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Bouncing back, forward, and beyond: Towards regenerative regional development in responsible value chains

Markus Grillitsch, markus.grillitsch@keg.lu.se

Department of Human Geography & CIRCLE, Lund University, Sweden

Björn T. Asheim, bjorn.t.asheim@uis.no

CIRCLE, Lund University, Sweden

University of Stavanger Business School, Norway

Papers in Innovation Studies no. 2022/11

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Markus Grillitsch and Björn T. Asheim

Abstract:

Understanding, explaining, and affecting regional economic resilience and transformation has become more important in recent years than a narrow economic growth perspective. The paper investigates why, how and to what consequences local actors engage in regional development during and after crisis times to understand the role of human agency for regional resilience. We identify the differences in the underlying processes that lead to adaptation – bouncing back to economic activities existing before the crisis, adaptability – bouncing forward or diversification into new economic activities, or transformation – bouncing beyond the current organization of the economy towards a more green and inclusive future.

In our empirical study of the maritime industry in Sunnmøre/Norway, we found two starkly contrasting development rationales: a traditional, neoliberal economic rationale of globalization, and a progressive rationale combining regenerative regional development with responsible value chains. We trace the origin of these rationales and show how they differ in agentic orientation and time perspective. Subsequently, we engage in a theoretical discussion about the downsides of global value chains embedded in a neoliberal ideology, and how it would be possible to combine regenerative regional development with responsible value chains; including important elements of policy interventions to facilitate the shift.

Keywords: Regional resilience, sustainability transformation, human agency, global value chains, automation and industry 4.0, innovation, industrial and innovation policy

JEL codes: R10, R11, R50, R58, O30

Acknowledgments: Financial support for this study was provided by the Research Council of Norway, through the project 'RegReSir - Regional Resilience and Sustainable Industrial Restructuring' (project number 316539).

[1] Corresponding Author, Department of Human Geography & Centre for Innovation Research (CIRCLE), Lund University; Inland Norway University of Applied Sciences, markus.grillitsch@keg.lu.se

[2] Centre for Innovation Research, University of Stavanger Business School, bjorn.t.asheim@uis.no

1 Introduction

Understanding, explaining, and affecting regional economic resilience and transformation has become more important in recent years than a narrow economic growth perspective. Regional economic resilience relates broadly speaking to the ability to absorb and respond to economic shocks, and its popularity may relate to the "increased sense of risk" (Christopherson et al., 2010, p. 3) that the many crises in recent years entail. In economic geography, many differentiate between short-term adaptations within existing development paths and long-term adaptability of economic structures towards new development paths (Boschma, 2015; Grabher, 1993; Martin & Sunley, 2014). The latter implies structural change and is thus related to the concept of transformation. Transformation is about the changing of production and consumption patterns to achieve a greener and more inclusive economy and society (Schot & Steinmueller, 2018). While both long-term adaptability and transformation thus require structural change, the latter differs from the former in the directionality implied. Resilience has been studied mainly in relation to discovering new growth paths, but transformation is about building a sustainable future. Transformation refers to the deep and long-burning crisis of climate change and inequalities, which differs from other short- or medium-term crises such as the financial crisis 2008 or Covid-19. In this paper we capture these differences with the notions of bouncing back (short-term adaptation), forward (long-term adaptability) and beyond (transformation).

We have studied the bouncing back, forward, and beyond in the case of the maritime industry in Sunnmøre in the western parts of Norway. The maritime industry has a long history originating from the demand for reliable boats for the fishing industry and later developing a highly profitable market niche in service vessels for oil and gas operations in the North Sea. In recent years, the local maritime industry went through several crisis. In the end of the 90s it was questioned whether it was possible to compete with low-cost countries. After the drop of the oil price in 2014 the demand from the oil and gas industry collapsed, and Covid-19 interrupted the demand for cruise ships. We have conducted interviews at three points in time: 2014, 2019, and 2021/2022. This paper focusses on our findings from our last interviews when we could learn about the outcomes from the actions taken after the 2014 and 2019 crises. High investments in new markets after 2014, including the green economy such as hybrid ferries and the offshore wind sector, but also the cruise market did not turn out to be sufficiently profitable, which led to a restructuring but also new visions for the future.

Most interestingly, we found two contrasting rationales for future development: i) a traditional, neoliberal economic rationale of globalization, and ii) a progressive rationale combining regenerative regional development with responsible value chains. After the crisis and the limited/negative financial return of diversification into new (and partly green) market niches, many of the stakeholders highlighted cost-efficiency as the important main rationale in Global Value Chains (GVCs)[1], the low cost-competitiveness of Norway, the importance of oil and gas for survival, and a conservative view on sustainability essentially meaning that the maritime industry has for long aimed at increasing fuel-efficiency of vessels. Contrasting to this, we found some actors who have developed a new rationale: To produce locally using automatization technologies (industry 4.0) and green energy. The added value are radically reduced greenhouse gas emissions, increased production and innovation capabilities, and nearly all value created locally. While having received their first orders, these actors, however, struggle because procurement procedures do not adequately consider externalities: greenhouse gas emissions, the benefit of increased local capabilities and value creation,

[1] For the overlaps and differences between the notions of global value chains and global production networks see Kano et al. (2020), for consistency, we only use the term global value chains here.

and the exploitation of low environmental, labor and social standards elsewhere, as well as increased geo-political tensions (e.g. war in Ukraine).

This then leads us to a substantial theoretical discussion about the downsides of GVCs embedded in a neoliberal ideology, which causes the unintended environmental and social consequences, and how a contrasting development rationale would be possible that combines regenerative regional development with responsible value chains. This contrasting development rationale combines insights from innovation studies where innovation and production capabilities in manufacturing industries are closely related, and from literature on hidden champions, which are typically less mobile than transnational corporations (TNCs), and insights from studies on the reasons and effects of re- or back-shoring. We then discuss elements of policy interventions, which are important for shifting the balance from the unsustainable traditional to the sustainable progressive development rationale.

