed in the German material while the British documents underscore better access to financial tools and that the constructed framework should lead to higher digitisation and eco-friendliness of industry. Concerning vertical matters, the UK documents highlight the role of FinTechs, not only for the domestic economy but also to strengthen them to compete on a global level. These findings confirm the British reliance on the finance sector and the importance for the consumption-led growth model (Baccaro/Pontusson 2016: 193). Regarding the assumptions of the growth-model approach, it is rather surprising that the analysis detected a high emphasis for vertical instruments on the automotive sector. Especially the development of electric vehicles and the need to build a charging infrastructure was evidently found throughout the material. It is as well underscored in the German material, whereas the importance of the exporting automotive sector for the German economy is captured by Baccaro and Pontusson



(2016: 191). This shared interest in elector-powered mobility may be interpreted as a result of Europeanization in terms of a shift towards vertical industrial policy, which also becomes apparent in the shared references to support SMEs in both national and EU material. This work identifies the vertical industrial policy measures towards the automotive sector and SMEs as a result of Europeanization, which confirms the developed assumptions of European influence on national industrial policy.

### **6.5 The European Thread of Policy Targets**

The last category displays the findings for target areas of industrial policy. Accordingly, five subcategories were built: Innovation, Education and Skills Development, Labour, Resources and Infrastructure and finally Finance. For the EU documents, the findings towards the subcategories result from the aims of the Europe 2020 strategy and its three different growth aspects. The EU wants to generate smart growth with a high-skilled, knowledge-based economy affecting the policy targets of innovation as well as those of education and skills development. Young people and older generations of life-long learners should present the foundation of an all-time adapting and innovative workforce. A skilled population lays the principles to generate innovation through higher research efforts, on which grounds a successful structural change of industry is possible. Emphasizing digitisation and the sustainable use of resources, new 'green' technologies and services should generate sustainable growth using the policy target of resources and infrastructure. This should produce positive outcomes for the whole industry and lead to new jobs where the total workforce benefits from, guaranteeing an inclusive growth prospect by applying measures towards the policy target of labour. Financial measures, the final policy target, are used to contribute to all desired outcomes, producing incentives for actors to contribute to the addressed goals.

Germany follows the EU's argumentation, that especially R&D and higher levels of digitisation lead to innovation, reflecting the national 'Industrie 4.0' concept. Next to this national strategy, education is seen as a contribution to a higher innovation ability. Germany emphasises to create more STEM graduates, enhance the concept of life-long learning and sees in its dual education system strong abilities to produce a

skilled workforce. Furthermore, the documents highlight the importance of the flexible German labour market and wage repression. These principles are put in context with generating higher rates of employment and the ability to adapt and benefit from a digitisation of industry. It is propagated that high wages and a stricter labour market would jeopardize this ability and furthermore the innovation performance of Germany's industry, confirming the assumptions of Baccaro and Pontusson (2016: 176) to repress wages and consumption to guarantee the competitiveness of the export sector.

Regarding resources and infrastructure, Germany emphasises the provision of renewable resources and the establishment of a digital infrastructure, including high-speed internet and innovation hubs as well as charging infrastructure for electricity powered vehicles. Financial measures are included in industrial policy, to generate a decrease in taxation and an increase in risk capital access. These financial incentives target all aspects of industrial policy and should lead to the targeted goals.

The UK's aim to rise levels of innovation should, similar to the EU and Germany, be reached with high levels of digitisation and an increase in R&D, whereas eco-friendly innovations for the industry are emphasized. To boost innovation and an overall increase high-skilled labour, reforms of the education system are targeted. This should rise knowledge in STEM fields and update the skill set of workers with life-long learning measures. High-skilled labour should also be provided by foreigners, thus generating an open labour market. More jobs and higher real wages are seen as important goals of the addressed measures.

