The role of powerful incumbent firms: shaping regional industrial path development through change and maintenance agency

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ABSTRACT
This article seeks to advance perspectives on powerful incumbent firms in (new) regional industrial path development. Drawing on recent insights from transition studies, it is argued that this actor group – hitherto often portrayed in a rather one-sided manner – plays a crucial role in shaping the pace and direction of regional path development through agency oriented towards both change and maintenance. Building on systemic perspectives at the intersection of evolutionary economic geography and innovation studies, a particular emphasis is placed on incumbent firms’ interventions to reconfigure or stabilize their surrounding regional innovation system to support their intentions. To this end, this article examines how incumbents exert their influence through various forms of power as means by which they promote or hinder regional industrial change. Empirically, the role of incumbent firms in three traditional automotive regions in Austria is investigated. It is shown how they leverage their power to propel the industry’s digitalization and suppress its decarbonization.

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1. INTRODUCTION

A substantial body of literature in evolutionary economic geography (EEG) has contributed to our understanding of the unfolding of (new) regional industrial path development (Hassink et al., 2019). While much of this work has traditionally relied on structural explanations, the most recent years have witnessed an increasing attention devoted to the role of agency in creating, recreating and altering paths (Grillitsch & Sotarauta, 2020; Hassink et al., 2019). Yet, hitherto, the debate is centred around types of change agency (Bækkelund, 2021), that is, agency oriented towards ‘identifying change strategies and demolishing, renewing, and building new structures’ (Jolly et al., 2020, p. 177). Novel contributions have questioned this one-sided...
view and called for an incorporation of agency oriented towards maintenance, stability and suppressing change (Bækkelund, 2021; Henderson, 2020; Jolly et al., 2020).

Arguably, the strong focus on change agency not only obscures the wider range of agentic practices in processes of (new) regional path development (Henderson, 2020), but also limits our understanding of the role of different actors, as it puts emphasis on those bringing novelty to the region. Often, this is attributed to new firms and innovative Schumpeterian (e.g., start-ups or spin-offs) or institutional entrepreneurs. Actors who actively mitigate or suppress change and seek to maintain the status quo have received limited attention (Jolly et al., 2020).

A common view is that among these actors are large incumbent firms. Indeed, other strands of literature (such as transition or management studies) emphasize the inertia inherent in incumbents, as they often benefit from the status quo, protect their strong vested interests and thus are unlikely to promote change or champion radical innovations (Heyen et al., 2017; Patala et al., 2019). The scarce accounts of incumbent firms in the regional path development literature associate them with incremental changes promoting existing paths (Neffke et al., 2018).

However, recent insights from transition studies and the management literature also show that incumbent firms are more than actors of resistance (Turnheim & Sovacool, 2020). They not only suppress but sometimes embrace disruptive innovations and exploit new opportunities (Kumaraswamy et al., 2018; Patala et al., 2019). Thus, incumbents might show ambidextrous behaviour and exert both maintenance and change agency in different stages of regional industrial change or even simultaneously (Jolly et al., 2020).

This article draws on recently developed systemic approaches to path development that combine insights from EEG with the regional innovation systems (RIS) approach (Isaksen & Trippl, 2016; Trippl et al., 2020) to examine mature regional industries in phases of transformation. It highlights the role of large incumbent firms centrally embedded in an elaborated RIS and understands them as an important actor type due to their historically grown power, particular interests, and influence on other regional and national innovation system elements and on international actors. Here, attention is devoted particularly to incumbents’ interventions to shape regional system structures in their favour. It is argued that more explicit attention to their maintenance as well as change agency will help to unravel processes of new regional path development and system reconfiguration or the lack thereof more comprehensively.

The ambition to advance perspectives on incumbencies in regional industrial path development opens a variety of research questions, ranging from who (are the ones that opt for change/maintenance and why?) to when (under what conditions do incumbent firms strive for change/maintenance?) and beyond. This article – without neglecting the importance of other inquiries – focuses mainly on how incumbent firms exert their influence to drive or hinder regional industrial change. To this end, it draws on insights from transition studies to better understand their motives and disentangle different channels through which they make use of their power (Geels, 2014).

Empirically, this article focuses on incumbent firms in a traditional automotive region, namely the Austrian automotive triangle (AAT), which currently finds itself in fundamental transitions (Trippl et al., 2021), facing two major upheavals simultaneously. First, the increasing digitalization is both an opportunity to redefine the regional industry’s competitive advantage but, in many ways, also a decisive break with its successful past (Baumgartinger-Seiringer et al., 2022). Second, the climate crisis increases pressure for change towards a sustainable future and away from the combustion engine. As will be shown in this article, incumbent firms react differently in response to different upheavals and thereby substantially contribute to steering the development of the AAT.

The remainder of this paper is structured as follows. The next section reviews the regional path development literature and complementary strands on incumbents and agency. Section 3 outlines the conceptual framework. Section 4 analyses the empirical case of the AAT. Finally, section 5 concludes.
2. DIFFERENT PERSPECTIVES ON THE ROLE OF INCUMBENT FIRMS

2.1. Insights from the regional path development literature

Recently, the regional path development literature has devoted increasing attention to the role of agency and its interplay with structures to explain regional industrial change or continuity (Grillitsch & Sotarauta, 2020; Mörner, 2022). This new body of scholarly work has brought forward different distinctions in order to disentangle the structure–agency nexus in a more fine-grained way. Researchers have differentiated between firm- and system-level agency (Isaksen et al., 2019), between innovative Schumpeterian entrepreneurship, place leadership and institutional entrepreneurship (Grillitsch & Sotarauta, 2020), and between change and maintenance agency (Jolly et al., 2020).

The latter can be seen as a response to previous studies that portray agents as heroic and homogeneous pioneers of change (Henderson, 2020). In contrast, Jolly et al. (2020, p. 179) cast light on actions that contribute to reproducing the status quo, such as ‘introducing new practices to create deterrence for change, supporting the persistence of existing institutional routines, and using narratives to support the routinization of existing practices and adherence to rules’, that is, to maintenance agency.