2 Resilience, transformation and agency

The notion of resilience has received considerable attention in economic geography. In the wake of the financial crisis in 2008/2009, several studies contributed to a better understanding of resilience (e.g. Dijkstra et al., 2015; Faggian et al., 2018; Giannakis & Bruggeman, 2017), with further studies on the effects of Covid-19 (e.g. Gong et al., 2020; Ntounis et al., 2022), and in future surely about resilience to the energy crunch and food shortage and geopolitical tensions caused by the Ukrainian war. There is also a substantial body of literature discussing the concept of resilience, criticizing the many different and often blurry definitions, and lack of theory (Boschma, 2015; Bristow & Healy, 2020; Christopherson et al., 2010; Hassink, 2010; Martin & Sunley, 2014; Pike et al., 2010). We limit ourselves to defining the concept of resilience for the purpose of this paper. We lean on the differentiation between short-term adaptation and long-term adaptability as discussed by Boschma (2015).

Adaptation refers to short-term adjustments within existing development paths as response to shocks. This typically includes the reduction in production capacities in the downturn and the ability to bounce back and increase production again after the shock. Adaptation is about maintaining the production capability through different measures, for instance by introducing short-term work arrangements or offering training opportunities locally to laid-off workers. It may also entail offering governmental financial support as was common during the Covid-19 crisis. Adaptation may require incremental innovations and adjustments within existing industrial paths but does not imply a structural change in the regional economy. After the shock, the economic activities would remain essentially the same as before. Several scholars have criticized that short-term adaptation should not be understood in an engineering sense where an equilibrium is to be restored, and that from an economic geography perspective long-term adaptability is more relevant (Hassink, 2010; Martin & Sunley, 2014). Yet, as Boschma (2015, p. 736) reminds us “there is a need to integrate the two meanings of resilience, that is, the short-term capacity of a region to absorb shocks and the long-term capacity of a region to develop new growth paths”. In fact, we find that many studies are conducted in the immediate aftermath of crises and seldomly investigate long-term effects.

Adaptability in contrast refers to the long-term ability of local actors (firms, education and research institutions, universities, local government, civil society, etc.) to identify, develop and grasp new opportunities, and to diversify economic activities. Hence, adaptability implies a structural change of the economy where after the crisis different economic activities are performed. The development of new opportunities and the diversification of economic activities tend to be risky, entail costs in the short-term whereas benefits tend to accrue in the long-term (Grillitsch et al., 2022). The problem is

that crises negatively affect the cash-flow of firms, which makes it more difficult to invest in explorative activities with uncertain returns in the long-term. Hence, it could not be expected that adaptability is visible in a quick bouncing back of production, employment, value added and profit. Rather it becomes visible in the longer-term as firms establish a position in the new market niches and scale production. Adaptability describes thus a qualitative change, a bouncing forward after the crisis. Resilience, however, needs to meet both short-term and long-term needs and should be considered as a process (Hassink, 2010; Martin & Sunley, 2014). In the short-term, local actors need to make the necessary adaptations to absorb a shock and bounce back after the shock. Local actors, however, also need to invest in developing new opportunities that secure competitiveness in the long-term.

Sustainability transformation shares the focus on structural change with the notion of adaptability. Yet, transformation and adaptability are not the same. Most importantly, adaptability, in principle, does not entail directionality towards a greener and more inclusive society. With the notion of sustainability transformations, in contrast, researchers and policy makers aim to understand and influence the processes which make transitions to more sustainable forms of consumption, distribution, and production possible regardless of a short-term crisis or not (Laatsit et al., 2022; Schot & Steinmueller, 2018). In fact, climate change and inequalities could be seen as double-crises (Donald & Gray, 2019), which, however, differ in longevity and systemic nature from crises such as the financial crisis or Covid-19 for which the concept of resilience has typically been used. The issue with sustainability transformation is that it does not only concern finding new market niches and exploiting them (as would suffice for adaptability) but to transform and possibly replace existing institutions and infrastructures. It is not only about taking a position in existing GVCs but changing them to substantially reduce negative environmental and social externalities. There was a hope that the heavy state interventions in response to Covid-19 and the energy crunch would not only help the economy through the short-term crisis but at the same time contribute to sustainability transformations. Such bouncing forward to a more sustainable future thus goes beyond adaptation (bouncing back) and adaptability (bouncing forward) referred to by the concept of resilience.

Moreover, it has been recognized that neither resilience nor transformation can be understood without the engagement of actors in the process of change (Boschma, 2017; Grillitsch & Sotarauta, 2020). Bristow and Healy (2014, p. 924) criticize that the emphasis on structures, such as industrial composition or institutions, neglects the importance of human agency "at the heart of regional economic resilience. [… it] reflects the inevitable degree of determinism evident in translating systems and resilience thinking from the natural and physical sciences to the social world where the ingenuity, foresight and anticipatory behaviour of human agency means, for example, adaptive cycles are capable of being overridden, broken or substantively changed".

Even though human agency has until recently received limited attention in economic geography, it is one of the fundamental questions in sociology (e.g. Archer, 2003; Giddens, 1984). The revived interest in human agency can be related to the need to better explain structural change of the economy and the creation of new economic paths (Dawley, 2014; Garud et al., 2010; Simmie, 2012), this is to say to explain the processes that underpin adaptability and transformation. In their seminal article Emirbayer and Mische (1998, p. 962) conceptualize agency as a "temporally embedded process of social engagement, informed by the past (in its "iterational" or habitual aspect) but also oriented toward the future (as a "projective" capacity to imagine alternative possibilities) and toward the present (as a "practical-evaluative" capacity to contextualize past habits and future projects within the contingencies of the moment)." The analytical dimensions of iteration, projectivity and practical evaluation are important for relating agency to adaptation, adaptability and transformation.