New forms of electromobility, with a large charging infrastructure and the establishment of digital infrastructure, are underscored in a similar way as in EU, British and German data. Similarly, the material of all the cases emphasises on the use of renewable resources. The subcategory Finance is found more prominently in British strategies, compared to German ones. Resulting from an important finance industry combined with a more liberal legacy; funds and thus finance is more prominent in British industrial policy. The toolbox thus consists in providing financial incentives with funds, tax credits or in general through lower taxation. The British consumption-led growth model is clearly displayed considering the addressed real-wage growth

when pushing for higher credit provision in the case of education (Baccaro/Pontusson 2016: 199).

The analysis has shown that the thread of growth propagated by the EU's Europe 2020 strategy is detected among national industrial policy. Furthermore, the results show that almost all aspects of industrial policy issued by the state's government is backed by private actors of the dominant social blocs. The cases of Germany and UK draw the same picture when it comes to innovation. Innovation based on R&D and digitisation ought to be central to industrial policy. Better education should contribute to innovation and help develop higher levels of knowledge in STEM fields, making new and sustainable technology developments likely. An increase in jobs should be generated in these new digital and 'green' fields of industry. Both cases share large similarities in proposals regarding the provision of digital infrastructure, towards creating clusters for private and public actors to interact and, most prominently, against the establishment of a strong electric car sector with a large charging infrastructure. It follows that Europeanization is most obvious in these new fields of industry, where structural change is most seen. On that accent, it is likely that these similarities result from European actors who were able to capture these new field of policy and define them in their interest.

In sum, the Europeanization of contemporary European industrial policy is thus verified and so is the fourth hypothesis<sup>4</sup>. On this matter, the null hypothesis<sup>5</sup> is rejected. Also verified is the fifth hypothesis<sup>6</sup>, since both countries put emphasis on those policy targets which matter most to the individual growth model.

## 7. Conclusion

This work started by presenting the contemporary understanding of industrial policy, marking the complexity of this field and its change over time. Industrial policy was presented to be rather a process than a strict set of state introduced

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<sup>4</sup> H4: Due to the Europeanization of industrial policy, policy targets at supranational and national level are structured in a similar way.

<sup>5</sup> H0: The formulation of EU industrial policy has no impact on the national level.

<sup>6</sup> H5: National growth models determine the adoption of EU industrial policy targets.

instruments. Based on these findings, a typology was developed, capturing the industrial policy targets areas of innovation, education, labour, resources and infrastructure, finance as well as market development on vertical and horizontal level. The theoretical base of this work was laid both by the governance architecture and growth model approaches, to capture European industrial policy goals and their transfer to the national level as well as how states form their economy. Both concepts claim that a sustainable policy change is only possible if legitimized by a larger audience. The concept of dominant social blocs was used to display how the adjustment of industrial policy is legitimized. After developing hypotheses on these thoughts, measurable categories were built to conduct a qualitative structured content analysis. After testing and adjusting them, the main analysis was done with public accessible documents from the EU, Germany, and the United Kingdom, released between 2010 until 2020. The results display that national industrial policy is highly influenced by states' individual growth models. These present the conception of national industrial policy and determine the adoption of European ideas. Nevertheless, the major effects of Europeanization were detected among new fields of industry such as demonstrated by the example of electric mobility.

This work shows that industrial policy identifies long-term structural changes and sets a strategic adjustment of industry by combining existing organizational structures with new ones. Both cases are aware of the need to digitize various sectors of their industry and setting clear goals to create an industry which operates sustainable, regarding its use of resources. Moreover, this work clearly displayed that national growth models are combined with new structural concepts, shared by the European Union.

The research question of this work has been formulated as follows:

How do national growth models influence the adoption of European industrial policy under the strategy Europe 2020 in Germany and the United Kingdom?

The answer of this work is that national growth models determine the conceptualisation of industrial policy and furthermore the adoption of European industrial policy. National actors are adopting European goals and ideas of industrial policy yet fitting them into the implemented growth model.