This article combines the differentiations between change and maintenance agency on the one side and firm- and system-level agency on the other. The former generally distinguishes agentic practices based on their fundamental goal (change/maintenance). The latter, in contrast, is mainly concerned with their field of influence. Accordingly, while firm-level agency is restricted to a single firm or organization, system-level agency is geared towards the wider RIS and captures interventions to reconfigure or stabilize RIS structures (e.g., institutional endowments, support organizations or educational bodies). Firm- and system-level agency can both be oriented towards change and/or maintenance. As such, these two recent conceptualizations of agentic processes in regional path development processes are arguably highly complementary.

In this context, it is important to note that types of agency are not equitable with types of actors: the same actors can pursue different types of agency throughout the span of a path development process or even simultaneously (Jolly et al., 2020). As regards actors, much work in EEG (particularly the so-called ‘Utrecht school’) traditionally emphasizes the role of entrepreneurial firms that are seen as the main driver of regional industrial evolution (Hassink et al., 2019). In contrast, systemic approaches consider multiple relevant actors, including firms (both entrepreneurial newcomers and established ones), supportive organizations and policymakers (Trippl et al., 2020). Each of these can become a source of both maintenance and change (Jolly et al., 2020).

There is little explicit work on incumbent firms in the recent regional path development literature. Implicitly, they are often portrayed as rather rigid. As most firms pursue path-dependent learning, radical innovations are often attributed to start-ups or spin-offs (Martin & Sunley, 2010). Incumbents tend to strengthen existing regional specializations, but can be stimulated to diversify into new activities by new firms (Neffke et al., 2018).

However, arguably, overemphasizing the role of new entrants in bringing novelty (to the region) limits our understanding of how well-established actors drive and suppress regional industrial change. Recent discussions in transition studies offer a more holistic perspective on incumbent firms that – as is argued here – can contribute to advancing our understanding of their role in regional industrial path development.

2.2. Insights from transition studies

Over the last two decades, a body of literature on sustainability transitions has emerged to unravel change in socio-technical systems, such as mobility or power supply (Kivimaa & Kern,
A key theoretical concept brought forward is the multilevel perspective (MLP) which distinguishes between three analytical levels to disentangle drivers for and barriers to transitions, namely the landscape (deep structural trends and external factors such as demographic, economic or environmental change), regime (the mutually reinforcing structures making up the socio-technical system, such as technologies, institutions, markets, infrastructure, etc.) and niche level (spaces in which innovations are developed and tested). According to the MLP, socio-technical transitions are the outcome of top-down pressures from the landscape level and bottom-up developments in niches that together destabilize the regime (Geels, 2002).

In response to critique highlighting the lack of attention for power, the bias towards bottom-up dynamics and the insufficient emphasis on incumbent actors, Geels (2014) casts light on the role of regime actors resisting change. In doing so, he draws attention not only to incumbent firms, but also to policymakers, as these two groups often form core alliances on the regime level due to mutual dependencies. On the one hand, incumbent firms depend on policymakers due to regulations, tax systems and public procurement. On the other hand, policymakers depend on incumbent firms because of their ‘structural power’, as they provide jobs, taxes and economic growth (Geels, 2014).

According to these contributions, incumbents are powerful yet lethargic, part of the regime and interested in keeping the status quo due to strong vested interests based on their historically developed positions and relationships within socio-technical systems (Heyen et al., 2017). In other words, incumbents are seen as actors engaging in maintenance agency.

This perspective rests on good reasons: not only is it based on empirical observations (Turnheim & Sovacool, 2020), there is also a large body of literature in management studies that offers different explanations why incumbents have limited interest and ability to embrace emerging technologies (Kumaraswamy et al., 2018). First, incumbents face an economic dilemma: radical innovations are usually not aligned with their business model and competencies. Thus, driving them forward comes with the risk of cannibalizing their own existing offerings, highly efficient production systems and profit streams. Second, radical change might threaten incumbents’ identities, templates and mental models. Third, as incumbents are usually large firms, inertia and organizational myopia are often hindering fast responses. Fourth, scholars have also proposed affective explanations (e.g., fear to lose out when compared with competitors or let down shareholders) on the management level that lead to the inability to respond in real time (Kumaraswamy et al., 2018).

However, despite the conceptual and empirical evidence, calls to pluralize perspectives on incumbencies have become louder (Steen & Weaver, 2017; Turnheim & Sovacool, 2020). Indeed, there is evidence that regime actors are considerably more dynamic than often assumed as they change their strategies over time and not all incumbents remain stuck in old ways if they are able to overcome internal barriers (Hansen & Coenen, 2017). As Turnheim and Sovacool (2020) point out, incumbent firms can leverage their power and resources and become important sources of change agency when seeing value in tactically engaging with transitions – for instance, to outmanoeuvre rivals.

With all that in mind, it is also important to note that incumbents often engage in pluralistic responses. They can perpetuate a traditional business model and core functions of a regime, for instance, by lobbying for political support, while simultaneously investing in niche activities (e.g., research and development – R&D) (Späth et al., 2016), that is, they can exert change and maintenance agency simultaneously. Thus, it is important to acknowledge both the transformative potential and the influence to maintain the status quo of powerful incumbents at the same time (Späth et al., 2016).

It is argued that incorporating this emerging, more holistic picture of incumbent firms’ responses to transformation pressures will contribute to a more comprehensive understanding of regional industrial path development in mature industries.
3. TOWARDS A MORE COMPREHENSIVE UNDERSTANDING OF INCUMBENTS IN REGIONAL INDUSTRIAL PATH DEVELOPMENT

This section proposes a conceptual framework that helps to unravel the role of powerful incumbents in shaping regional path development processes in mature industries through change and maintenance agency. To this end, this framework (1) departs from the particular position of incumbent firms in their surrounding RIS, (2) highlights the important interplay of structures and agency to understand strategies of actors in regional path development and (3) elucidates the different channels through which incumbents exert their power.