Iteration relates to "the selective reactivation by actors of past patterns of thought and action, as routinely incorporated in practical activity, thereby giving stability and order to social universes and helping to sustain identities, interactions, and institutions over time." (ibid, p. 971). Iteration refers to actions that may also be considered habitual or routinized. Yet, habits and routines disguise that respective actions are not simply the transposition of structures but in varying degrees require involvement, decision making, and actions. In a similar vein, Garud et al. (2010, p. 766), rejecting a deterministic view of path-dependence, argue that actors "who are involved in complex paths in-the-making need not be so helpless" but make choices how to engage in change processes. For instance, in the case of the maritime industry, it has been argued that one important reason why Norway could survive in a low-cost competition was that their engineers and workers could make informed and instant decision on the work floor, correct mistake, incrementally innovate, and ensure successful delivery of complex projects. In the same way, nearly any profession – the hairdresser, marketing consultant, and banker – will need to exert "iterative" agency in their daily work, and thereby constantly adapt to the changing environment, selectively reactivating what they have learned in the past.

Projectivity is "the imaginative generation by actors of possible future trajectories of action, in which received structures of thought and action may be creatively reconfigured in relation to actors' hopes, fears, and desires for the future" (Emirbayer & Mische, 1998, p. 971). This essentially relates to what has recently been discussed in economic geography as change agency. Grillitsch and Sotarauta (2020) distinguish between three types of change agency capturing how actors engage in regional change processes, and thereby cause adaptability and transformation: Schumpeterian innovative entrepreneurship, institutional entrepreneurship and place-based leadership. Schumpeter's (1911) distinction in actions that draw from past experience tending to reproduce economic structures and such that are motivated by a belief in not yet realized opportunities driving change in the economy resonate with Emirbayer and Mische's differentiation betwen iterative and projective agency. Institutional entrepreneurship, actions aimed at changing existing or introducing new institutions (Battilana et al., 2009; DiMaggio, 1988) is in fact mentioned by Emirbayer and Mische as a form of projective agency. Place-based leadership refers to collective action and mobilization of resources for common goals (Sotarauta & Beer, 2021). It could be considered as efforts to engage a set of actors to joint projective action. Kurikka and Grillitsch (2020) discuss resilience from an agency perspective and argue that change agency is the driver for adaptability.

Practical evaluation entails "the capacity of actors to make practical and normative judgments among alternative possible trajectories of action, in response to the emerging demands, dilemmas, and ambiguities of presently evolving situations" (Emirbayer & Mische, 1998, p. 971)". In contrast to iteration, which largely rests on learned patterns from the past, and projectivity, which rests on the imagination of the future, practical evaluation is mainly situated in the present. It refers to conscious and critical deliberation of the situation actors find themselves in, often in dialogues with others. The need for practical evaluation is evident in crisis times when situations change, and a critical and conscious effort to understand when changing context becomes necessary. Hence, the more short- or medium-term crises like Covid-19 and the Ukraine war, and the long-term crises of climate change and inequalities, will be characterized by practical evaluation. However, practical evaluation does not necessarily mean that projective change agency will follow. Actors may also decide for iterative actions to maintain existing paths.

Furthermore, Emirbayer & Mische (ibid.) alert us that temporal actor orientations are to different degrees iterative, projective, or practical-evaluative. Hence, the authors caution us that when studying agency, it is misleading to assume that theoretical types are mutually exclusive in practice.

Furthermore, temporal actor orientations may change over time and may differ depending on the spatial, temporal, and relational contexts considered. When discussing the temporality of agency in regional development, Grillitsch et al. (2022, p. 121) find relatedly that firms and regions constantly struggle to combine the longer-term, projective and explorative activities with the shorter-term, iterative, and exploitative activities. Furthermore, even mainly past-oriented iterative actions need some level of projectivity, for instance, the engineer foreseeing a problem with a design instruction, the hairdresser foreseeing the new looks after the haircut, a marketing consultant foreseeing the response of the target group, or the banker foreseeing the possibility of a firm to pay back a loan. And mainly future-oriented projective actions will need to rest on knowledge, networks, resources developed in the past. The novelty comes through novel combinations and transformations of past patterns.

The argumentation is summarized in Table 1. Adaptation is characterized by an evaluative-iterative and short-term orientation. This means that the practical evaluation leads to the decision that iterative actions shall be undertaken to maintain existing industrial paths in the short-term, such as short-term work and other actions to maintain the production capabilities. The desired outcome is a bouncing back of the existing economic activity. Adaptability is characterized by an evaluative-projective and medium-term perspective. Here practical evaluation leads to the decision that projective actions shall be pursued to identify new niches and diversify the economy. The desired outcome is to bounce forward towards new economic activities in the medium-term. Transformation is characterized by a projective-evaluative and long-term perspective. We suggest putting projective before evaluative because even though in crisis times practical evaluation will always play a role, transformation requires from actors to free themselves from current production and consumption patterns and imagine new ways of organizing the economy in the long-term. It goes beyond identifying a new market niche and diversification. The aim is to bounce beyond the way the economy is currently working.

Table 1: Resilience – Responses to crisis

Resilience	**Adaptation**	**Adaptability**	**Transformation**
Agentic-orientation	Evaluative-iterative	Evaluative-projective	Projective-evaluative
Time-orientation	Short-term	Medium-term	Long-term
Outcome	Bounce back of existing economic activity	Bounce forward to new economic activities	Bounce beyond the way the economy is currently working

3 Empirical illustration: Bouncing back, forward and beyond in the Maritime industry in Sunnmøre

3.1 Methodological Approach and Data

The purpose of the empirical illustration is to illuminate the processes of adaptation, adaptability, and transformation, the agentic- and time-orientation of the actors engaged in the processes, as well as the outcomes. To achieve this, we apply a qualitative, process-oriented methodology. “Process methodologies are applied with the aim to understand sequences of events and their underlying complex patterns of causation as well as their potential effects in a specific time period. Therefore, process studies require to move from detailed empirical observations to more abstract models that capture the underlying generative mechanisms of a process” (Strambach & Pflitsch, 2020, p. 7).

