Navigating force conflicts: A case study on strategies of transformative research in the current academic system

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ABSTRACT

Against the backdrop of the increasing calls for scholars, universities and the broader academic system to become more societally relevant and contribute to tackling various sustainability challenges, researchers across all disciplines are themselves moving toward conducting more transformative research. Work to date has focused on challenges in these transitions, obstacles to transformative research, and researchers' resistance to 'impact strategies'; however, little is known about how those who actually do transformative research ultimately overcome these challenges. Using Lewin's field theory as a theoretical basis, we collected qualitative data and carried out 32 in-depth interviews with 'transformative' scholars and policy and support staff at Erasmus University Rotterdam (EUR) on the driving and conflicting forces related to transformative research, as well as strategies for dealing with them. An in-depth grounded analysis revealed transformative researchers' identity and goal conflicts and showed how they skillfully navigate those conflicts by choosing between two ideal-typical strategies, 'transforming through research output' and 'transforming through research process'. The constellations of forces identified that actually influence researchers' choices on those strategies need to be taken into account in the designing of effective research policies for leveraging the potential of transformative research to tackle sustainability challenges.

1. Introduction

In view of complex societal problems such as climate change, calls have mounted for academic research to become more societally 'relevant' and actively involved in confronting those challenges (Gardner et al., 2021; Reed and Fazey, 2021; Vogt and Weber, 2020). Witness to this are calls for engaged scholarship (Hoffman, 2021; Van de Ven, 2007, 2018) and transformative research (Mertens, 2008; Schneidewind et al., 2016; Wittmayer et al., 2021). In line with these calls, we understand *transformative research* as research with the explicit aim of contributing to solving societal problems and a clear commitment to engaging with society. This often entails problem-driven research questions (Hugé et al., 2016), boundary-spanning research activities (Adler et al., 2009), mode-2 knowledge production (Gibbons, 1999), co-creation (Trencher et al., 2013), and transdisciplinary research (de Jong et al., 2016).

Earlier work identified various contradictions, tensions, and triggers of resistance to such movements in academia, as well as potential

recommendations and actions necessary for overcoming them (see, e.g., Bien and Sassen, 2020; Hoover and Harder, 2015; Gaziulusoy et al., 2016; Muhar et al., 2013; Hugé et al., 2016; Baker-Shelley et al., 2017). For instance, Gaziulusoy et al. (2016) found challenges in early phases of transdisciplinary research, and Muhar et al. (2013) described challenges in integrating transdisciplinarity into doctoral studies. Many of the identified obstacles to doing transformative research were rooted in rigid academic performance criteria (Adler et al., 2009; de Jong et al., 2016; Hoffmann et al., 2017; Sauermann et al., 2020).

Despite these challenges, a substantial number of scholars already *do* transformative research. Yet, while acknowledging the important role of such niche players (Stephens and Graham, 2010), their individual perspective has received little attention so far. It is unclear how transformative researchers manage to navigate conflicting goals and tensions, and what their strategies for doing so are in the current academic system. This lack of understanding about individuals' motives and strategies for dealing with the tensions and obstacles noted limits the potential

effectiveness of research policies aimed at fostering transformative research.

To close this gap, following arguments by Kump (2023), we use Lewin's field theory (1947a, 1947b, 1951) as a theoretical basis and ask: (1) *What are the field forces and force conflicts for those academics who want to do transformative research;* and (2) *How do they do transformative research in the face of these conflicts?* To answer these questions, we carry out a qualitative case study set at Erasmus University Rotterdam (EUR*)* in the Netherlands, which pursues a strategy of 'creating positive societal impact' (Erasmus University Rotterdam, 2019b), involving more transformative research. We employ Gioia et al.'s (2012) grounded analysis to make sense of 32 interviews and other verbal data to gain rich insights into the conflicting field forces that transformative researchers face and the strategies—'transforming through research output' versus 'transforming through research process'—that they use to deal with them.

We contribute to the literature by focusing on the understudied perspective of individual researchers' strategies in undertaking transformative research. The innovative theoretical lens of Lewin's field theory enables us to understand how researchers skillfully navigate existing field conflicts and conduct transformative research under conditions favoring conventional research practices. We discuss our findings and derive policy implications that may contribute to "mobilizing the transformative power of research" (Romero Goyeneche et al., 2022, p. 1) for tackling grand societal challenges, above all, sustainability issues.