3.1. Incumbents and RIS

Departing from a systemic approach to new path development, this article understands incumbent firms as agents situated in historically inherited regional economic, social and institutional structures (Martin, 2010).

Often, incumbent firms have been strong historical forces in shaping the very structures they are embedded in through their engagement in previous rounds of regional path development. Incumbents, in many cases, have forged strong ties and dependencies to other actors within and outside the region (such as other firms or policymakers), support organizations (such as educational bodies or intermediaries) are often tailor-made for their needs and formal (such as regulations) as well as informal (traditions and norms) institutions have often developed in tandem with them (Geels, 2014; Isaksen & Trippi, 2016). Thus, incumbent firms are often strongly aligned with their surrounding regional and national innovation systems and embedded in global innovation and production networks, making them particularly powerful as their position and influence is often reinforced and privileged by prevailing regional as well as extra-regional structural conditions (Baumgartinger-Seiringer et al., 2022).

This article emphasizes regional factors. Thus, it is argued that the power of incumbents stems especially from their influence on the wider RIS. However, extra-regional influences affecting their strategies—such as higher governance levels, interregional linkages or headquarters elsewhere—are not neglected.

The implications of incumbents’ embeddedness in their surrounding RIS are twofold. First, there are indeed strong conceptual arguments from a systemic perspective to assume that incumbents tend to reproduce and maintain existing regional structures from which they often benefit. However, they not always do so, but can become forces of change under certain circumstances (Turnheim & Sovacool, 2020). Second, due to their structural power and resources, incumbents can be seen as particularly effective in modifying regional structures when they opt for change.

3.2. Structures, agency and power

To understand the strategies of agents in general, one must acknowledge the complex interdependence between structures and agency. Actors find specific opportunities and constraints for industrial change residing within regional structural preconditions (Baumgartinger-Seiringer et al., 2022). That is, structures will limit the scope of action of embedded actors (Emirbayer & Mische, 1998). However, they never fully determine the course of action, as agency is not only shaped by historically developed structures but also by perceived futures. While structural preconditions enable and constrain actions in the present (Grillitsch & Sotarauta, 2020), it is the perceived opportunities in these conditions which agents aim for and allocate resources to (Steen, 2016). Accordingly, agency is best understood as an inter-temporal process and as the ‘capacity to contextualize past habits and future projects within the contingencies of the moment’ (Emirbayer & Mische, 1998, p. 963).
Consequently, in order to create, recreate or alter paths, actors – situated in historically inherited structures and driven by their visions and expectations – work on structural elements, that is, they will purposefully try to challenge or maintain elements, depending on whether they hamper or support their intentions (Baumgartinger-Seiringer et al., 2022, p. 9).

It is well established that new path development depends on RIS reconfiguration (e.g., changes in training programmes or institutional frameworks), as established innovation systems are usually unfit to provide the necessary assets to meet new demands (Isaksen & Trippl, 2016). Hence, powerful incumbent firms striving for change or maintenance not only engage in firm-level (concerned with adaptations within their own organization) but also in system-level agency (Isaksen et al., 2019). They have the capacity to work on and reconfigure the wider RIS.

However, this mechanism might very well go in the opposite direction. Powerful actors opting for reproduction of the status quo might exert influence to maintain certain impeding innovation system structures to mitigate or prevent change that would be detrimental to their intentions (‘system stabilization’).

Thus, incumbents steer path development processes directly (through firm-level agency) but also indirectly, as they reconfigure or stabilize the RIS to support their interests.

This view of powerful actors in processes of regional industrial reproduction and/or adaptation resonates well with several essentials of the concept of power. First, while power is often used to explain the lack of change (in research on innovation-based change), it is, at least in principle, neutral to the dichotomy of change and stability (Avelino, 2021). Therefore, power – in line with one of this article’s core arguments – can be a means to achieve either end. Second, questions of power (What is it? Who has it? What gives actors power? etc.) have a long tradition in the social sciences and are often linked to the structure–agency debate. It is, however, still disputed whether power should be seen as ‘enabling’ and more on the agentic side (i.e., something that enables actors to do something) or as ‘constraining’ and more on the structural side (i.e., something that predetermines and constraints the options of actors) (Avelino, 2021). In an attempt to overcome this polarity, Giddens (1984) has argued that structures are both enabling and constraining and that actors make use of them in their agentic processes (Avelino, 2021). From this point of view, power is then the (in)capacity of agents to draw on, mobilize and alter structures to achieve ends (Giddens, 1984). Importantly, this does not mean that power is to equate with agency. Power rather refers to the (in)capacity of actors to generate or prevent change through agency. This capacity, however, is not distributed equally. Instead, it depends on an actor’s social position, which often is reinforced by structural conditions. In other words, existing social and institutional arrangements are a source of power for some and not for others (Battilana, 2006). Following this train of thought, incumbent firms are considered powerful here, because structural conditions often privilege their position and enable their capacities. Therefore, the power they hold allows them to be particularly effective in their engagement in change and/or maintenance agency. Third, even when thinking of power as a capacity (Avelino, 2021) it is important to acknowledge that power is something inherently relational (Dahl, 1957). Having power is related to being able to influence others. This is particularly crucial for this article in light of the systemic perspective applied here. Accordingly, this article argues that incumbents’ power in the context of regional industrial change has to be seen against the background of their potential to influence others (here, other elements of their surrounding RIS) and, thereby, steer path development by reaching beyond their own organization.

3.3. Incumbents and their channels of power

Now, in what ways do incumbent firms leverage their particular structural position to change or maintain the course of path development and system reconfiguration? There is little conceptual
research in the context of regional path development on concrete channels through which power and influence is exerted.