For the qualitative case study, we have chosen the maritime industry in the coastal islands of Sunnmøre district, located in the west of Norway, because it is a theoretically interesting case (Eisenhardt & Graebner, 2007). It is a small region with approximately 28,000 inhabitants and situated close to Ålesund, which hosts the Ålesund Campus of NTNU (Norwegian University of Science and Technology in Trondheim) as well as a strong innovation support structure under the umbrella of ÅKP (Ålesund Knowledge Park). It is an extreme case because the maritime industry with an over hundred-year-old history has been volatile in the past, calling on local actors to engage in change processes. It is also likely that local actors take an active role in change processes because Sunnmøre is known for its entrepreneurial spirit and "resilience" against crises (Amdam, Bjarnar, et al., 2020; Amdam, Lunnan, et al., 2020). Moreover, the region developed to a globally leading cluster in the maritime industry in the time from 2004 to 2014, when it benefited from an extraordinary growth driven by a combination of demand from the oil and gas industry, innovative entrepreneurs anticipating and using this opportunity, and a variety of local actors strengthening the regional support system (Grillitsch et al., 2022). However, the maritime industry also faced extraordinary challenges thereafter.

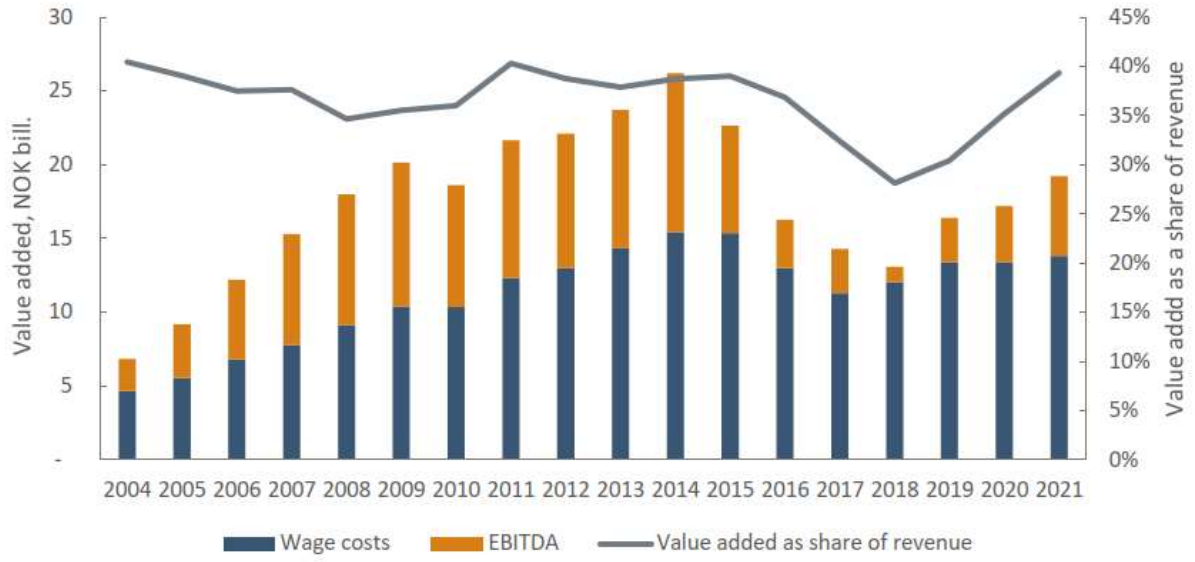
We visited the region in 2014 and 2019 and conducted online interviews in 2021/2022 due to Covid-19, in total 53 interviews (see Table 2). In 2021, we conducted 11 repeated interviews with respondents from 2019, of which we even interviewed 5 in 2014. The visits coincided with recent crises: In 2014, the remarkable growth phase driven by the demand for offshore service vessels for the oil and gas sector ended due to the collapse of the oil price. 2019 was just before the Covid-19 pandemic hit and when local actors were still in the mid of change processes after the oil price shock in 2014. In 2021, we could begin to observe outcomes of how the crisis inflicted change processes. In all cases, the interviews zoomed in on the implications of the crises for the maritime industry in the region, the opportunities and threats observed, which strategies the actors pursued, and what the intended and unintended outcomes were.

Table 2: Interviews

Actor Type	2014	2019	2021
Firms	5	10	7
Local and regional government	1	3	1
Intermediaries (cluster organizations, chamber of commerce, knowledge park, etc.)	8	6	6
HEI/Research organizations	3	1	2
Total	17	20	16

In addition, we studied policy documents and strategies, newspaper articles, website, and reports. In particular, the yearly benchmarking reports of Menon Economics, benchmarking the performance of the maritime sector, was helpful to complement our qualitative material. Figure 1 depicts the development of the maritime industry from 2004 to 2021. The earnings and wage sums peaked in 2014 and dropped to the lowest level in 2018 mainly caused by the collapse of the oil price. The crisis pictures only with a delay because the order books were still full in 2014. After 2018, an upward trend can be observed without a visible dip when Covid-19 hit. This has again to do with the lead times of signing and executing orders. However, fewer orders were signed after Covid-19, which will affect the near future. What is not visible in this graph is that the recovery was largely driven by growth and profitability in the supplier sector while shipyards, and in particular the large shipyards have become vulnerable because of high financial losses after 2014 and still negative earnings (Menon Economics, 2022).

Figure 1: Development of wage costs and EBITDA (Earnings before Interest Tax Depreciation and Amortization) in maritime cluster



Source: Menon Economics (2022)

We have reported our findings from 2014 and 2019 in other publications (AUTHOR XXX). In this paper we mainly exploit our new empirical material from 2021. This allows us firstly to focus on how agentic- and time-orientations of different actors have changed over time, as well as the intended and unintended consequences of actions. We will present our findings taking two contrasting agentic orientations observed in 2021 as starting point and trace their origin back in time. With this approach, we aim as stipulated by Strambach and Pflitsch (2020) to move from the detailed empirical observations to the complex patterns of causation underlying the change process. Also, we disassociate the agentic and causal patterns from individual actors and refer to the notions of support structures and firms in plural to protect the integrity of individual respondents, who could be easily exposed when drawing on repeated observations.

3.2 Findings

The most striking finding when conducting interviews in 2021 and 2022 concerns two starkly contrasting agentic orientations: i) a traditional perspective of organizing the maritime industry in global supply chains, and ii) a progressive perspective of regenerative regional development in responsible supply chains.

