Complexity, Resilience, and Human Resource Management: Illustration from Nordic Higher Education[1]

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ABSTRACT

We explore increasing complexity, resilience (how a system adapts and responds to increasing complexity and radical change), and potential human resource management (HRM) responses to change in higher education at a Nordic institution. HRM is seen as a shared function. As an empirical illustration, we interviewed nine leading academics in dominant and leading administrative positions in one Nordic university. Responses to a major change (CoARA) were discussed. We analyze the possible HRM responses in the context of major but fuzzy changes: How do leading academics forming the HRM policy perceive expectations of role change and how do the respondents demonstrate resilience when interpreting the early signs of a major change? The overall initial reactions to the change (CoARA) were hesitant. We propose the concept of emergent resilience and a model to describe its dynamics. Potential implications for HRM in the face of complexity and change are discussed.

KEYWORDS

Complexity / CoARA / HRM / leadership / Nordic higher education / resilience

Introduction

A classic of studies of higher education, Burton Clark (1998, 2008) considered increasing complexity as a key characteristic of change within the system: 'With each passing decade, a modern or modernizing system of higher education is expected and inspired to do more for other portions of society, organized and unorganized, from strengthening the economy and invigorating government to developing individual talents and personalities and aiding the pursuit of happiness' (Clark 2008, p. 385). The steady increase in societal expectations of universities can be neither stopped nor reversed, which leads to increasing diversification, fragmentation, and specialization (Clark 1998, 2008).

Complexity, the outcome of structural arrangements (formal and informal) and the inability of actors to grasp the nature and content of their environments, is causing system overload for human resource management (HRM) and personnel (Enders & Boer 2009). This problem is linked to perspectives of command and management of human resource (HR) systems and leadership in the area, and of staff well-being. In 2013, more

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than half of the HR leaders responding to a global survey (n = 1293) strongly agreed that they are required to manage increasing levels of complexity and feel ill-equipped to cope with these requirements (SHRM Online 2013). Barnett (2000) pointed out that universities have become super complex organizations; no simple answers exist any longer to basic tasks or strategic focus. More recently, there have been attempts to move away from traditional conceptions of modern universities (as entrepreneurial systems akin to private firms responding to market forces) toward a 'post-entrepreneurial' model centered on flexible adaptation within tolerable limits (structural and cultural) and importance placed on resilience in higher education (HE) dynamics (Young & Pinheiro 2022).

HRM in HE has long been especially complex, as the interests and bodies of stakeholders, both internal and external, have been highly diverse, and the services needed have become increasingly diversified (Archer 2005). Complexity poses a particular problem for HRM at Nordic universities because equal treatment is a key value and main legislative principle in these countries. The root problem of system adaptation then becomes managing the complexity of tasks and responsibilities (Clark 2008). With increasing complexity, interest in organizational resilience has emerged and increased significantly (Trondal et al. 2022). Resilience concerns how systems (actors, organizations, and institutions) respond and adapt to rapid change, increasing complexity, and unexpected events (Giske & Pinheiro 2021). It is also a way of constituting and understanding the complex world (Chandler 2014). Resilience can thus be seen as a potential institutional, individual (or HRM) answer to increasing complexity.

At the onset of this project, the authors of this paper were faced with an opportunity to study resilience within an academic context, as the European Union (EU) recently introduced a major change initiative on researcher assessments (CoARA 2023; EU 2021; Section 2). As a part of this study, we investigated how key institutional actors (leading professors as power users and HRM- gatekeepers) reacted to this major change, and how these reactions affect the resilience and HRM of their organizations through their strategic choices and interpretations. We analyzed how the respondents interpreted growing expectations for enhanced social relevance in light of the EU initiative, and discuss how these illustrative (HRM) responses can be interpreted from the perspective of resilience theory. Our research here was guided by the following research problem: How can the recent CoARA initiative be understood in the light of the overall trend for greater social relevance by higher education institutions (HEIs)? As an illustration of this change, we investigate how senior academics (some of whom have managerial responsibilities) perceive growing expectations toward HEIs' societal impact. Moreover, we pose the sub-question of to what extent and in what ways do these academics demonstrate resilience when interpreting early signs of major change like CoARA? The study addresses recent calls for a better understanding of how (processes and key mechanisms) actors across universities cope with growing environmental complexity and turbulence (Pekkola et al. 2022, Trondal et al. 2022).

Our theoretical framework highlights three different forms of resilience—absorptive, adaptive, and transformative (Frigotto et al. 2022). We attempted to identify whether there was potentially a dominant approach of resilience in our sample of leading professors (n = 9) in the face of increasing complexity. The idea is to illustrate some potential responses, which might in principle vary in range from resistance to political gaming and further to enthusiasm. Most of the respondents in our sample appeared to be rather critical, but they nonetheless represent one potential, perhaps a rather common

(e.g., Pritchard 2013) reaction in the face of a major change. Although the sample was relatively small, given that the respondents were key figures (rectors, deans, heads of departments, and established scholars), it nonetheless provides a good illustration of the types of micro-level responses at a Nordic university. Through their roles, the respondents fundamentally affect the institutional HRM.