Europeanization does not manifest itself in one word or a specific concept equally adopted equally in every Member State. Instead, the national interpretation of European ideas hints to results of Europeanization, which in the case of industrial policy further depends on individual growth models. However, the results of the analysis display, that both analysed national contexts do not only share the same story line when it comes to the arrangements of policy targets, but also reflect the one as provided by the EU. In particular new fields of industry, such as electric mobility and digitisation, show the European influence in the national domain. This work argues that ongoing Europeanization and thus the co-ordination between Member States lead to a more collective and European conception in these new fields. In other words, when the EU and both public and private actors within a Member State 'speak the same language', Europeanization becomes visible.

The discussion shows that the targeted goals by the EU, to generate smart, sustainable and inclusive growth, were adapted by the national governments. In the second, legitimizing step, the core members of the dominant social bloc legitimized those actions by framing them consistent to the national path and arguing that those growth ideas are just a subsequent step in following the national legacy. This work made it evident, that ideas generated at the European level influence the national domain of industrial policy and are legitimized by the dominant social bloc. However, it has to be tested if other cases, such as the USA or China, differ in their conception of industrial policy to a great extent in order to answer the question how unique the European conception is. Moreover, further research must include a bottom-up perspective on European integration, complementing the top-down logic of this work. Considering the upcoming German EU Council Presidency, research should focus on the integration perspective and analyse how Germany will frame industrial policy in this context and which ideas it will advocate.

The actual leave of the UK at end 2020 will in the following years show how lasting the Europeanization of industrial policy can be. Especially the example of the establishment of an electric car industry will mark how lasting the European influence will be. The results of this work did show that government and members of the social bloc differ on various topics, mostly regarding the access to the European market in general and high-skilled workers in particular. The future will show if the anti-EU

swift inside the UK was as comprehensive as the government declares. If demands by the social bloc here displayed will not be met, the consequences for the structure of the dominant social bloc will need further observation. Either the private actors of the social bloc will advocate clear separation from the EU, marking a change in the dominant social bloc from pro-EU to nationalistic or opening a bigger discourse, trying to lean closer to the EU.

More challenging for the industry will be the expected recession, resulting from the Coronavirus Disease 2019 pandemic. This outbreak already led to extraordinary measures by central banks, marking a serious quality comparable to the financial crisis of 2008/09 (Schnabel et al. 2020). Certainly, industrial policy must react to these new developments. In consequence, the new developments might lead to a greater comprehensive European industrial policy or to a contrary, more by national growth models shaped one, depending on the overall response of the EU towards this great crisis.

Industrial policy will continue to be a large part of economic policy and will further adopt to new challenges. The path from governments deciding which firm to endorse, towards a process of public and private actors discussing how to manage industrial policy will certainly further enhance. Yet it has to be observed where the actors shaping the new paths of industrial policy originate from – the national social blocs or the EU level.

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# Appendix

## Overview Analysis' Results

Table 4: Overview of EU material analysis (Self-created)

<i>Category</i>	<b>Core findings (EU)</b>	<b>Connections</b>
<i>GA1.1: Liberalization</i>	Free trade and open markets emphasized yet urged to be protective against other global competitors.	Connections towards the liberalization of taxes (GM3.5), creating liberal basis for more innovation (GM3.1) and overall, less burden for SMEs (GM2.1).
<i>GA1.2: Growth</i>	Growth as principle of economy, as presented under Europe 2020. Structural changes should develop growth nevertheless, such as 'green growth'.	Purpose of policy targets (GM3) of IP to produce growth, goals of Europe 2020.
<i>GA1.3: Competitiveness</i>	Seen as core driver of economy and presents a competitive advantage of EU's industry, especially in SMEs. Benefits from competition are beneficial for green technologies and electro mobility.	Competitiveness ensures growth (GA1.2), specifically in certain sectors (GM2.1).
<i>GA1.4: European Context</i>	Centre argument: the benefit of the SEM.	
<i>GA2.1: Time to Act</i>	Growing influence of GVCs, overcoming crisis and decline of resources. Structural changes lead to opportunities in digitisation and innovation.	Changes especially in mobility (GM2.1).