The traditional perspective is essentially a firm-oriented perspective where prices or costs are the main drivers. In this rationale, Norway has a distinct disadvantage because of high-labor cost and limited labor supply, which makes it necessary to contract foreign workers. However, the legal obligation for equal reimbursement of foreign workers combined with relocation and accommodation cost make foreign workers, according to our interview partners, more expensive than local workers. Relatedly, the traditional perspective emphasizes the importance of outsourcing low-skill labor intensive activities in global supply chains. The unintended consequence of such outsourcing for the local maritime industry has been twofold. First, the geographically more dispersed supply chain has made it more difficult to engage in learning-by-doing, using and interacting, and consequently has negatively affected the innovativeness of local firms. Innovation

facilitated by learning-by-doing, using and interacting[2] has been one of the main reasons why the maritime cluster could maintain its globally leading position despite the high-cost base. The second disadvantage from a local perspective is that outsourcing has helped foreign yards to develop their capabilities and increasingly match the quality of Norwegian yards. Due to these disadvantages, it is increasingly questioned whether Norwegian yards will survive and with it the integrated maritime cluster with its diverse set of interconnected firms. This is because the yards are seen as integrators of equipment and service providers, which provides a platform to test, learn and innovate, and thus contributes essentially to the competitiveness of the whole cluster. Moreover, the traditional perspective is characterized by a conservative attitude towards sustainability. First, local actors foreground the continued importance of the oil and gas sector, pointing to the relatively clean extraction and production processes in Norway. Second, proponents of this perspective maintain that the maritime industry has for long been contributing to sustainability by increasing the efficiency of the vessels and thereby decreasing carbon emissions.

The progressive perspective – expressed most clearly by some firm representatives – is essentially a societal one. The perspective entails that production and consumption need to consider environmental and social impacts in the whole lifecycle of a product from extracting raw materials, transport, installation, use, to reuse or recycling. Furthermore, the progressive perspective takes issue with the security and robustness of supply chains in the wake of geopolitical tensions as well as with the exploitation of cheap labor in Eastern Europe and developing countries, which are not sustainable in the long run; only innovation-based development is (Porter, 2000). It is attentive to addressing regional inequalities and building a competence base locally. Competition, in this perspective, is not about cost advantages but innovation and value creation. Key innovations concern production processes where automation, robotization (i.e. industry 4.0) and precision technologies substantially reduce the need for low-skill workers and the waste of raw material. Furthermore, the respondents couple technologically advanced production processes with electricity from renewable energy sources. According to our interviewees, the unit cost is still higher under the current conditions. However, there are several advantages, which the respondents argue outweigh the higher cost from a societal perspective: First, the more resource-efficient production process, cutting down long-distance transport of steel constructions, and green energy radically reduce carbon emissions. Second, Norway (as well as other European countries) could benefit from and further develop their technological capabilities in advanced, automated processing in manufacturing industries. Third, a high share of the value is created in Norway, and other countries relatively nearby where the goal is to decarbonize other parts of the value chain such as steel production. It is important to note that this perspective is not protectionist, it demands taking into consideration the unintended consequences of the current form of organizing GVCs. An interesting idea from a firm-owner was that while this would also limit her possibilities to export goods on global markets, it could provide an opportunity to license the production process in other regions of the world, creating more sustainable supply chains there.

How did the two perspectives come about? We trace them back in time relying mainly on the repeated interviews. To be sure, there are not only these two perspectives and there is not only one history how these perspectives developed. The narrative that we present is not a collection of individual trajectories but a search for an adequate interpretation of causation during the process based mainly on the repeated interviews, where we could observe the shifts in agentic orientation presented below.

[2] For a detailed discussion on innovation by doing, using, and interacting see Jensen et al. (2007)

As regards the traditional perspective, we find that it mainly emerged as response to disappointing financial returns of key firms' efforts to diversify. When the oil price and traditional markets collapsed in 2014, firms where aggressively trying to find new markets. This is evident in a doubling of R&D expenditures during the crisis time (Research Council of Norway, 2018). As reported in another publication (Author, XXX), firms pursued a double strategy, cutting costs of current operations and investing in new markets in the medium to long run. According to a recent cluster benchmarking report, the maritime sector has clearly moved into new markets: cruise ships, offshore wind, aquaculture, hybrid/electric ferries, etc. (Menon Economics, 2022). The firm investments in these diversification processes were substantial and drained financial resources to an extent that it is difficult to provide necessary bank guarantees for new orders, according to our respondents. It has been difficult to turn new markets profitable due to a high-cost base as well as limited experience, lower margins and volumes in the new markets as compared to the offshore service vessel market for oil and gas. Representatives from the business sector, support structures, and higher education sector share this narrative.

In contrast to firms, which invested heavily in finding new markets, the support structures after 2014 focused primarily on short-term oriented actions with the aim to help firms to restructure and to retain the capabilities in the region, for instance through an arrangement that made it possible for engineers to receive unemployment benefits and training without the requirement to search jobs nationwide. Hence, the focus was on facilitating a quick bouncing back. Looking at the economic data (see Figure 1) the region partly bounced back but could not regain the level of wages and earnings observed during the golden years before 2014. As many respondents stated, the market between 2004 and 2014 was exceptional and cannot be compared with the business environment since then. Some sub-sectors, in particular the equipment suppliers, developed very well after the 2014 crisis exhibiting high growth rates and export shares (Menon Economics, 2022). Bouncing back was more difficult for the yards and especially the large ones. Bouncing back, according to our interviews, depended mainly on ownership structure and market segments. As regards ownership structure, the local yards had a lot of patient "patriot" capital, which was invested locally to find new markets after the crisis. The local capital is largely exhausted now. The non-local yards – VARD, a subsidiary of Fincantieri and owned by the Italian state, and Kongsberg, a national Norwegian company – have sufficient capital and get fresh orders. However, it has been noted that Kongsberg fulfills contracts often by Kongsberg-owned units in other locations abroad. Furthermore, the market segment plays a role with the smaller yards having a more diversified and thus resilient portfolio than the larger yards. It was argued that demand for conversion of service vessels for the oil and gas industry to the offshore wind sector as well as refitting existing vessels is strong, that well boats represent a promising growing market, that new building in the green sector – mainly service vessels for offshore wind – is growing but still far from the volume and profitability of vessels for oil and gas, that exploration and discovery cruise ships are on hold, and that there is a hope for a re-bouncing of demand from the oil and gas industry. With the extraordinary prices for oil and gas due to the Ukrainian war, which happened after our interviews, this hope may turn out to be a key driver for adaptation in the short and medium run.