The respondents represent a university in which the rector leads the operational matters and is accountable to the university board, especially insofar financial and strategic matters. The university faculties are led by deans. The institution has a vice rector for educational and research matters. These leaders form the core of the university leadership group and are considered as the key leaders in the current setup. All these leaders have HRM (and financial) functions included in their tasks, as leadership cannot take place without human aspects. The deans directly report to the rector in all matters pertaining to their faculties. In addition, there is an administrative office with sectoral leaders, including HRM and finances. These administrative leaders have authority in their respective areas, but the adopted matrix (organizational) structure often causes some controversies.

In what follows, we first discuss some of the drivers of increased complexity in Nordic HE. We then elaborate on potential HRM responses, especially against the trend of increasing complexity and the quest for social relevance, followed by a theoretical discussion of resilience. We then present our empirical findings and provide possible interpretations for emergent resilience and HRM. In the final section, we advance some recommendations for future studies. This study makes three important contributions to the HRM, HE, and resilience literatures: 1) it empirically discusses increasing complexity and resilience in the context of Nordic HEIs through a major change initiative on research assessment within the EU; 2) it theoretically and empirically tests a model of resilience; and 3) it contributes to ongoing policy and academic discussions regarding the social impacts of universities from the perspectives of resilience and HRM.

Literature review

Social relevance and increasing complexity

Over the last two decades, particularly after the 2008 financial crisis, a key societal trend in HE policies, particularly in the West, has been a focus on efficiency—more outputs for the same amount of (or fewer) resources—and increasing social relevance (i.e., enhancing the usefulness of HEIs' outputs for society). Recent changes in the external environment facing HEIs have called for the need to adapt while maintaining function and identity, that is, to become resilient (Kekäle 2013). The growing trend of social relevance is, in part, connected to overall changes in societies around the world such as urbanization, digitalization, green transitions, and rising socioeconomic inequality. Goddard et al. (2016) have noted that overall societal expectations toward HEIs have increased exponentially. In many European countries, this has led to a shift in the social contract between HE and society, brokered by the state, from one based on autonomy and trust toward a new regime centered on performance management and accountability (Maassen 2014).

Clark (1998) refers to the perennial problem of the demand–response imbalance: the expectations on HEIs exceed their ability to respond at every level. As new demands creep in, the imbalance continues to widen as multiple stakeholders impose competing demands, some of which are contradictory (Aarrevaara & Dobson 2015; Enders & Boer 2009). In this sense, we might say that the system is saturated with external expectations, resulting in super complexity and dilemmas regarding the strategic priorities for HEIs (Pinheiro et al. 2014).

The last three decades saw the emergence of the international relevance discourse, which aimed to fundamentally transform universities and their basic duties by radically opening academic work to society (Avramovic et al. 2022; Olsen & Maassen 2007). Such change would potentially increase HEIs' societal impact but would also add to growing complexity, as different stakeholders impose their demands and expectations, steering HEIs from critical and reflective organizations centered on the public goods toward that of policy instruments and competitive market players (Olsen & Maassen 2007). In most European countries, universities are largely funded by taxpayers and are politically steered (Huisman 2009). Traditional forms of HEI-society interaction centered on self-governance and collegiality have been largely replaced by or complemented with new steering mechanisms focused on performance management (Pinheiro et al. 2019). However, the fundamental principle of academic freedom is still culturally grounded, and in some cases (e.g., the Nordics), it is anchored in legislation. Simply put, the tension between accountability and academic freedom has led to a situation in which European researchers are free to study whatever topic they wish, but competitive funding is increasingly geared toward certain topics deemed to be socially relevant (Kaldeway 2018; Kekäle et al. 2017).

In recent decades, European HEIs have increasingly been seen as a part of the innovation chain, producing innovations (and key employees) for industry and business sectors (Goddard et al. 2016). The climate crisis has brought about an emphasis on yet another aspect of social relevance: seeking solutions to global challenges (Kekäle & Varis 2019).

Historically, the so-called 'relevance discourse' goes far beyond the traditional tasks of research and instruction. In the 1980s, the quality movement in HE stressed the perspectives and expectations of different stakeholders (including researchers, students, and external parties) in defining desirable outcomes (Vroeijenstijn 1995). By the late 1990s, some suggested that a 'responsive university' (Tierney 1998) needs to be in constant conversation with many publics; knowledge and experience should flow in both directions. In this case, the justification for institutional existence (external legitimacy) lies in the outcomes—social relevance, high-quality research, education, and services. Institutional efforts and resources, it is argued, should be directed toward those who are served by the university—its multiple publics and constituencies—rather than engaging in knowledge production for its own sake (cf. Ritzen 2010).

Implicit in the notion of the 'civic university' (Goddard et al. 2016) is the idea that local or regional development is no longer based solely on economic innovation and competitiveness but is, instead, centered on multifaceted collaborations and services that embrace social equality and cohesion, democratic participation, and environmental or economic sustainability. Social engagement is valued and in many cases is tightly integrated with the core missions of teaching and research (Pinheiro et al 2015). The notion of 'responsible university' (Grau et al. 2017; Sørensen et al. 2019) adds global challenges

to local demands. Currently, university strategies are typically connected to—and draw needed external support or legitimacy from—the search for solutions to wicked global problems.