<i>GA2.2: Taking Action</i>	Coordination with key stakeholders needed.	
<i>GM1.1: Domestic</i>	<i>Not mentioned.</i>	
<i>GM1.2: Foreign</i>	Closing free-trade agreements.	
<i>GM2.1: Vertical</i>	Various vertical measures stressed yet focus on automotive and battery sector emphasized. Support of SMEs as pillar of EU's industry policy.	Lower taxes and more funding (GM3.5) for SMEs should be fostered, and digital and mobility infrastructure supported (GM3.4).
<i>GM2.2: Horizontal</i>	Boost innovation with better structure and strengthen framework for intellectual property.	Generate better access to finance (GM3.5) and digital infrastructure (GM3.4). All in a liberal framework (GA1.1).
<i>GM3.1: In- novation</i>	Linked to research and digitisation.	Framed as growth driver (GA1.2). Digital infrastructure (GM3.4) as condition.
<i>GM3.2: Education and Skills</i>	Focus on young people and life-long learners. Key to develop long-term goal of knowledge-based economy. Digital skills and openness emphasized.	Basis to develop innovation (GM3.1) and skilled labour (GM3.3).
<i>GM3.3: Labour</i>	Creating more flexible labour markets to adapt to structural changes.	Innovation (GM3.1) will generate new jobs. Digital knowledge (GM3.2) and flexibility as advantage.
<i>GM3.4: Resources and</i>	Generating cluster of public and private actors, infrastructure for electro mobility and green industry.	Creating resource efficient technologies (GM2.1) and

<i>Infra-structure</i>		developing digital infrastructure to innovate (GM3.1).
<i>GM3.5: Finance</i>	Important tool for European IP influencing all other policy targets.	Better finance supports innovation (GM3.1) ability, especially for SMEs (GM2.1).

Table 5: Overview of Germany material analysis (Self-created)

<b>Category</b>	<b>Core findings (Germany)</b>	<b>Connections</b>
<i>GA1.1: Liberalization</i>	Germany's ordo-liberal legacy is underlined, same as the beneficial free trade and open markets.	Liberal measures are directly linked to innovation ability (GM3.1). Less burden for SMEs (GM2.1) helps the industry overall, same as flexible labour markets (GM3.3). An open trade framework (GM2.2) is emphasized.
<i>GA1.2: Growth</i>	Growth as principle of economy and reached by exporting. New sources of growth with green technologies and digitisation.	Purpose of policy targets (GM3) is to generate growth.
<i>GA1.3: Competitiveness</i>	Basis of economy and generates better performance of SMEs.	High competition leads to increase in innovation (GM3.1) and overall, to the ability to grow (GA1.2).
<i>GA1.4: European Context</i>	Industrial policy to be coordinated, especially in automotive sector and digitisation. National interest of SMEs must be heard at EU.	Finance measures (GM3.5) are to be coordinated.

<i>GA2.1: Time to Act</i>	Crisis showed weaknesses, influence of GVCs is increasing, climate change taking up pace. Digital change must be faced.	
<i>GA2.2: Taking Action</i>	Constant dialogue with key stakeholders needed to solve challenges.	
<i>GM1.1: Domestic</i>	<i>Not mentioned.</i>	
<i>GM1.2: Foreign</i>	'Export World champion' as narrative for IP, open free trade emphasized.	Competition (GA1.3) in the global arena leads to need to support (GA2.1) exporting automotive sector and SMEs.
<i>GM2.1: Vertical</i>	Various vertical measures stressed, focus on 'Industrie 4.0', automotive and battery sector emphasized. Need to strengthen 'green' industry. Support of SMEs underscored.	Taxes and funding (GM3.5) as core instrument. Support for mobility infrastructure and new fuels (GM3.4) underlined. Vertical IP used to protect parts of industry (GA1.1).
<i>GM2.2: Horizontal</i>	Framework shaped to business needs. Intellectual property to be protected in all parts of industry.	Creating a liberal (GA1.1) and competition (GA1.3) based framework as basis for high innovation ability (GM3.1). Attracting high-skilled labour (GM3.3).
<i>GM3.1: Innovation</i>	R&D and digitation create innovation. 'Industrie 4.0' proper tool. 'Green' innovation emphasized. Social innovations targeted.	SMEs (GM2.1) need support to rise innovation ability. Innovation as tool for competitiveness (GA1.3). Funding (3.5) to generate innovation.