In the conceptual terms developed in section 2, after 2014 firms' agentic orientation was evaluative because it was concerned with understanding the changed business environment, and it was projective because it was oriented towards developing new market opportunities. However, these efforts were not sufficiently rewarded, which led to disappointment and recognition of the powerful cost-driven dynamics in global supply chains to which firms needed to adapt. This is a surprising and worrying turn because firms in the region historically succeeded to differentiate themselves through innovation, and thereby avoiding cost-competition. In contrast, the support structures adopted an

evaluative-iterative agentic orientation with a short time perspective after the 2014 crisis. It was iterative because it was mainly concerned with adapting to the changed business environment and maintaining the existing development path. Observing the difficulties of the yards, support structure representatives tuned on to the traditional narrative, which is also underpinned with a short-term and iterative agentic orientation. This short-term focus came with a bit of surprise because during our interviews in 2014 the support structures were strongly promoting strategic work for the development of the maritime sector after oil and gas and towards more generic technologies.

As regards the progressive perspective, we also found an interesting interplay between changes in the business environment, agentic orientations, actions, and unintended consequences. It started with investments in automation before the crisis in 2014 because of the increasing difficulty to recruit low-skill workers from abroad. After the crisis, the respective firms also invested heavily in finding new markets but needed to be restructured and sold because of the high losses in the new market segment. However, some actors who were involved in the automation efforts pre 2014 became active in new business ventures and the cluster organization iKuben, which was awarded the status of a National Centre of Expertise in 2018 focusing on cross-industry collaboration. In 2019, the progressive perspective was not clearly articulated. From the interviews, we understood that it was mainly about providing advice to manufacturing companies about digitalization, automation, and new business models, drawing on the experience gained from the process innovations before 2014. In 2021/2022, however, the progressive perspective as described above was formulated and business models have clearly evolved. From the set of actors in the maritime industry who struggled after the crisis, some have invested in new facilities using automatized production processes, and first orders outside the maritime industry have successfully been delivered.

In conceptual terms, the progressive perspective is about bouncing beyond the way the economy is currently organized. It is not only about finding new markets but about finding new ways of producing and delivering in a more sustainable manner. The agentic orientation differs from bouncing forward into new market niches (adaptability) as the actors look beyond the immediate pressures and logics in the maritime sector. In contrast, the processes related to bouncing forward as discussed above start with actors who evaluate the changes in the business environment and then seek to develop new opportunities. Thus, there is a difference between transformation (bouncing beyond) and adaptability (bouncing forward), which is rooted in the agentic orientation of actors. Long-term projectivity is clearly more important in the former and even detached to some extent from the necessities of the current organization of value chains in the maritime industry while practical evaluation and mid-term projectivity characterizes the latter, which is quite strongly anchored in the current cost-driven GVC logics.

To be sure, there are variations in trajectories of agentic orientations and outcomes, and when examining the website of the Blue Maritime Cluster in October 2022, it emphasizes the goal of becoming the “World’s First Net-Zero Maritime Cluster” suggesting that the agentic orientation of support structures might have shifted again to be more long-term and projective. This is not refuting the narrative presented above but speaks to the messy and complex reality, where agentic orientations differ not only between actors but where also the orientation of actors changes over time. Moreover, this is not refuting that the agentic orientation explains whether actors engage in change agency towards new market niches (adaptability) or even more bold towards new ways of doing business in a more sustainable manner (transformation), or whether actors engage in maintenance agency with the aim to bounce back (adaptation) in the current market niches.

4 About the possibility of regenerative regional development in responsible value chains

In the previous section, we have discussed the tensions arising from our empirical material between i) a traditional perspective of organizing the maritime industry in global supply chains, and ii) a progressive perspective of regenerative regional development in sustainable supply chains. In this section, we relate these empirical findings to theory by first discussing the nature of and mechanisms driving globalization, and its unintended and unwanted environmental and societal impacts. Then, we move on to discuss how the progressive perspective of regenerative regional development in sustainable value chains may be possible, and what consequences it would have.

To start with, it is important not to confuse globalization with internationalization (Dicken, 2015). While international trade is just trade between countries and has existed for several hundred years, globalization is a relatively new phenomenon from the beginning of the 1970s due to enabling factors such as technological development in production, communication, coordination and transportation. It has been promoted by economic-political developments in leading countries (neo-liberalism) and international organizations such as IMF and WTO (from 1995) (Rodrik, 2019), which has implied a change in the organizational and institutional structure of the global economy resulting in a growth in international economic integration through trade and FDI from high income countries (Dicken, 2015). This has represented a change of focus of national economies from production and industrial policy to free trade and market exchange (Chang & Andreoni, 2020; Wade, 2017). Globalization refers to the global externalisation of the internal technical division of labour inside a factory, based on functions (tasks), which led to GVCs, of which the first example was Ford's global car concept in the 1970s. According to Dicken (2015) "Globalisation processes of economic activity is more contemporary and qualitatively different" (from internationalization) as it implies "both extensive geographical spread and a high degree of functional integration", while internationalization processes represent "simple geographical spread of economic activities across national boundaries with low levels of functional integration" and is as such not a new phenomenon (Dicken, 2015, 6-7). Globalization is a more advanced and complex form of internationalization due to the high degree of functional integration between internationally dispersed economic activities. This functional integration is organised and orchestrated by TNCs to in many ways constitute corporate production systems (Rikap, 2021).