Miedema (2021) considers open science—in which citizens participate in HEIs' basic tasks and social relevance is the main (or sole) indicator of quality—a natural and superior HE policy agenda. Miedema's (2021) work brings us to the current EU initiative (EU 2021) and the subsequent Coalition for Advancing Research Assessment (CoARA), as he was a key ideological figure in the movement. As alluded to earlier, in cooperation with some major research funders and organizations, the EU recently introduced an initiative that aims to change researcher assessment and recruitment. According to the EU,

> […] reforming research assessment is increasingly seen as a priority to ensure the quality, performance, and impact of research […] For example, decisions on allocation of research funds, academic career advancement, and the hiring of [academic] staff can potentially disadvantage research fields with high societal impact but low prevalence in dominant metrics. (EU 2021, p. 4)

This initiative fundamentally, though not necessarily solely, signals a renewed interest in quicker returns in terms of quality, social impacts, and relevance by fostering broader researcher roles in the service of society. Global challenges and the urgent societal and political expectations necessary to resolve them have been cited as key drivers of change within the European Union (EU 2021; Sørensen et al. 2019). According to the EU (2021, p. 4), open collaboration has become essential to fostering HEIs' efficiency and social impact. There is a growing need for multi-, inter-, and trans-disciplinary approaches to tackle ever more complex scientific questions and societal challenges together with societal stakeholders (Gilbertson et al. 2019). The innovation cycles appear not to be quick enough in the face of global (wicked) super complex challenges such as climate change, when compared to tight political climate change mitigation targets. The proposed changes in assessment would affect basic institutional tasks and HRM via funding instruments, requirements, and academic assessments, thus leading to recruitment and career advancements.

Along with these historical and cumulative pressures, the EU is joining many funders and nations in renewing mechanisms for the assessment of researchers so that social relevance and broader external roles can become more strongly diversified, recognized, and rewarded (EU 2021). These pressures are connected to the fact that local, regional, national, and global interactions with society are seen as part and parcel of HEIs' core missions regardless of their size, age, location, profile, and strategic ambitions (Pinheiro & Abualrub 2021).

Resilience

In engineering and physics, resilience denotes elasticity under pressure. In social systems, it points to the capacity of individuals and organizations to handle complexity and boundary conditions and interpret early warning signs and weak signals indicating crucial changes (Karlsen & Pritchard 2013, p. 1). In this context, resilience refers to the ability of a system/entity/individual to retain its function and identity while responding

to adversity (Frigotto et al. 2022). External crises may put universities in unstable positions, affecting their basic tasks. In this context, the idea of resilience refers to the capacity of HEIs to adapt to emerging circumstances (retain function) without getting lost in excessive complexity, thus enabling the performance of basic tasks (Bartusevičienė et al. 2021).

Many critics of resilience claim that the concept has been adopted too broadly in the social sciences, encompassing nearly everything (Frigotto et al. 2022). Resilience is a complex construct composed of oppositions and tensions, such as executing versus learning and rethinking versus adapting (Giustiniano 2021). The concept has been suitably applied to address situations that appear to be increasingly volatile, uncertain, complex, and ambiguous, also called VUCA (Evenseth et al. 2022; Powley et al. 2020).

HEIs are open organizations that constantly interact with their environments. Typically, a society not only provides public universities with funding (input) but also expects certain outputs in line with basic tasks (degrees, publications, but increasingly also tangible innovations and breakthroughs) to be fulfilled in return. HRM's role is to facilitate the achievement of organizational goals. Recovering from an external shock (e.g., COVID-19) and returning to the fulfillment of basic tasks are elements of resilience that are crucial for HRM (Stokes et al. 2019). However, if societal expectations and government steering (especially related to the funding of research and teaching) appear to be changing, then adaptations to such changes also pertain to resilient behavior.

Pritchard (2013) noted that institutional resilience must be proactive rather than reactive; it must entail the ability to prevent something adverse from happening or stop a scenario from worsening. Regarding the social relevance of HEIs, one could hardly say that such intentions are negative, especially given that preventing undesired outcomes is regarded as one of the basic tasks of an institution in a publicly funded system. Nevertheless, the intended changes in research assessments and their connection to funding systems might pose an operational challenge for HEIs and alter the balance or content of their basic tasks (from independent research institution toward policy implementor). Additional tasks without funding might also be a problem. The EU's (2021) initiative might signal change and thus require proactive actions from resilient HEIs.

Frigotto et al. (2021) identified the following three forms of resilience, one rather static and two more dynamic, all connected to the nature of change:

- **Absorptive resilience** reflects the fundamental stability of a system that allows it to return rapidly and efficiently to its original state.
- **Adaptive resilience** includes both stability and change at consistent levels; it refers to a system's ability to produce buffer capacity, withstand shock, and maintain function during a transition to a new state.
- **Transformative resilience** is the ability of a social entity to interact with disturbances and impact a system's change. In such situations, the essence of the social entity is challenged, which requires a higher degree of change and adaptation; both the system's boundaries expand and co-evolve as a result.

As noted, the EU aims to reform research assessment systems together with major research funders and actors (CoARA 2023). There seems to be a fundamental change—or a corrective movement—taking place in the field of researcher assessment; however, the actual outcomes remain unclear.