<i>GM3.2: Educa- tion and Skills</i>	Digital knowledge and STEM skills to be fostered. Life-long learning as concept to adjust to continuous changes. Openness to education system needed.	Basis to develop innovation (GM3.1) and needed for labour (GM3.3) adjustments towards industry's transformation.
<i>GM3.3: Labour</i>	Flexibility to be increased with more working hours. New jobs are generated with transformation. Further supply of high-skilled needed from abroad and inside.	Flexible (GA1.1) framework conditions (GA2.2) needed for labour transformation. Same as higher skills (GM3.2).
<i>GM3.4: Resources and Infra- structure</i>	Digital infrastructure, innovation hubs and provision of renewable resources emphasized.	Developing charging infrastructure (GM2.1) at centre of efforts.
<i>GM3.5: Finance</i>	Decreasing corporate taxation and increasing risk capital access, to increase i.e. incentives to be more eco-friendly.	Innovation (GM3.1) funding is at centre, especially for SMEs (GM2.1).

Table 6: Overview of United Kingdom material analysis (Self-created)

<b>Category</b>	<b>Core findings (UK)</b>	<b>Connections</b>
<i>GA1.1: Liberali- zation</i>	A business led economy is desired, benefiting from open markets, as the liberal path of previous governments shown.	Specifically (GM2.1) less burden for SMEs and de-regulation for research is addressed. Education systems (GM3.2) and labour markets (GM3.3) should be de-regulated.

<i>GA1.2: Growth</i>	Growth as outcome of IP. Introduced IP should generate 'green growth'.	Innovation (GM3.1) basis for growth in general and in particular data-driven one for sustainable growth.
<i>GA1.3: Competitiveness</i>	Seen as core principle of the targeted free market. IP should lead to higher competitiveness of all sectors.	Competitiveness ensures growth (GA1.2). Competitiveness to be increased specifically (GM2.1) in finance and digital sector, to produce innovation (GM3.1).
<i>GA1.4: European Context</i>	Uncertainty about Brexit's outcome concerning funding and access to SEM. Differences between government and SB.	EU provides high-skilled labour (GM3.3) and possibility for open and free trade (GA1.1).
<i>GA2.1: Time to Act</i>	UK's industry needs a digital transformation to build a knowledge-based economy.	Transformation towards a more digitised industry leads to need innovation (GM3.1).
<i>GA2.2: Taking Action</i>	Coalition building and constant dialogues with private and public stakeholders are needed to transform industry towards digitisation and sustainability.	
<i>GM1.1: Domestic</i>	Consumers are in centre of IP. Higher consumption and an advanced domestic market strengthen UK's economy.	Higher real wages (GM3.3) and reformed tax credits (GM3.5) generate higher competitiveness of domestic market.
<i>GM1.2: Foreign</i>	Businesses are to be supported in export ability of goods and services to counter-balance imports.	Open trade (GA1.1) benefits UK's industry. SMEs (GM2.1) ability to serve especially emerging markets is supported. Finance (GM3.5) products represent a highlight of exports.