International trade, as part of internationalization, builds on a societal division of labour. Societal division of labour refers to countries and regions specialising in the production of different types of products for the market (agriculture in one region, steel making in a second and car production in a third), which they, based on internal, domestic resource endowments, could do relatively more efficient than other countries, which in international trade theory was called 'comparative advantage'. Instead of trade between countries globalization represents trade within the GVCs of TNCs, and not mostly of final products for the market as in international trade, but in parts of products going into the final products, which is one reason for the reduced relevance of 'comparative advantage', which has been replaced by 'competitive (absolute) advantage' in the global competition between firms, regions and nations.

By this change in trade patterns, globalization has transferred power and control from countries to large TNCs, which control the GVCs. Combined with deregulation and liberalisation of neoliberalism TNCs become increasingly powerful and difficult to control for nation states, which gives TNCs ample opportunities of manipulating and exploiting different tax regimes, labour and environmental regulations and social legislations in countries, whose industries are part of GVCs. According to

Giuliani "… the current grand challenges are related in a non-trivial way to companies' wrongful business conduct, especially that of large multinational corporations which have grown to rival governments in size, and have proven to be powerful agents capable of shaping the global governance agenda" (Giuliani, 2018, p. 1577). A driving force for these large TNCs, which mostly are US based and regulated by a liberal market economy, is, according to such economies' mantra, to maximise shareholders' value as well as profit maximisation and cost reduction. This has been the determining principle when organising GVCs based on the just-in-time principle. "In the past two decades, the US economy has been bulled into following a path of offshoring, driven by an ideology celebrating short-term financial gains above everything else" (Breznitz & Adler, 2021). While actors in our case study region did not happily embrace this rationale, and resisted to it in the past, key stakeholders in 2021/2022 succumbed to the powerful forces of globalization under a neoliberal regime by foregrounding the traditional perspective.

The OECD (2021) summarises that participation in GVCs brings significant economic benefits for firms and countries as specialisation and economies of scale enhance productivity and lower production costs. The benefits also accrue for smaller firms and countries, as well as emerging economies because the division of labour makes it possible to participate in GVCs without mastery of the whole production process. OECD (ibid) argues that even though GVCs expose participating firms and countries to external shocks from e.g. COVID-19, disruptions have tended to be rather short-lived, and that the majority of countries benefited not only in the level of economic development but also in the level of stability, i.e. that GVCs rather had a cushioning effect in crisis time. In a similar vein, Gereffi (2020) argue that reshoring in the wake of external shocks like COVID-19 is not the adequate response but that firms and countries should focus on enhancing the resilience of supply chains through e.g. increase and diversify international production sites, bolster capacities for essential products at home, or increase the stock of inventories.

However, we would argue that additional conditionalities such as supply security and resilience, working conditions, environmental regulations, and greenhouse gas emissions, have never been taken into serious consideration. For instance, one quarter of global CO2 emissions are internationally traded and rich countries tend to import more than 30% of consumption-based emissions (Davis & Caldeira, 2010). One unit GDP (gross domestic product) realised through GVCs leads to 1.4 to 1.8 times higher emissions than through domestic value chains, due to the exploitation of weaker environmental regulations, and increase need of shipping (Meng et al., 2018). In response to the Ukraine war, investors bet that it "will prompt companies to bring production onshore" (Agnew, 2022). The Economist (2017) shed light on the troubles of the places left behind by globalization, which cause discontent, social tensions, and frustrations punishing among others the political elites (McCann, 2020; Rodríguez-Pose, 2018). Bachelete (2022), UN High Commissioner for Human Rights, says "[t]he human rights impacts of global supply chains are clear: the use of precarious and informal employment is expanding at a rapid rate. Workers, especially migrant workers, are becoming ever more vulnerable, subject to a raft of human rights violations at the hands of their employers." In the words of the deputy chief executive at Tikehau Capital (an alternative asset manager): "This very globalised economic model … has an impact on climate, on biodiversity, on social inequalities. The fact that those crises force us to try and build a more sustainable economic model is definitely not necessarily bad for the world" (Agnew, 2022).

Contesting the traditional globalized growth model in a neoliberal frame with its powerful short-term economic pressures, the progressive perspective envisions an alternative future of regenerative regional development in sustainable value chains. The drivers for such an alternative organization of the economy relate, as with the global shift, to innovation, technology, and institutional changes.

As regards innovation, our case study points to the potential of automation, robotization, and precision technologies to reduce the need for low-skill labour input and to use raw materials more efficiently. However, one important problem with globalization and outsourcing for especially manufacturing industries is the loss of production knowledge and manufacturing capabilities (Enderwick & Buckley, 2020; Nujen & Halse, 2017). Concretely, by outsourcing the building and increasingly also outfitting of hulls, production knowledge and manufacturing capabilities were lost in the maritime industry, and the role of shipyards as integrators of knowledge from the specialised suppliers in the cluster diminished. The maritime cluster in Sunnmøre had a complete value chain of shipowners, yards, specialised suppliers and supportive structures in close proximity, which offered perfect conditions for face-to-face and user-producer interaction, which is an important driver for innovation in synthetic knowledge based, engineering industries, where experience based, tacit knowledge and trial and error are important factors to promote innovation (Jensen et al., 2007). The micro foundation of this mode of innovation is the learning work organization (Arundel et al., 2007; Asheim, 2012). This form of work organization is characterised by a large degree of worker autonomy which provides learning dynamics through the ability of workers to use their knowledge in the manufacturing process and learn from doing this. This again is an important factor promoting incremental, employer driven innovation on the work floor. This form of work organization is a product of egalitarian societies such as the Nordic, and this form of work organization is the dominating form of work organization in manufacturing industries in these countries as well as in the Netherlands, and to a certain degree also in Germany and Austria (Arundel et al., 2007).