Geels’ (2014) work on regime actors specifies different forms of power used to mitigate and resist fundamental change by drawing on insights from political economy. First, incumbents can draw on instrumental power, that is, using their many resources (e.g., authority, money, personnel, etc.) to achieve their goals (in interactions with other actors). Second, they can resist change through discursive power by shaping discourses and setting agendas using their positions and media access. In doing so, they influence not only what is being discussed but also in what way. Third, incumbents possess material power. They can defend their position by drawing on their technological capabilities and financial resources to improve the technical dimension of the current regime. This strategy is often coupled with discursive approaches and promises of a prompt solution. Fourth, incumbents exert influence through institutional power which are connected to the broader governance structures (e.g., seemingly neutral ‘hands-off’ policies that privilege powerful and resourceful incumbents) and their political leeway (Geels, 2014).

While Geels conceptualizes regime stability as the outcome of active resistance by incumbent actors and thus maintenance agency, this article argues that these very channels can be used to leverage their power to promote change. Instrumental, discursive, material and institutional forms of power are not only means by which incumbents can maintain and reproduce regional structures, but also by which they can be altered (Table 1).

In summary, the conceptual framework proposed here unravels how incumbent firms exert their influence to promote regional industrial change or maintenance. Based on their particular position in regional as well as extra-regional structural conditions and driven by their perceived future, they engage in agency that reaches beyond their own organization. They reconfigure or stabilize their surrounding RIS to support their intentions. To this end, incumbent firms draw on various forms of power to shape the direction of regional industrial path development.

4. THE ROLE OF INCUMBENTS IN THE AUSTRIAN AUTOMOTIVE TRIANGLE’S DEVELOPMENT

The empirical section studies the role of incumbent firms in the ‘Austrian automotive triangle’ (AAT), a traditional automotive region concentrated in the three provinces of Styria, Upper Austria and Vienna (Trippl et al., 2021). The AAT has been selected because it hosts several well-connected and long-established companies (Schneider et al., 2018) (for an overview see the Appendix in the supplemental data online), making it an interesting case study to examine how powerful firms shape the pace and direction of regional path development and system reconfiguration.

Table 1. Channels of power oriented towards change/maintenance.

| Change                           | Maintenance                          |
|----------------------------------|--------------------------------------|
| Instrumental                     | Using resources to alter structures/structural elements |
| Discursive                       | Shaping the discourse to push for change |
| Material                         | Improving technical dimension of new technology (+ promises) |
| Institutional                    | Using the institutional power to pave the way for change |
|                                  | Using resources to maintain structures/structural elements |
|                                  | Shaping the discourse to prevent change |
|                                  | Improving technical dimension of old technology (+ promises) |
|                                  | Using the institutional power to resist change |

Source: Authors’ own elaboration based on Geels (2014).
This section first outlines the methodology used for data collection and analysis. Then, it provides insights into the structural conditions of the Austrian/global automotive industry to unravel the interplay of structures and agency in this specific case. Finally, it analyses strategies of incumbent firms in response to two different upheavals.

4.1. Research methods and data

The analysis is based mainly on 25 in-depth semi-structured interviews with incumbents (six with incumbent firms and three with representatives in industry associations), but also experts in universities and research institutes (five), intermediaries (four) and government agencies (seven) in the AAT. On average, they were around an hour long with some exceptions lasting up to three hours. All interviewees have gained profound knowledge of the regional industry and the broader RIS through their – usually longstanding – occupation.

The interviews were complemented by an intensive analysis of publicly available documents from a variety of sources, including policy documents, newspaper articles, industry newsletters and interviews, press statements, and strategy reports of incumbent firms and their interest organizations. In total, around 140 documents about the development of the AAT in general and the role of incumbent firms in particular were analysed. These data provided information, especially on how incumbents exert discursive power by shaping discourses (see also Patala et al., 2019), but offered insights into their relation to the other three power dimensions as well. The document analysis was an important means of triangulation.

Furthermore, participatory observations in thematically relevant conferences in the AAT contributed to further robustness. Broadly speaking, these events were focused on current transformations in the automotive industry and allowed for insights into how issues are debated and incumbent firms position themselves.

The transcribed interviews and complementary material were coded and analysed using a qualitative content analysis based on themes corresponding to the analytical framework. As previous research has argued, such a qualitative case study approach is suited for unravelling the interlinkages between agency and structure (Jolly et al., 2020; Yin 2018).

Importantly, the empirical investigation focuses on the period between 2012 and 2019. This timeframe was selected for two reasons. First, our interview partners highlighted the year 2012 as the point of initiation of transformations. Second, the interviews were conducted in 2019 and, hence, allow for an in-depth and robust retrospective analysis of this particular episode of regional industrial path development.

4.2. The (Austrian) automotive industry

There are several specific characteristics of the (Austrian) automotive industry considered crucial here to understand processes of change and maintenance.

First, the automotive industry is a key sector of the Austrian economy. Due to strong multiplier effects, a large portion of the Austrian workforce (up to 10%) is employed by companies connected directly or indirectly to the industry (Trippl et al., 2021). Moreover, it is dominated by large long-established firms, around 82% of revenue is generated in companies with 250 or more employees (Schneider et al., 2018). The automotive path is embedded in and aligned with a strong RIS that consists of many research institutes, (technical) universities, cluster organizations, etc. (Trippl et al., 2021). Given the size and elaboration of the automotive path and its surrounding support system, it is hardly surprising that policymakers are eager to support the industry, while hesitant to limit its scope of action (e.g., through regulations). This mirrors Geels’ (2014) notion of the alliance on the regime level that often prevents change.

Second, the car industry is traditionally relatively stable. It was long developing rather incrementally and has shown a remarkable capacity to withstand transition pressures (Späth et al.,
However, technological progress and ecological concerns are expected to boost transformations now.