<i>GM2.1: Vertical</i>	The importance of the service sector is emphasized, same as the electric car industry and SMEs of the digital sector.	The finance sector (GM3.5) with its FinTech and services is supported. Further resource efficient technologies and charging infrastructure (GM3.4). Digital skills (GM3.2) are to be enhanced.
<i>GM2.2: Horizontal</i>	Industry should be conceptualized with a digital and eco-friendly framework.	A liberal, marked-based (GA1.1) framework (GA1.1) should produce more innovation (GM3.1). Built on competition (GA1.3), better access to finance (GM3.5) is emphasized.
<i>GM3.1: Innovation</i>	IP should create a knowledge and innovation-based industry, with high levels of digitisation, R&D and resource efficiency.	Digital skills (GM3.2) and innovation hubs (GM3.4) contribute to generate new sources of growth (GA1.2). Funding (GM3.5) for innovative project are to be eased.
<i>GM3.2: Education and Skills</i>	Young people and life-long learners should develop digital and STEM skills, to provide knowledge demanded by business.	Liberalizing efforts (GA1.1) and new ways of credits (GM3.5) should lead to new students and thus more high-skilled labour (GM3.3).
<i>GM3.3: Labour</i>	Jobs and real wage have to rise. Attracting skilled labour is emphasized.	Flexible (GA1.1) labour markets generate possibilities of growth (GA1.2). Access to skilled labour is uncertain due to Brexit (GA1.4).

<i>GM3.4: Resources and Infra- structure</i>	New forms of mobility are under-scored. Supported by digital infrastructure, renewable resources and technology centres, a transformation of industry should be generated.	Develop a charging infrastructure (GM2.1) and new forms of 'green' finance (GM3.5) and investments is emphasized.
<i>GM3.5: Finance</i>	Financial incentives are core tool to generate desired outcome of IP.	A liberal (GA1.1) tax regime should produce innovation (GM3.1) incentives, especially for SMEs (GM2.1).

## Codebook

Table 7: Selected material (Self-created)

<b>Case</b>	<b>Organization</b>	<b>Title</b>	<b>Pages</b>
<i>EU</i>	EC	Europe 2020 (2010)	35
	EC	Investing in a smart, innovative and sustainable Industry (2017)	18
	High level industrial roundtable	A Vision for the European industry until 2030 (2019)	48
<i>Germany</i>	BDI	Deutsche Industriepolitik (2019)	31
	BDI, BDA	Europas Stärken ausbauen (2009)	100
	BMU	Klimaschutzplan 2050 (2016)	92
	BmWi	Industriestrategie 2030 (Leitlinien für eine deutsche und europäische Industriepolitik) (2019)	40
	BmWi	Aktionsprogramm Zukunft Mittelstand (2016)	28
	BmWi	Presstext zum Zentralen Innovationsprogramm Mittelstand (ZIM) (2016)	2
	Bundesregierung	Die neue Hightech-Strategie Innovationen für Deutschland (2014)	60

	Bundesregierung	Regierungsprogramm Elektromobilität (2011)	62
	DGB	Renaissance der Industriepolitik mutig angehen! (2019)	1
	GWK	Pakt für Forschung und Innovation IV in den Jahren 2021-2030 (2019)	78
	IGM	Industrie im Umbruch: Was wir jetzt brauchen! (2019)	175
	Plattform Industrie 4.0	Leitbild 2030 für Industrie 4.0 (2019)	8
	Plattform Industrie 4.0	Positionspapier: Leitbild 2030 für Industrie 4.0 (2019)	2
	VDA	Position zur Nationalen Industriestrategie 2030 des Bundesministeriums für Wirtschaft und Energie (2019)	13
	VDA, Gesamtmetall, IGM	Gemeinsame Vorschläge von VDA, Gesamtmetall und IG Metall zur Sitzung der Konzentrierten Aktion Mobilität am 15. Januar 2020	2
UK	BCC	Brexit and Beyond (2017)	16
	BIS	Skills for Sustainable Growth (2010)	16
	CBI	The low-carbon 2020s (2019)	35
	FSB	Going for Growth (2018)	34
	HM Government	Industrial Strategy (2017)	256
	HM Government	The Clean Growth Strategy (2017)	167
	HM Government	UK Digital Strategy (2017)	75
	HM Treasury	Fixing the foundations: Creating a more prosperous nation (2015)	88