At present, we do not know how fundamental the change in researcher assessment under discussion (CoARA 2023; EU 2021) will turn out to be, as it involves a process in which the EU mainly acts as a facilitator given that HE is largely the responsibility of nation states under the subsidiarity principle. That said, there are numerous examples of how the EU and its various agencies have increased their influence on domestic HE policies, including the adoption of soft law through the open method of coordination (Gornitzka 2006; see also Keeling 2006). New political or ideological movements can act as an adversity trigger for resilient behavior, but one cannot say from the outset whether such a complex change will call for absorptive, adaptive, or transformative resilience (Frigotto et al. 2022). As is the case with strategic planning, where the key is on the act of planning ahead, the attractiveness of resilience pertains to its ability to develop adaptive capabilities across the board (ex-ante) regardless the nature of the adversity facing local actors (cf. Weick & Sutcliffe 2011).[1]

Institutional HRM responses to complexity

As pointed out above, increasing complexity is not only exogenous as a trend but also potentially endogenous, borne within the university and the respective academic groups in question. It might emerge from choices or decisions (about adding more complex targets, for example) and new development projects or be grounded in academics' ideas, which pile up and gradually become unmanageable.

Manageable goals and control over one's own work are crucial for good mental health (WHO 2022). If one sticks to the factors that can be controlled by HRM (to a degree, at least), the following HRM approaches appear to be vital:

1. Efficient HR policy, recruitment, recognition, and rewards form a starting point to managing complexity (Kekäle 2017; O'Meara 2011). If the HR policy is fussy, arbitrary, or confusing, faculty will find the message unclear. Practices to improve faculty satisfaction include salary increases, rewards, recognition systems, better working conditions, and stress reduction, as well as increasing channels of promotion and opportunities for professional development. Listing these is easy, but successful implementation of such systems is crucial, as is a decent work–life balance. HRM functions are shared (practiced) by all leaders at the university, which can mean hundreds of changing (rotating) leaders at a major university, adding to the challenges surrounding HRM.
2. Focus and strategy affect complexity. Nordic universities are still relatively autonomous. They can, in principle, determine and invest in their own strategies. In theory, this also means that they can frame their priorities without trying to do everything. However, in practice, such complexity-diminishing framing may not occur, as Nordic universities are also politically steered. Current university strategies are often framed by the Sustainable Development Goals (SDGs), which are very broad and give little room to refuse to do something or rule out developmental targets, which would diminish complexity. Strategies are not solely in the hands of HRM; they are mainly led by university rectorates who in turn are affected by political choices and short-term strategic imperatives.

3. Self-leadership on an individual level can be used to mitigate complexity. This popular approach is about enhancing individuals' abilities to control their lives via time management, goal setting, prioritizing, etc. The idea, however, is that a person's own attitudes and actions count the most or are at least important. Overall, the external increase in complexity is not the focus. HRM can arrange courses on self-leadership.
4. Leadership training provided by HRM can help clarify faculty roles and duties. The effectiveness of such courses depends partly on implementation and the leaders in question. That said, the selection of leaders is a crucial function connected to HRM outcomes. HRM also typically has a leadership role in the institution but needs to be in line with universities' top management.
5. Diversification of academic roles to increase specialization and to reduce complexity and workload. The CoARA (2023) movement has increased interest in the diversification of academic careers, so that societal impact and relevance, for example, could be a focus for at least some scholars specializing in such matters. Paradoxically, while CoARA attempts to officially diminish complexity by allowing differentiated roles (everyone does not have to do everything), many scholars feel that such diversification may eventually mean stronger and additional societal roles on top of already demanding research and teaching duties (see 'Results'), resulting in increasing complexity. Indeed, social interaction in social problems may not only contribute to solving issues but also complicate them (Rimor et al. 2010; see Becher 1987 for divergent knowledge areas).

In what follows, we turn to the methodological and empirical section.

Design and method

The study reported here derives from a larger study dealing with research assessments and CoARA, in which Jouni Kekäle was involved as the principal investigator. Along the way, the understanding of the background described in the section 'Social relevance and increasing complexity' and the feedback gained from some international responses (e.g., Benneworth 2015; Recognition & Rewards 2021) pointed to cumulative criticism and potentially adverse consequences toward the salient global relevance discourse. To find out some illustrative reactions toward the changes by key actors, a set of key topics were put into discussion, in the manner described below.

The study adopted a qualitative research design based on a total of nine semi-structured interviews with key academics based at a relatively large and comprehensive Nordic university (around 15,000 students). The (anonymous) respondents were senior academics in leading positions (administratively and academically) with the rank of full professor. To determine potential disciplinary differences (Kekäle 2001), the respondents represented the following fields: physics, medicine, the social sciences, and the humanities. Each field was represented by two respondents, except for medicine, which was represented by three. All respondents were or had been in a leading administrative position (e.g., department head, dean, or rector) and had the authority to affect strategic choices within their respective (sub) units.

The interviews (lasting 1–1.5 hours) were conducted online via the Microsoft Teams application in the fall of 2022. The context for interviews was the CoARA movement

(2023) with which all respondents were somewhat familiar with. It should be noted that the ultimate aims and goals of CoARA might have been somewhat vague, but the key aims announced included broadening the roles of researchers and improving (external) quality and societal impact.