2. Theoretical background

2.1. Transformative research in the current academic system

In the current academic system, knowledge production takes place in a highly efficient manner, within disciplinary boundaries, and is focused on a very specific type of measurable scientific output (Gardner et al., 2021; Vogt and Weber, 2020; see also Elangovan and Hoffman, 2021; Hoffman, 2021). It is known that the current practices and incentive structures foster very particular research processes and outcomes that impede alternative academic engagement such as transformative research. For their part, for example, Sauermann et al. (2020, see also Adler et al., 2009; Bien and Sassen, 2020) found that when carrying out research activities in collaboration with non-academic stakeholders, researchers perceive a loss of scientific autonomy and control (e.g., over research questions, resources); scientific and non-scientific project goals are not always commensurable (e.g., publications versus solving a practical problem); and narrow academic performance metrics (e.g., publications in high-ranking journals) prevent them from promoting societal impact outcomes. Moreover, due to the breadth of practical questions and problems, transformative research often exceeds disciplinary boundaries (Sauermann et al., 2020), which can, in turn, be detrimental to researchers' scientific reputation and career (Fontana et al., 2022). Such research often does not follow the dominant funding logic scheme (Muhar et al., 2013), nor is it in line with current performance and promotion criteria (Gaziulusoy et al., 2016).

Some earlier work has studied researchers' reactions to initiatives for more civic engagement at their universities. For their part, de Jong and Balaban (2022), for example, observed negative reactions to the introduction of a 'societal impact strategy' because the actual importance of societal impact was unclear, poorly resourced, and unrewarded. Studying a similar initiative, Bien and Sassen (2020) found that challenges of transformative research (in particular, concerns of quality loss, autonomy loss, and resource loss) can trigger resistance on the part of researchers due to the prevailing incentive structures in place toward graduation, tenure, and promotion that serve to reward conventional academic practices (see also Ferrer-Balas et al., 2008; Hoffman, 2021; Hoover and Harder, 2015).

So far, only a few researchers have taken the perspective of the 'willing' and investigated the drivers behind researchers' participation in transformative research. Guimarães et al. (2019), for example, observed that transdisciplinary researchers are mainly driven by intrinsic motives (e.g., desire for meaning) and rarely receive extrinsic rewards. Ferrer-Balas et al. (2008) identified the availability of funding (see also Benner and Sandström, 2000) and links with real-world projects as crucial factors for academics in conducting transformative research. Beyond such notable exceptions, the perspective of those who already do transformative research in the current academic system has not been scrutinized in detail. Little is known about how they experience and navigate this dynamic environment, and do transformative research despite numerous challenges.

2.2. Lewin's field theory for studying the perspective of transformative researchers

In this paper, we follow Kump's (2023) suggestion of using Kurt Lewin's seminal field theory (1947a, 1947b, 1951) for understanding actors' (i.e., engaged scholars') agency in the transition processes, including the underlying motives, desires as well as resulting behavioral choices. According to field theory, any kind of social behavior (e.g., conducting research) takes place within a social field, that is, an interdependent group of actors (e.g., members of a university) who perceive a set of common field forces. A field force can be seen as a driver that propels these actors' behavior in a specific direction (e.g., reward structures of the academic system). Beyond these forces that affect an entire group, individual actors perceive specific forces related to both intrinsic factors (e.g., values, motives) and the concrete situation they are currently in, based, for example, on career level, type of contract, etc. Usually, some forces within a field foster the maintenance of the status quo (e.g., reward structures for scientific excellence) while others drive change (e.g., a new university strategy focusing on impact).

From the perspective of field theory, behavior is a function of field forces at a given time. Individual agency is actors' way of dealing with the constellation of field forces as they perceive it. To understand behavior, especially if it is deviating from the status quo—such as transformative research within the current academic system—, it is necessary to analyze driving and opposing forces in the field as perceived by actors (Lewin, 1951). Applying a field-theoretical lens, we thus aim to understand transformative researchers' force conflicts as well as their strategies for navigating those conflicts.

3. Method

As a research method, we chose a qualitative single-case study design (Yin, 2018) set at the Erasmus University Rotterdam (EUR). We used in-depth interviews as our main data source and analyzed them using Gioia et al.'s (2012) grounded analysis.

3.1. Research context

Founded in 1913, EUR is one of the most prominent research universities in the Netherlands, with a population of around 29,000 students and 1400 scholars. It has a strong international orientation and student population, as well as close ties to the city of Rotterdam (Erasmus University Rotterdam, 2019a). In recent years, EUR has oriented its vision and mission more towards civic engagement and impact, exemplified by the current strategy for 2020–2024: "Creating positive societal impact" (Erasmus University Rotterdam, 2019b). To pursue this strategy, EUR reserved a yearly budget of 17 million Euros and set up several strategic projects and programs, for example, aimed at future-proof education, impactful and excellent research, and sustainability on campus. Furthermore, as one of the first universities to do so, EUR has recently declared a "climate emergency" as in place and committed to heavy investment in research for fostering collaboration and increasing competencies for sustainable development (EUR, 2023).