HM Treasury	The Plan for Growth (2011)	131
TheCityUK	Advancing the Industry's Agenda (2018)	44
TheCityUK	A Vision for a Transformed, World-Leading Industry (2017)	84
UKRI	Strategic Prospectus: Building the UKRI Strategy (2018)	56

Table 8: Codesystem (self-created)

Code	Frequency
GA1: Existing Legacy	
GA1.1 Liberalization	115
GA1.2 Growth	67
GA1.3 Competitiveness	118
GA1.4 European Context	111
GA2: Legitimate Change	
GA2.1 Time to Act	52
GA2.2 Taking Action	77
GM1: Demand Seeking	
GM1.1 Domestic	25
GM1.2 Foreign	105
GM2: Intervention Level	
GM2.1 Vertical IP	289
GM2.2 Horizontal IP	118
GM3: Policy Target	
GM3.1 Innovation	154
GM3.2 Education and Skills	139
GM3.3 Labour	147
GM3.4 Resources and Infrastructure	268
GM3.5 Finance	133

## Coding

Table 9: Coding main-categories

<b>Main-Category</b>	<b>Definition</b>	<b>Rule of Code</b>
<i>GA1: Existing Legacy</i>	What are the economic principles of industrial policy?	Detect if national governments principles of industrial policy are shared with contemporary European principles.
<i>GA2: Legitimate Change</i>	How do actors identify problems and how to they legitimize their actions?	Used when key actors demand change of industrial policy and argue how they legitimize their actions to target identified problems.
<i>GM1: Demand seeking</i>	Do states seek for their demand on the domestic or foreign market?	Used when industrial policy is either targeted towards building foreign demand or strengthening domestic market for produced goods and services.
<i>GM2: Intervention Level</i>	On which intervention levels is industrial policy aimed?	Build on the principle of the field 'intervention level' of the set typology, to detect if policies are affecting framework conditions or certain actors.
<i>GM3: Policy Target</i>	How are policy target used in industrial policy?	Concerning the field 'policy target' of the set typology, policy targets and their design are coded.

Table 10: Coding subcategories

<i>Subcategory</i>	<b>Definition</b>	<b>Anchor example</b>	<b>Role of code</b>
<i>GA1.1: Liberalization</i>	Is the idea of Liberalization present on national level?	“it was our bold, <b>pro-market</b> reforms which set an example for other to follow” (HM Government 2017a: 5).	Coding references to liberal ideas on policies or general principles in industrial policy is coded.
<i>GA1.2: Growth</i>	In what manner is the idea of growth presented?	“We will maximise the advantages for UK industry from them global shift to clean <b>growth</b> ” (HM Government 2017a: 10).	Identifying references to a growth as a principle of economy and towards certain policies.
<i>GA1.3: Competitiveness</i>	What role plays the idea of competition in industrial policy?	“We are an open enterprising economy, built on invention, innovation and <b>competition.</b> ” (HM Government 2017a: 6).	Capturing remarks of a competitiveness as a narrative, but also what affects with competition are addressed.
<i>GA1.4: European Context</i>	Is industrial policy put in a European context?	“Many questions can and have to answered on <b>European level</b> ” (BMW 2019: 10).	Detecting how industrial policy is put in context with the role of the European Union and Europe as a whole.