Third, from a management studies perspective, the industry is a systemic one, meaning that different components or modules by different firms need to be compatible. In such industries, innovations might alter the ‘system’s architecture’, that is, the form and function of its components and their interfaces. Consequently, innovations have the potential to significantly change roles, relations, rules and transactions (Kumaraswamy et al., 2018). This is both a threat and an opportunity for the AAT due to its semi-peripheral position in automotive global production networks (GPNs) (Mordue & Sweeney 2020). Pavlínek (2018) characterizes such semi-peripheral regions by their lack of domestic original equipment manufacturers (OEMs), relatively high production costs and their need to redefine their competitive edge in light of recent moves of production to low-cost locations. The AAT indeed hosts only supplier firms, which exhibit a strong export orientation and forged strong ties to German OEMs. A total of 87% of products manufactured in the AAT are exported, a majority of them to Germany (WKO, 2019). The implications for Austria’s automotive industry are mixed. On the one hand, the empirical analysis has clearly shown a fear that radical changes in strategies of partner OEMs in Germany might alter established Central European production networks and render certain competitive advantages and components manufactured in the AAT obsolete. This especially holds true for the many firms in value chains connected to the combustion engine. In 2018, a quarter of the production value of €17 billion was generated in the sector ‘engines and transmissions’ (Högelsberger & Maneka, 2020). On the other hand, in consideration of the high R&D intensity of the industry, the strong support structures of the RIS and trends of deverticalization in the global automotive industry (Trippl et al., 2021), our interviewees also pointed to the opportunity of supplier firms to reposition within value chains.

4.3. Analysing incumbents’ strategies: change and maintenance

Drawing on these more principal considerations, this section will now analyse the concrete strategies of incumbent firms in the AAT and examine how they leverage their four channels of power in response to ‘the two megatrends that will have a lasting impact on the automotive industry: (1) decarbonization and (2) digitalization’ (as one representative of a research organization put it).

As will be shown, they react with agency oriented towards maintenance in the case of the former, while responding with change strategies in the face of the latter. This is explainable by opportunities and constrains found in the structural preconditions and perceived futures.

4.3.1. Decarbonization: incumbents as actors of maintenance

Mobility is a key field in which decarbonization must happen to fight the climate crisis (Späth et al., 2016). While this insight is hardly controversial anymore, the ways to achieve this goal are. They range from more radical ideas questioning the prevailing car ownership model altogether to mere efficiency improvements of conventional powertrains. As in many other countries, sustainable mobility over time has been increasingly equated with the electrification of cars in Austria – even though different approaches are still being discussed.

In contrast to more profound changes, the shift to e-cars is an approach to green mobility relatively compatible with the interests of the car industry (Späth et al., 2016). However, the structural orientation on the combustion engine in the AAT makes this transformation one with high disruptive potential (Högelsberger & Maneka 2020). Accordingly, the interests of industrial players and politicians with respect to added value and employment stand in stark contrast to ecological goals. Thus, incumbent firms have used their channels of power mainly to engage in maintenance agency over the period of investigation.
that strongly steered the direction of regional path development and system stabilization
towards reproducing established ways of doing things.

4.3.1.1 Instrumental – sustainability. The empirical investigation has shown that the period
2012–19 in the AAT was characterized mainly by the hesitancy of incumbent firms to leverage
instrumental power in relation to sustainability concerns and the electrification of cars. Thus,
the unwillingness to use their resources must be considered an important and deliberate form
of maintenance agency.

There are several reasons for this behaviour. First, interviewees have pointed to the reluc-
tance of higher tier firms to position themselves and described a downstream network effect
that prevents lower tier firms from doing so too. For instance, a chief strategist of one of Aus-
tria’s largest automotive incumbent firms said that ‘the unwillingness of German OEMs, their
fighting that something is not implemented, even if it should be [from an environmental per-
spective], that creates a field of tension for us’. This statement points to the fact that while
incumbent firms are powerful within the surrounding RIS, their influence in automotive
GPNs is limited due to the AAT’s semi-peripheral position (Mordue & Sweeney, 2020). More-
over, some of the most important incumbents in the AAT are subsidiaries of multinational cor-
porations with their headquarters elsewhere (see the Appendix in the supplemental data
online). Accordingly, maintenance strategies of incumbents in the region are – at least to
some extent – the outcome of external influences.

This situation conserves traditional supply chains and poses an immense challenge for smaller
firms that lack the advantages of larger companies, on which they depend due to the indus-
try’s systemic architecture. Thus, incumbents within and beyond the AAT refusing to engage in
change agency at the firm level have a strong signalling effect on other elements on the RIS
level. This holds true not only for other firms but also for the education and research domain,
on which incumbent firms traditionally exert a strong influence (Trippel et al., 2021). An analysis
of the curricula of relevant degree programmes and interviews with researchers confirmed that
classic mechanical competencies are still predominant. In this respect, interviewees reported on
active maintenance agency of both firm and non-firm actors (e.g., in universities).

Second, the empirical analysis confirmed well-established reasons for the inertia of incum-
bent firms, such as sunk costs, a distinctive specialized technological regime or a pool of skilled
workers (Martin & Sunley, 2006). These arguments have been brought forward repeatedly in
relation to a historically developed excellence in combustion engine technology. Hence, the
reluctance to allocate resources to this transformation is clearly tied to a perceived danger of can-
nibalizing own offerings, efficient production systems and profit streams (Kumaraswamy et al.,
2018).

Third, this hesitancy is connected to mutual dependencies between incumbent firms and
policymakers (Geels 2014). According to some interviews, the conflict of interest (environ-
mental protection versus economic performance) with which policymakers are confronted
resulted in a lack of directionality and pressure on dominant incumbent firms.

While the empirical investigation has drawn a clear picture, it is important to note that there
are firms, both newcomer and incumbents, that have been engaging early in this transformation.
The activities range from manufacturing cases for the modified engine compartment (ADG
Austria Druckguss) to battery development (Kreisel Electronic) and simulating alternative
powertrains (AVL).