Hence, the progressive perspective foregrounds innovation and capability development locally, which is why we associate it with the notion of “regenerative” regional development. The term regenerative has been used in agriculture meaning “the capacity to bring into existence again” and in opposition to the term sustainable, which by definition means the ability to maintain or uphold something (Rhodes, 2017, p. 103). We consider regenerative is fitting with the progressive development perspective because it foregrounds the development of capabilities and innovation, which allows the region to regenerate itself while the traditional development perspective with its imperative to cost advantages and outsourcing led to a loss of local capabilities, and a higher vulnerability in many of the manufacturing regions in the developed world, with detrimental societal and political consequences even threatening fundaments of democracy (Economist, 2017; McCann, 2020; Rodríguez-Pose, 2018; Rodrik, 2019). The possibility of an innovation-driven approach as opposed to an approach that seeks exploiting cost advantages and weak regulations in a race to the bottom is illustrated by the so-called hidden champions, typically territorially-anchored manufacturing firms that compete through innovation in specific market niches and despite being often located in peripheral regions (Audretsch et al., 2018; Bessant, 2019; Simon, 2009; Vonnahme & Lang, 2021).

The progressive perspective combines regenerative regional development with responsible value chains. Responsible refers to sourcing decisions in value chains that quickly approach zero greenhouse gas emissions, and that protect standards of work and human rights. In the traditional, neoliberal frame of globalization, TNCs tend to be mainly concerned with shareholder value, and profit maximisation. This has partially been counteracted with pressures from consumers and civil society in response to for instance child labour scandals, and international institutions developing and promoting for instance principle for responsible investments leading to an acceleration of ESG (environmental, social, governance) investment funds. Furthermore, cases of back- or reshoring may result in more responsible value chains. While the background has often been that the offshoring decision did not meet expectations due to e.g. problems with coordination, quality, lead times, and risk (Fratocchi et al., 2016; Wiesmann et al., 2017), the increased use of automation technologies

made backshoring more attractive and feasible (Arlbjørn & Mikkelsen, 2014). In a study of backshoring in Norway, including some maritime firms, Halse and Klymenko (2022) find that in all cases automation played an important role, yielding positive outcomes as regards capability development and innovation, as well as sustainability – notably reduction in greenhouse gases, even though this was not the initial motive. Yet, in the face of the feeble response to climate change and social injustice (Bachelete, 2022; Phillips et al., 2014) there is no doubt that these non-binding mechanisms or economic reshoring rationales are not powerful enough to deal with the negative consequences of the traditional development perspective. Hence, policy intervention is needed to shift the balance from the traditional development perspective of globalization in a neoliberal frame to the progressive development perspective of regenerative regional development in responsible value chains.

To comprehensively develop the necessary interventions to make regenerative regional development in responsible value chains possible is beyond the scope of this paper. However, from our empirical study and the theoretical insights, we suggest that the following elements will be important:

- To introduce conditionalities on supra-national (EU) level, where tariffs are introduced if standards concerning climate and environment, human rights, and labour conditions are not met,
- To develop and use methods that consider the whole value chain when deciding on the location of production in relation to final markets (transport, type of energy for raw material exploitation and production). This is essential to combat climate change and reach the 1.5 degree of temperature increase,
- To engage the public sector in co-creating and shaping markets for new and sustainable products from the manufacturing industry. This can be done by (functional) procurement for innovation and acting as initial customers (public agencies at different geographical levels) where for instance emissions in the whole value chain become an important award criterion.
- To introduce national and local content requirements for, e.g. the development of renewable energy solutions,
- To build competence in the industry enabling to introduce and make use of industry 4.0 production technology. Due to the reduced focus on production knowledge and manufacturing capabilities, this knowledge is not any more present in, for instance, our case study region, and firms interested in introducing this technology must access it in Sweden, which is a strong manufacturing economy,
- To increase training of skilled workers with the aim to secure enough local work force for the industry,
- To secure enough patient and risk willing capital for necessary investment in modern production technology for the manufacturing industry, and finally
- To consider geopolitical risks in value chain decisions and supporting regulatory frameworks.

5 Conclusions

The paper set out to further our understanding about why, how and to what consequences local actors engage in regional development during and after crisis times to understand the role of human agency for regional resilience. We aimed at identifying the differences in the underlying processes that lead to adaptation – bouncing back to economic activities existing before the crisis, adaptability – bouncing forward or diversification into new economic activities, or transformation – bouncing beyond the current organization of the economy towards a more green and inclusive future. To this

end, we combined the literature on regional resilience with two perspectives on agency, the types of agentic orientation propagated by Emirbayer and Mische (1998) in their seminal work about the nature of agency, and the different time perspectives of change agency and maintenance agency developed in the recent literature on agency in regional development (Grillitsch et al., 2022). Through our empirical case about the maritime industry in Sunnmøre/Norway, drawing mainly on repeated interviews with key stakeholders in three points in time, we illustrate how agentic orientations and time perspectives change over time as result of the interplay between actions and their intended and unintended consequences, and how agentic orientations and time perspectives are directly linked to the different types of resilience mentioned previously.

Most surprisingly, we found a stark contrast between a traditional development perspective of organizing activities in GVCs and a progressive perspective of regenerative regional development in responsible value chains. The former is clearly characterized by a short-term and iterative agentic orientation, mainly influenced by the past. Actions are undertaken by firms and support structures to maintain the maritime industry, largely as it was before the crisis hoping for a resurgence of the oil and gas industry. The progressive perspective is underpinned by a long-term and projective agentic orientation, looking into the future beyond the current way the economy works. Investments in automation and precision technologies shift focus on capability building in advanced production and manufacturing, and combined with regained possibilities of learning through doing, using, interacting (Jensen et al., 2007) enhance innovation. Hence, it promotes regenerative development whereas the imperative of outsourcing to the cheapest locations led to a loss of capabilities. It also reduces the reliance on exploiting low-cost advantages arising from cheap labor, and weak environmental, labor, and human rights standards. Shorter supply chains, fossil free energy resources, and higher efficiency in the use of raw materials furthermore contribute to sharp cuts in greenhouse gas emissions. The progressive development perspective thus calls for responsible value chains where greenhouse gas emissions and low environmental, labor, and human rights standards are penalized. This led us to propose elements of policy interventions aimed at shifting the balance from the traditional to the progressive development perspective, acknowledging that this needs further elaboration based on empirical research of other industries and geographic contexts.

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