<p><i>GA2.1:</i> <i>Time to Act</i></p>	<p>Do Actors argue that anticipated industrial policy results from specific circumstances?</p>	<p>“The promotion of new technologies goes hand in hand with investments in education and training and the integration of society in order to prepare people for <b>upcoming changes</b>” (BMWi 2019: 20).</p>	<p>Coding if actors identify problems and argue why this has led to changes in industrial policy.</p>
<p><i>GA2.2:</i> <i>Taking Action</i></p>	<p>Do Actors anticipate reactions to identified problems?</p>	<p>„So our Industrial Strategy is a partnership with businesses, worker, universities and colleges, local government and the developed administrations where <b>we work together</b> to achieve our goals” (HM Government 2017a: 22).</p>	<p>Used when actors argue how they will take actions and why they are legitimate.</p>

<i>GM1.1: Domestic Demand</i>	Is it emphasised to strengthen domestic demand with industrial policy?	“As we leave the European Union we need to raise our <b>game at home</b> ” (HM Government 2017a: 12).	Detect if industrial policy is used to strengthen domestic demand or in general the domestic market.
<i>GM1.2: Foreign Demand</i>	Is it emphasised to strengthen exporting industries with industrial policy?	“ <b>Cross-border trade</b> in goods and services and cross-border investment contribute to growth, employment and prosperity worldwide” (BMWi 2019: 30).	Find if industrial policy is introduced to support exporting industries or make it easier for foreign consumers to buy domestic goods.
<i>GM2.1: Vertical IP</i>	Is vertical industrial policy targeted?	“Drive over £20bn of investments in innovative and high potential <b>businesses</b> ” (HM Government 2017a: 164).	Find which level of vertical industrial policy is used and if a difference in the selection of industries can be found.
<i>GM2.2: Horizontal IP</i>	Is horizontal industrial policy targeted?	“A competitive industry needs a modern <b>framework</b> , adapted to the changed need of industrial structural change” (BMWi 2019: 19).	Detect if and on what scale horizontal industrial policy is used.

<p><i>GM3.1:</i> <i>Innovation</i></p>	<p>What role does innovation play in industrial policy?</p>	<p>“The need for entrepreneurial investment in <b>research and innovation</b> exceeds all known orders of magnitude, especially in the field of digitisation” (BMWi 2019: 10).</p>	<p>Mark if innovation is addressed and with which instruments such is to be reached.</p>
<p><i>GM3.2:</i> <i>Education and Skills</i></p>	<p>How is education and skills development used in industrial policy?</p>	<p>“There is a need for a social rethink towards <b>lifelong and inclusive learning</b> from early childhood education to continuing education and training even at the end of working life” (BMWi 2019: 14).</p>	<p>Detecting how the development of skills and education is used in industrial policy.</p>

<p><i>GM3.3:</i> <i>Labour</i></p>	<p>How does industrial policy target the work force and wants to shape the labour market?</p>	<p>„Digitalisation and structural change require a modern design of the labour market. In order to secure employment in companies in the long term, the BMWi advocates more flexible <b>labour law</b> regulations“ (BMWi 2019: 14).</p>	<p>Coding those policies which affect the labour market and the workforce in a manner to shape it to the subjective industrial need.</p>
<p><i>GM3.4:</i> <i>Resources and Infrastructure</i></p>	<p>How are policies towards resources and infrastructure shaped?</p>	<p>“The move to cleaner economic growth – through low carbon technologies and efficient use of <b>resources</b> – is one of the greatest industrial opportunities of our time” (HM Government 2017a: 42).</p>	<p>Detect in which way policies targeting the provision and use of resources by also capturing measures targeting infrastructure.</p>
<p><i>GM3.5:</i> <i>Finance</i></p>	<p>How are finance policies and instruments used in industrial policy?</p>	<p>“We will extend the UK’s global leadership in green <b>finance</b>” (HM Government 2017a: 47).</p>	<p>Detect how policies targeting the field of finance, such as taxes and subsidies, are used.</p>



# Plagiatserklärung

Ich erkläre hiermit gem. § 5 Abs. 3 PuStO, dass ich die vorstehende Masterarbeit selbstständig verfasst und keine anderen als die angegebenen Quellen und Hilfsmittel benutzt habe.

Bamberg, den 29. Mai 2020