The interviews were a part of a larger project dealing with CoARA changes and research assessments. In this larger project, dozens of interviews were carried out in several European universities. Here, we concentrate on interviews with some Nordic participants only, and the respondents' views about the intended broadening of the role of researchers toward stronger societal roles, more intense expectations in societal facilitator roles, and calls for more/deeper external cooperations.

The theme of the expected broader societal impacts of HEIs is reported here given its connection to the phenomenon of resilience and increasing complexity. Typical interview questions were as follows: 'There appears to be a need to broaden researcher careers and roles to facilitate a broader social relevance and societal impact (EU 2021). What is your opinion on this?'; 'What kind of researcher roles would best serve society?'; and 'What is the best way to assess quality and societal impact of university work?'

The interviews were recorded and archived with the permission of the respondents. The researchers listened to the discussions at least twice, and the content was transcribed verbatim. The content was divided into three key themes: 1) assessments and metrics, 2) open science, and 3) social impact, of which, as noted, the last theme is discussed here. To be more specific, the discussions dealt with the respondents' conceptions of universities' social and societal impacts and relevance, as well as the potential for HEIs to produce quicker, better, or broader social changes in the context of the EU initiative. Once the interviews were transcribed, interview fragments that dealt with the themes of interest were moved to separate files and read once again for an initial interpretation of the interview results while simultaneously testing the initial hypotheses and arguments against the fragments. This process was carried out three times until the topics were thoroughly analyzed.

Finally, it is worth noting that, as is the case with most qualitative research designs, this study has limitations, as it is located within the category of a small sample, single case study, where the primary aim is that of theory testing and generalizability with respect to the phenomena in question (resilience), rather than to the larger population of Nordic or global HEIs per se.

Results

A key finding of the present study was that representatives from all disciplinary areas rejected external attempts to significantly expand social interaction roles in academia. The attitude was that these would overly complicate basic tasks. Interview participants stressed that scientific research is the core of all academic work and the foundation of the university–society relationship. While many respondents saw societal relevance as a viewpoint to be considered in research and instruction, pushing it up in the hierarchy of academic tasks would mean that researchers' work would no longer be characterized as scientific research. The respondents (especially within the social sciences) indicated that academic activities already serve society and have demonstrated social impact. That said,

most respondents were adamant on the fact that social impact should not be stressed too much in the context of free inquiries (autonomy principle):

> One can probably assume that researchers need to understand that research needs to be monitored for relevance. … But if we would put the creation of relevance on the researchers or universities, it must be remembered that it then diminishes the excellence of science … you may say that the interface of researchers to society needs to be strengthened. But that doesn't change the fact that a researcher is a researcher if research results are to be desired. (Professor, Medicine)

> [Question: 'Are researcher roles too narrow?'] Terribly difficult to answer. It is not so relevant whether it is narrow or not. Only the scientific results are evaluated. Very good results can come from a narrow perspective or from a very broad relevance perspective. I do not know whether the evaluation process should be steered in either direction. (Professor, Physics)

> [Question: 'Are research careers too narrow?'] There is no problem in our disciplines. Social impact takes place through teaching and research. Everyone is involved in the social debate, in textbooks, in scholarly articles... On the contrary, it is necessary to withhold the request for societal impact so that the basic task [research] remains clear. I don't think it makes sense to start recruiting such experts in social outreach... If you want to succeed as a researcher, then you shouldn't prioritize social impact because it takes time. (Professor, Social Sciences)

The respondents felt that the only way to broaden academics' societal outlooks would be by establishing different professional roles and positions, which already happens to a degree—in the form of practical professorial tasks. That said, some also saw broader societal roles as dubious, since research is a clear key task within HEIs. According to the respondents, at least the power to determine what positions will be declared open and with what content should be kept within academia.

Respondents from medicine, the social sciences, and the humanities suggested that the role of the researcher is either already (too) demanding—'research takes up all my time'—or researchers are currently powerless in deciding what to study, as funding guides this significantly. They thought that broadening or complicating the role of a researcher to include new tasks and expectations would make matters worse:

> The demands are starting to be too high […] There are already strict requirements for researchers… It is said that something completely new should be created […] I understand, of course, societal pressure… this request for increasing social impact... But research cannot create business in a very fast cycle as business should be created together with other sectors. I wanted to say that it is impossible for a researcher to produce basic data and get it right at the same time while also producing an application. (Professor, Medicine)

> [Question: 'Is it a good idea to start expanding the criteria for a research career?'] We have been going wrong here for a long time. Soon, we will have a situation where basic research in basic sciences is no longer funded at all […] We have politically chosen themes…

> politically driven. Politicians define the areas to be explored, which must be immediately relevant to society. Funding for basic sciences and basic research is shrinking all the time. (Professor, Physics)

> Studying… what is being researched, is a matter for researchers to think about. Not everything can be achieved at the same time. (Professor, Humanities)

A social science professor and a physics professor felt that increasing social impacts would or could result in tighter political steering. Different temporal expectations, timetables, and outlines for basic tasks were thought to make social interactions with external stakeholders, such as companies, highly difficult and complex. It was noted that although companies live in a quartile economy, universities' basic tasks develop at a much slower pace:

> There is a huge challenge. Companies state that after three months at the latest (a quartile), you should achieve something in common in cooperation [….] It is extremely difficult to jump into business cooperation from our point of view when schedules do not match […] Partnerships, a tradition of working together where no quick wins are expected, is probably the direction in which cooperation should go. (Professor, Physics)

However, a respondent from the humanities stressed the importance of social relevance: 'It is vital that that education responds to the needs of society. For certain education, the ability of universities to produce relevance has already been questioned'. While most respondents saw societal impact as a criterion additional to research and instruction, concerns regarding the focus on instrumentality remained:

> Utility thinking, with an emphasis on innovation … then imagination disappears from the process. Researcher training would then be mechanized. Freedom of thought is an important value. Freedom of thought can bring more dimensions; relevance is only one aspect. (Professor, Humanities)

Regarding HE policy steering, the interviewees frequently noted that current domestic funding models and steering mechanisms guide operations at HEIs. They noted that social relevance was gaining momentum, as it is increasingly included in these mechanisms. However, according to the respondents, this might alter the nature and scope of the research efforts and results—and not necessarily for the better. Another driving force of social relevance relates to global problems such as the United Nations' SDGs and HEIs' political and strategic promises to contribute to solving them. Participants often noted that HEIs alone cannot solve such wicked global problems but that connections with society are vital for addressing them:

> It is important that universities connect their activities to global challenges. And universities are supposed to generate knowledge about the problems posed by their global challenges and how to solve them. But if we promised to solve them, then it has gone too far because our shoulders are not broad enough for it. Universities can produce solution models, though. (Professor, Medicine)

Solving SDGs requires networks with society, businesses, and funders, but local aspects must also be considered. The respondents felt that there is a gap between world-class science and civic society, as advanced theoretical considerations could be too complex for laypeople. Three respondents noted that it might be possible to increase the social relevance of research by establishing broader roles in which aspects of societal relevance take higher priority. In the social sciences, this was deemed unnecessary, as social relevance and impact are already intrinsic aspects to the field.

Discussion

The empirical accounts reiterate the fact that the rate of and the pressures for change facing HEIs and academic professionals are accelerating. Neither the university's leadership nor HRM has had adequate time to consider or thoroughly discuss their mutual position toward CoARA (2023). The quest for social relevance has steadily increased, while the recent changes insofar assessment and careers have been rather sudden. The massification of HEIs in terms of increasing enrollments and intensified publishing has also taken place. When faced with a radical change, local actors require time to agree on how to respond. This is particularly problematic in the case of rather diverse epistemological cultures and traditions and loosely coupled organizations like universities (Young & Pinheiro 2022) where academics are autonomous professionals and sub-units often have 'a life of their own' (Selznick 1996).

In this study, we have examined how resilience emerges in the context of radical organizational/social change given the 'reluctance to move ahead' as a starting point. The accounts by leading academics show that these did not feel that their institution would be able to cope with the new emphases and tasks, and the increasing complexity associated with this. There was no vision or trust that other duties would become easier, nor was there a willingness to give up the value-based emphasis associated with free research inquiries. Clark (2008) noted that increased complexity easily leads to specialization, where one concentrates on one's own duties and lets the complex whole take care of itself, a mechanism known as self-organization within resilience thinking (Frigotto et al. 2022). Friesike et al. (2022) refer to the complex nature of the risks involved in increasing social impact, such as the fuzziness of impact assessments and non-actionable and incremental findings, resulting in a slow 'post-heroic' impact, potential damages to academic reputation, unforeseeable social reactions, and so on. They argue that social impacts manifest themselves slowly over time, following purposeful, targeted activities.

In the face of such ambiguity, the respondents—who were aware of the change but could not anticipate how severe the change pressures and effects would be soon—appeared to be largely defensive and reluctant to move ahead in changing existing arrangements. In this respect, their attitudes seem more aligned with a return to normality or the status quo along the lines of absorptive resilience (Frigotto et al. 2022). That said, when taken in a broader context, the following, more fruitful interpretation might be at play. It is possible that we are dealing with emergent resilience (Figure 1).