4.3.1.2 Discursive – sustainability. The analysis has revealed three framings in the AAT to
counteract increasing sustainability concerns (similar strategies has been observed in Stuttgart;
Späth et al., 2016).
First, a strategy commonly used by incumbent firms is to frame the combustion engine as a pillar of regional economic prosperity. This is related to expressed concerns about the far lower complexity of electric engines, lower potentials for value creation, high investments necessary and the potential loss of jobs (Högelsberger & Maneka, 2020). Second, incumbents have framed their own role in this debate as one with little to no responsibility. Instead, they see either the customers/market or policymakers in charge. Thereby they drew a picture of passive actors merely reacting to external forces. Third, incumbent firms have applied counter framings to delegitimize new ways (Kumaraswamy et al., 2018). These revolve around two points. On the one hand, it is often argued that – taking everything into account – e-mobility is not cleaner than conventional engines and, on the other, that there are better alternatives for clean mobility such as the fuel cell in the future and thus engaging in this transformation does not pay off.

While it was not possible to assess the concrete impact of these discursive strategies on the process of regional path development, previous studies have shown that incumbents’ rhetoric is a powerful tool to establish and reproduce the order of things in periods of socio-technical change (Patala et al., 2019). Moreover, in the context of regional development, the potential to influence others can be seen as particularly significant, as regional change often rests on cooperation and coordination (Grillitsch & Sotarauta, 2020). As such, these discursive strategies can be considered as important, direct forms of system-level agency.

4.3.1.3 Material – sustainability. There is strong evidence for material strategies of incumbent firms targeting the improvement of established technologies. This has been confirmed by interviewees, but also becomes apparent through companies’ own public relations tools. In a booklet released in 2018, the large BMW engine plant stated that it is ‘still fully committed to further developing the combustion engine’ and highlighted its importance for the ‘diesel-land Austria’ (BMW Group, 2018). Incumbents such as Magna, AVL or miba have reported similar innovation endeavours and resources allocated to areas no longer needed in e-cars (mostly incremental changes in fuel systems, coupling systems, etc.). While this behaviour is connected to a certain degree of novelty, it inhibits larger scale alterations and can thus be seen as a form of maintenance agency (Bækkelund, 2021).

This tendency to persist on the combustion engine has also been found by others. In their work on perspectives for a social–ecological transformation of the Austrian automotive industry, Högelsberger and Maneka (2020, p. 422) summarize:

A high level of confidence in the ecological modernization of combustion technology can be observed. The majority of actors consider the internal combustion engine to be viable for the future, which is justified by its allegedly high optimization potential. … This idea of an incremental innovation process – remaining within the framework of combustion technology – is often accompanied by scepticism towards e-cars.5

Indeed, a survey conducted in 2018 with automotive suppliers has indicated that improvements of conventional powertrains were still considered the most crucial field of product innovation by many firms in the AAT (Pichler et al., 2021).

The interviews and other research have shown that this opinion is widespread and shared by parts of the workforce and – at least to some extent – by the research domain (focus, 2017; Pichler et al., 2021). Accordingly, spurred by material strategies of powerful companies at the firm level and amplified by historically high levels of cooperation, a belief in the future viability of combustion technology has manifested at the system level in the AAT. This, again, is an interesting example of how firm-level agency of powerful incumbents can have a strong signalling effect.
Importantly, some interview partners – particularly in the research domain – expressed concerns about lock-in tendencies, a system in self-satisfaction (Trippl et al., 2021) and outspoken criticism of this current development path.

4.3.1.4 Institutional – sustainability. Incumbent firms used their institutional power to withstand sustainability transitions. On the one hand, incumbents have leveraged this kind of power actively, that is, they have used their institutional leeway to stabilize the RIS. Indeed, representatives of incumbent firms confirmed well-established connections to politicians (incumbents’ structural power), even to the highest levels of the Austrian government. However, they not only have exerted influence in the background. Recently incumbent firms such as Magna, MAN and KTM also tried to apply public pressure through an open letter to the Chancellor to speak out against a ban for combustion engines at the European Union (EU) level, arguing that this would inhibit innovation, cost many jobs and lead to a loss in value of approximately 5 million Austrian cars (see also discursive strategies) (Wiener Zeitung, 2021).6

On the other hand, there are passive forms of institutional power, which are connected to broader governance and political structures that privilege powerful incumbents, such as seemingly neutral ’hands-off’ policies (Geels 2014). Indeed, being open to all types of technologies (e.g., hydrogen) to combat climate change is a recurring argument used by both the automotive industry and the federal government to legitimize ’continue as before’ strategies based on the assumption that the ‘solution is around the corner’ (VCÖ, 2018). Moreover, interviewees reported on institutionalized structures that favour maintenance agency, for example, existing funding pools oriented towards established competencies. In this respect, a recent report on environmentally harmful subsidies in Austria found that the prevailing business model based on cars with combustion engines is supported by indirect subsidies amounting to €1.3 billion per year (Pichler et al., 2021).

4.3.2. Digitalization: incumbents as actors of change
Austria’s automotive industry places high hopes in the digitalization of cars. In a period dominated by scepticism about the industry’s future, the emission scandal and the overall image of cars, the advent of increasing automatization is welcomed by many as a new field of innovation in accordance with AAT’s profile (Trippl et al., 2021). Moreover, as Trippl et al. (2021) argue, there are several enabling (regional) conditions, ranging from general trends in the global automotive industry (e.g., deverticalization) to the high innovation capacity in the AAT (based on R&D expenditure, patents, research collaborations). Moreover, Austria hosts an innovative and R&D-intensive microelectronics path that is traditionally interwoven with the automotive industry, sees opportunities for further diversifications and plays an important role in system reconfiguration. Accordingly, incumbent firms have leveraged their channels of power mainly to actively engage in change agency in this transformation since around 2012.