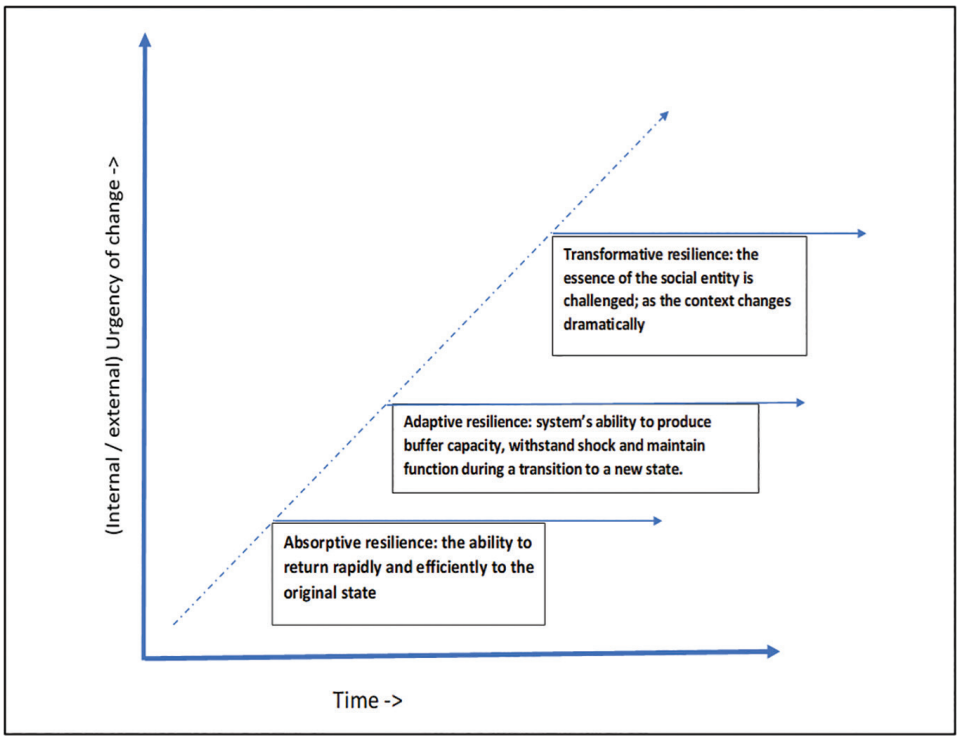

Figure 1 A model of emergent resilience

Figure 1 borrows the three forms of resilience outlined by Frigotto et al. (2022) but displays them in relation to one another, wherein each resilience state is a function of two key factors: a) internal or external urgency for change, and b) the time required for change or adaptation to occur within the system. It is important to highlight that emergent resilience, as noted by systems thinkers and theorists (e.g., Senge 1990), results from the dynamics and complex interplay, including positive and negative feedback loops, between subsystems composing a larger system—in our case, the societal systems (political, economic, cultural, etc.) in which HEIs are deeply embedded and from which they draw necessary resources and legitimacy (Birnbaum 1988; Hüther & Krücken 2016). According to systems theory (Meadows 2008; Stroh 2015), emergent systems produce nonlinear behavior, which makes predictability and forecasting—for example, regarding the societal impact of research—a daunting task from managerial and HRM standpoints.

However, this does not mean that an evolutionary lens (Abreu Pederzini 2016) cannot be applied to identify and interpret the phenomenon of emergent resilience. As a process, emergent resilience starts with the first indications of a given change and the related external pressures; the resulting reaction is denial by most social actors or participants (in our case, professors). In the case of HE, interpretations should be made

within the context of a saturated system resulting from an exponential increase in external demands imposed on academia, for efficiency, transparency, excellence, relevance, etc. (Clark 1998; Enders & Boer 2009). In a saturated system, one might assume that the initial reactions in the face of increasing complexity—that is, resistance, denial, or hesitation—by social participants to the new or emerging changes relate to: a) time and resource constraints; b) ambiguity of outcomes; and c) social actors' value systems, which can make them unwilling to adjust their behavior unless they see benefits to doing so in terms of their strategic aspirations and career patterns or the maintenance of a sense of collective and professional identity (Geschwind et al. 2022; Stensaker et al. 2012).

In such a saturated situation, resilience is at best characterized as corresponding to the *absorptive* type (Frigotto et al. 2022). However, if the pressure and urgency for change increases, there would be a more urgent need to (re-)act. In such a pressurized situation, resilience responses may become *adaptive* (Frigotto et al. 2022); more actions are needed to withstand the obvious shock, which requires a transition to a new state or balance. In such circumstances, the reactions to change would inevitably take more time (bouncing forward) than a quick return to the original state (bouncing back) in the context of absorptive resilience.

Taking this thought experiment further, it could later become clear that the entire essence of a social system is challenged by ongoing political change. In this radically changing context, transformative resilience would then be needed, and it could also be an outcome (Figure 1). In other words, according to this interpretation, both the reaction and resilience depend on the context and the sense of urgency of the change at hand; however, it could be emergent.

Based on the proposed *emergent resilience model*, a potential interpretation of the findings presented in this paper could be as follows. First, that since the change outlined in the EU assessment initiative (CoARA 2023) is still in its initial phase and has unclear grounds (Simon 1991), it is perhaps rational for local actors not to take significant actions; instead, the prevalent logic of behavior (March & Olsen 2006) is to adopt a hesitant or slightly defensive outlook. For the most part, the interviews seemed to demonstrate this. If the change later turns out to be fundamental and urgent, for example, in terms of affecting funding and the essence (nature and scope) of research as a core task, then more dramatic actions would be required, and adaptive or transformative resilience (as dynamic forms) would then become obvious choices. Within HEIs, different social agents may react differently to fuzzy and complex external signs of change during the initial phases of the process. Such fuzzy situations also manifest themselves as a super complex leadership and HRM dilemma. Although we did not gather primary data on managers in this study, earlier inquiries suggest that this group is likely to take early signs of policy shifts more seriously than academics (Bleiklie et al. 2017; Karlsen & Pritchard 2013).

The emergent resilience model also highlights how different forms of resilience can develop and be connected to each other according to factors such as the *urgency* of the change and the *time* required for adapting to it. The model is descriptive, not normative, and its chief aim is to display what might happen and how different forms of resilience can be connected (nested) to each other. It also provides an empirically grounded interpretation of the interview findings in this situation and context. Our intention is thus *not* to give the impression that with sufficient external or internal pressure, any system can

change. All political actions should be weighed against evidence, value added, morality, and fitness for purpose.