4.3.2.1 Instrumental – digitalization. Incumbent firms have used their many resources to reorient the RIS and thereby significantly influenced the direction of regional industrial path development. In light of the increasing complexity and need for cooperation, many incumbent firms have further strengthened their ties with other regional actors. Interviewees reported on renewed life in several consortia including traditional cluster organizations, well-established competence centres such as Virtual Vehicle in Graz and newly initiated corporations such as Silicon Austria Labs, a science–industry centre founded in 2018 working on – among other things – automated driving. Many incumbents sit on the steering boards of these consortia. Moreover, incumbent firms have begun to forge new strategic links between firm- and system-level actors, for instance, between Siemens Mobility Austria and the federally owned
infrastructural operator ASFINAG to further digitalize motorways and provide the basis for automated driving.

Powerful firms have also leveraged their historically strong influence on the research and education domain (Trippl et al., 2021). Firms such as AVL and Infineon have funded new endowment professorships related to automated driving at universities in Graz and Vienna. AVL, Infineon, Magna and NXP have played a pivotal role in starting and funding the new master’s programme ‘System Test Engineering’ at Johanneum Graz (University of Applied Science). In 2017, German OEM Audi has partnered with Johannes-Kepler University Linz and opened the Audi.JKU deep-learning centre. In 2018, Magna and the technical university in Graz have reinforced their cooperation to also cover research in the area of automated driving (for an overview of most of these activities, see BMVIT, 2018). In doing so, incumbent firms, on the one hand, gain valuable research results based on the dynamism and freedom of universities and, on the other, shape tomorrow’s graduates.

These actions of system reconfiguration have led to an increased coherence between an already highly cooperative industry and surrounding RIS elements (Baumgartinger-Seiringer et al., 2022).

4.3.2.2 Discursive – digitalization. The empirical analysis has shown two main discursive strategies used by incumbents to legitimize the need for action: an opportunity and an urgency framing.

The opportunity argument is connected to a strong belief in the high innovation capacity. Accordingly, many interviewees and documents (particularly those in relation to the micro-electronic path) have emphasized that the right conditions to meet these new challenges and to tap new markets are in place regionally.

The urgency framing is underpinned by the convictions that the digital transformation will completely revolutionize the car and cannot be stopped, that the sources of revenue are shifting from hardware to software and that data collection is vital to survive. Hence, the urgency framing echoes the fear of a potential loss of prosperity expressed in response to sustainability concerns, but this time around to motivate change rather than maintenance.

Albeit not as common, the necessity for digitalization is sometimes motivated by promises of more sustainable and safe cars. Accordingly, it is argued that lower levels of car production due to car-sharing and self-driving cars, intelligent traffic management and traffic harmonization can promote safety and sustainability. Hence, there is some evidence that growing environmental concerns were redirected to promote the industry’s digitalization.

4.3.2.3 Material – digitalization. Incumbent firms in the AAT have been engaged in countless activities to propel the ongoing digitalization process, ranging from the development of intelligent lights used for automated driving (e.g., for communication with pedestrians) (ZKW) to testing services for advanced driver assistance systems (ADAS) in both virtual and real-world scenarios (AVL) and developments to digitalize the car key (NXP). The 2018 annual press talk of Bosch-Austria also presents an interesting example. Klaus Foquet, the sole director at the time, highlighted both the need to invest in areas of connected mobility and the combustion engine (i-magazin, 2018) and, hence, motivated material strategies for maintenance (‘Diesel has a future’) and change (‘creation of innovative solutions in areas such as connected mobility’).

Importantly, drawing on their experience in system thinking and high investments in R&D, microelectronic firms have played an important role in regional reconfiguration (Trippl et al., 2021). Firms such as Infineon, AT&S or AMS have been engaged in developing a broad range of microelectronic solutions for automated driving. Microelectronic incumbents have traditionally strong ties to the automotive industry that will only strengthen as the demand for sensors will further increase (Industriemagazin, 2019).
Yet, it should be noted that these changes do not come without frictions. Interviews and previous research (Tripl et al., 2021) have shown that there is an incompatibility between the historically developed trademarks of the AAT (determinism, safety, predictability, etc.) and new software-based methods (agile, flat hierarchies, short development horizons, etc.). It has turned out that this is a particular problem for traditional automotive companies. Thus, incumbents that often suffer from inertia (Kumaraswamy et al., 2018) have begun to radically modify their firm cultures (Tripl et al., 2021).

4.3.2.4 Institutional – digitalization. Due to a mismatch between rigid institutional assets and new demands tied to the inflow of information technology (IT) knowledge (Baumgartinger-Seiringer et al., 2022), institutional change is seen as a necessity for the consolidation of change.

Interviews have shown that incumbents leverage their institutional power to reconfigure the RIS by putting pressure on policymakers, for example, to adjust regulative frameworks quickly to the technical status quo. Particularly in relation to testing automated solutions in real-world environments, incumbent firms have been described as proactive – and successful. Today, there are two testing sites in the AAT: the ALP.Lab in Styria and DigiTrans in Upper Austria. The former was founded in 2017 by incumbent firms AVL and Magna together with scientific partners. The latter is run by a consortium of firm-level (e.g., incumbent firms Hödlmayr International, Reform–Werke Bauer and MAN) and system-level actors (such as the university of applied science Steyr and the Austrian Institute of Technology). Both projects are supported by ASFINAG and BMVIT.

5. DISCUSSION AND CONCLUSIONS

The analysis has shown how incumbent actors in a mature regional industry have shaped industrial path development and RIS reconfiguration/stabilization in their favour through change and maintenance agency. Based on distinct structural conditions and driven by their perceived futures, incumbents leveraged their influence either to drive (digitalization) or to resist (decarbonization) transformations.

In doing so, they made use of instrumental, discursive, material and institutional forms of power (Geels 2014). The empirical investigation has not only confirmed that these channels are indeed tools for both, maintenance and change, but also that they differ in significance. From a systemic perspective, those forms of power with the capacity to influence other RIS elements rank high in relative importance. In relation to decarbonization, this has applied particularly to the material dimension of power that – in conjunction with discursive strategies – led to a manifestation of a strong belief in the future viability of the combustion engine and, thereby, contributed strongly to system stabilization. In contrast, instrumental power was paramount to reconfigure the system in ways that allow for more cooperation, which is seen as imperative for digitalization.

In this respect, it has also become apparent that not all channels of power are equal in their relation to either firm- or system-level agency. For instance, when leveraged, discursive power is usually directly oriented towards influencing the system level, while actions based on material power often originate at the firm level and have a more indirect, signalling effect at the system level.

Overall, this paper aimed to disentangle how incumbents exert influence to steer regional industrial change. Future research should complement this work by examining who are those that strive for change or maintenance and – in particular – under what circumstances.

There are several further aspects worth underlining in relation to the empirical case study. First, incumbent firms have distinct advantages and disadvantages over other firms (see section
These are particularly pronounced in case of the AAT due to structural characteristics of the automotive industry. Accordingly, the power of incumbent firms might vary substantially between industries and not all industries are equally dominated by incumbents. In this respect, much depends on factors such as the industry’s architecture, elaboration, capital intensity and regional embeddedness. In other words, this article has provided insights into the role of incumbents in regional path development processes based on a relatively ‘incumbent-heavy’ industry. As such, it is crucial to acknowledge that other regional–industrial configurations exist in which the power of incumbent firms is more limited and their superior position more vulnerable in times of radical change. Hence, testing the analytical framework in the context of a less elaborated and backed industry/RIS would provide important additional insights.

Second, the investigation has focused on the meso-level. On the micro-level it becomes clear that not all incumbents act identically. Both their power and strategies depend on their competencies, ownership, embeddedness in the RIS, markets, visions, etc.

Third, a dynamic understanding of agency is needed (Baumgartinger-Seiringer et al., 2021). While the empirical investigation focused on the period between 2012 and 2019 and provided a clear picture, the last years (2019–21) have shown that the strong defensive stance towards e-mobility is increasingly fragile. For instance, Magna has recently started to assemble a niche e-car for Jaguar. This development is strongly connected to more political (including fines from the European level) and economic pressure (US and Asian firms entering the market) and a trend reversal towards e-mobility in Germany starting in 2019 (Olle et al., 2020).

Forth, this very influence of German OEMs is crucial to understand regional path development and system reconfiguration in the AAT. Thus, despite the weight of incumbent firms, they depend strongly on extra-regional factors, reflecting power asymmetries between core and semi– peripheral regions in automotive GPNs (Pavlínek, 2018).

More generally speaking, incumbent firms are not considered to play a major role in new path development, but rather portrayed as actors who tend to reproduce the status quo. Indeed, incumbents can become barriers to change, their role is important to understand why paths fail (Blázek et al., 2020) or new path development does not succeed (questions hardly examined). Hence, maintenance agency has a dark side in the sense that it bars the way to progress. However, other research has emphasized positive dimensions of maintenance/reproductive agency oriented towards the consolidation of change that should be considered equally important for regional industrial development (Bækkelund, 2021; Baumgartinger-Seiringer et al., 2021).

Further, this article advocates for advancing systemic perspectives on innovation-based regional change by incorporating the role of power. RIS reconfiguration or stabilization depends strongly on influential actors capable of shaping or maintaining their surrounding RIS in their favour. Hence, such actors possess ‘systemic power’ to alter other elements (e.g., other firms, the support organizations or institutional set-ups). Accordingly, power is an important dimension of what Mjörner (2022) has termed ‘system selectivity’: the power configuration within the RIS affects what is possible in terms of change (i.e., what type of change is ‘selected’).

Indeed, the empirical analysis has shown that the AAT was not conducive for development per se in the period of investigation. Led by powerful incumbent firms, the RIS was reconfigured in ways to support digitalization, while stabilized to constrain decarbonization. The reason is that the former upheaval was more compatible with the industry’s regional set-up or the ‘system’s architecture’ (Kumaraswamy et al., 2018). In other words, digitalization was less disruptive in relative terms and, hence, a more ‘system-stabilizing’ innovation.

This raises questions concerning the interdependence between different disruptions. There are hints that the increasing digitalization and sustainability transitions reinforced each other (e.g., discursive strategies to legitimize digitalization with growing sustainability concerns). Alternately, it became clear that assets (e.g., financial ones, workforce) allocated to digitalization efforts are bound and, therefore, cannot be used to respond to – arguably more important –
sustainability concerns. This poses a challenge for both research and policy to move beyond a hitherto often neutral or indifferent stance towards innovation.

Finally, this article offers insights in light of recent calls for regime destabilization and exnovation (Kivimaa & Kern, 2016). Such measures will have to find answers to the power of incumbents, their different channels of influence, and the alliance between powerful firms and policymakers. One way to approach these problems is the implementation of directionality and challenge orientation on the innovation system level, thereby placing societal challenges at the core of innovation processes (Tödtling et al., 2021) and recalibrating ‘system selectivity’.

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NOTES

1 An umbrella term referring to various forms of the rise and growth of new economic activities in regions, including the formation of new industries and the substantial transformation of existing ones (Isaksen & Trippl, 2016).
2 Importantly, not all mature industries are embedded in highly elaborated RISs. Surrounding regional structural configurations can differ substantially and provide quite different implications for change processes (Baumgartinger-Seiringer et al., 2022). This paper investigates mature industries in well-developed RISs.
3 In a broad manner, agency can be understood as ‘actions or interventions by actors in order to produce a particular effect’ (Sotarauta & Suvinen, 2018, p. 90).
4 Other work on the AAT has argued that the leeway of foreign-owned firms is limited (Pichler et al., 2021). However, research conducted for this article has shown that incumbent firms with headquarters elsewhere – in particular Magna – have been important forces of system reconfiguration/stabilization.
5 Quotation translated by the author.
6 This letter was written in 2021 in the context of an increasingly widespread consensus that the phasing out of the combustion engine in its current form is inevitable. Yet, it shows how widespread maintenance agency still is in the AAT.
7 I am grateful to an anonymous reviewer for very helpful remarks in this regard.
8 This idea is not new: power is often defined as a capacity to control or influence other actors (Dahl, 1957).

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