Returning to the overall case findings, two additional elements are worth reflecting upon in the context of emerging resilience. First, most respondents considered societal impact to be an additional criterion to research and instruction. These assertions echo earlier findings on quality assessment, in which most respondents reported that a soft Total Quality Management approach would suit universities best: free research is—or may be—designed so that it might eventually provide the best possible impact (Kekäle & Lehikoinen 2000). Based on such an approach, external stakeholders and quality would be considered when research projects are planned and carried out; however, external quality was not seen as the highest priority by our respondents. Similarly, studies on the third mission of HEIs suggest the need to more tightly couple engagement activities with core tasks and primary structures within HEIs, including promotion and reward systems—otherwise, the former are likely to be seen by academics as 'nice to have' but not a strategic priority (Benneworth 2018). This, in turn, is likely to result in absorptive resilience behavior with little change or adaptation at the level of core activities and primary structures.

Second, the findings show that there might be room for some new and broader roles in academia, but that these should be considered on a case-by-case basis when recruiting. In all areas, it was felt that a given HEI must, most importantly, be strong in research to be able to contribute to society—as noted in other recent studies conducted in the Nordic countries (Pinheiro & Abualrub 2021). Our findings tentatively suggest that growing expectations toward flexibility and resilience by societal actors may not be easily met in the context of a deepening demand–response imbalance and mission overload, as first suggested by Clark (1998) over two decades ago (see also Enders & Boer 2009). The respondents in our study felt that there was a significant gap between advancing science and addressing civic society (Goddard et al. 2016) and its multiple challenges, as advanced theoretical development or basic research is too complex for the layperson. Some researchers have suggested that the solution could be to shift toward a Mode-2 knowledge-production regime centered on application/problem-solving and interdisciplinary collaborations (Nowotny et al. 2002). Recent shifts in research policy and science discourses within Europe have shown that this process is already taking place (Kuhlmann & Rip 2018), but that there is still a gap between policy intentions and measures on the one hand and academic career trajectories and hegemonic standards of excellence within global science on the other hand, with the latter still being increasingly set within the confines of the traditional disciplines (Barry & Born 2013).

Conclusion

This paper investigated how senior academics make sense of policy shifts related to research environments and funding regimes within the EU from the perspectives of complexity and resilience and explored HRM processes within professional bureaucracies like universities. In line with earlier studies, our findings suggest that there are increasing concerns about the instrumentalization of science and HEIs. The default response mechanism was found to be one of resistance and growing concern

regarding unrealistic expectations and possible unintended effects for both science as an institution and its role in society. Efficiency-oriented 'NPM managers' tend to adopt an engineering view on resilience, focusing on maintaining the 'efficiency of function', whereas resilient university agents might instead follow ecological resilience, with the focus being on 'the existence of function' (Holling 1993, p. 33). The latter is of relevance in the context of a public sector operating in increasingly dynamic, complex, and turbulent environments (Trondal et al. 2022). The number of missions assigned to the politically steered HE sectors in Europe has grown dramatically over the past few decades. This, in turn, has increased the vulnerability of HEIs, as they are overloaded with multiple expectations and overburdened with growing and urgent demands.

These perspectives are also valuable for institutional HRM. The 'mission impossible' of the modern university is that HEIs mean too many things to too many and highly diversified publics (Enders & Boer 2009, p. 166). According to resilience thinking, adaptation in such a super complex environment (Barnett 2000), including the quest for relevance, would require considerable room for institutional diversity or pluralism, not only in terms of finding unique things to do but also in terms of finding different ways of doing them. In the broadest sense, the primary mission of HEIs is to seek and transmit knowledge—to map reality (Frank & Gabler 2006). Contrary to what is advocated by proponents of the Entrepreneurial University model, keeping a distance between the university and emerging external (societal) requirements may become a healthy response to safeguard the institutional integrity and legitimacy of science and HEIs as quintessential public goods (Marginson 2011). Resilience, in such a saturated scenario—out of necessity—becomes an emergent process.

The aforementioned would imply that HR managers as resilient agents and HRM as an ecological (rather than managerialist) process embrace: a) dynamic and evolutionary approaches that take into account emergent phenomena and feedback loops, both positive (reinforcing existing patterns) and negative (unintended effects); b) ambiguity and complexity as sources of diversity and explorative approaches; and c) risk-taking and a tolerance toward failure as mechanisms for nurturing novelty and resilient mindsets across the board, including within middle and top management.

Despite the fact that this study was based on a relatively small sample, and was limited to one case university in a Nordic setting, the pressures and trends described—increasing complexity, and the quest for social impact—are widely shared across the global organizational field of HE, thus affecting basic tasks like teaching, research, and engagement alongside support roles like HRM, leadership, and management practices within HEIs and across the board.

Future studies with longitudinal designs, comparative frameworks, and mixed methodologies could shed light on: a) how different types of actors within public sector organizations (and at different levels of analysis) respond to emergent changes in their internal and external environments characterized by different levels of adversity and novelty; and b) how these responses are both affected by and contribute to the nurturing of endogenous resilient features, and the ways in which these features may aid adaptation processes (mid to long term), including required changes in critical tasks such as HR and HRM.

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Note

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