3.2. Data collection

To understand the forces at play for transformative scholars, we chose interview partners actively involved in or supporting transformative research at all career levels across EUR's seven schools, the university college, research institutes, and strategic projects. Between October 2021 and May 2022, we carried out 32 semi-structured interviews with 23 researchers (8 full professors, 8 associate professors, 2 assistant professors, 3 PhD candidates, 2 mid-career researchers), all of whom conduct transformative research, and with 9 support and policy staff who support transformative research in various ways.

The interviews took about 60 min and were carried out online. The semi-structured interview guide included questions about the type of transformative research being done, the forces and conflicts faced, and researchers' strategies for overcoming them. All interviews were audio-recorded and fully transcribed, revealing 439 pages of interview transcripts. Furthermore, we reviewed documents on the EUR's impact strategy and hosted a 2-h online workshop on *Transformative research practices at Erasmus University* on February 24, 2022, where researchers from different disciplines across EUR discussed their transformative research practices, motives, and challenges. Outcomes of group discussions were documented by participants on an online whiteboard, which we included in our analysis.

3.3. Data analysis

Using the qualitative data analysis software Atlas.ti 8, we followed Gioia et al.'s (2012) method of an in-depth grounded analysis, which comprises several stages of thematic and axial coding. In the first stage, we stuck closely to informant terms. We coded all statements related to participants' approaches to doing transformative research, the forces they perceived to be at work in the process and the conflicts and challenges they were facing along the way. Each coded interview transcript and workshop documentation was discussed in our group of co-authors until consensus was reached. This procedure led to approximately 600 codes. Following good practices of grounded theory research (Charmaz, 2014), we started early on to create memos for our codes which were continuously edited and refined based on group discussions.

As the coding proceeded, we followed Gioia et al.'s (2012) method of creating researcher-centered second-order concepts inductively, leading to 13 concepts: four about field forces (e.g., individual-level forces, university-level forces), five relating to conflicts amongst forces (e.g., conflicts in role and identity of researcher, goal conflicts of university); and four belonging to strategies of transformative research (e.g., following academic norms, impact through research process). Assessing the semantic relationships among the themes, we continued with theoretical coding, leading to five aggregate dimensions: one related to forces, two related to conflicts (i.e., role and identity conflicts, goal conflicts) and two related to strategies (i.e., mechanism of impact, conformity with the academic regime[1]). Fig. 1 gives an overview of the resulting data structure.

The tandem analysis of our informant-centered first-order concepts and researcher-centered second-order concepts in the data structure, involving some intuitive processing (Kump, 2021), allowed for identifying and demonstrating interactive relationships between the data and resulting concept development (Gioia et al., 2012), therein transforming the previously standalone dimensions into an integrated conceptual model explaining strategies of transformative research within a field of forces (Fig. 2).

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[1] We use the term 'academic regime' in the sense of Geels and Schot's (2007) notion of a socio-techinical regime to refer to established norms and structures within academia.

4. Findings

4.1. Changing forces related to transformative research

As shown in Fig. 1 (area 'Forces'), we found forces at work behind transformative research at the level of the *broader society*, the *academic system*, the *university (EUR)*, and the *individual*. Concerning the *broader societal level*, our respondents perceived forces related to an overarching changing view of the role of universities, respective changes in international and national policies, and increasing demands from external stakeholders and students for more societal relevance. As they put it, "there's more demand [...] for academia to show its worth"[2] (IP_18) and "to serve society" (IP_5). At the same time, respondents signaled an increased openness on the part of societal stakeholders in terms of willingness toward and interest in collaboration.

In the *academic system*, our respondents observed an increasing demand for *societal impact*—for acquiring funding, publishing, and as an award category. They reported that, both nationally and internationally (especially from the European Commission), "[engagement] is starting to become something that you notice more in proposal requests or in funding requests" (IP_12). Furthermore, the publication landscape is considered to be currently undergoing shifts. That is, topics in high-impact journals are slowly gearing toward the embrace of sustainability and broader societal impact, and journals with a stronger focus on societal challenges are being put on ranking lists. By the same token, it was reported that scientific conferences have begun to hand out 'impact awards'.

At the *level of the university*, our interviewees mentioned the new impact strategy, various internal initiatives for transformative research and education, a change in evaluation criteria for researchers, and a new generation of researchers and deans as the main forces working toward transformative research. Most importantly, our respondents perceived that, due to the EUR's new impact strategy, civic engagement "has become part of the standard discourse at the university" (IP_23). Furthermore, several interviewees mentioned changes in evaluation criteria for researchers ('Recognition & Rewards') which increasingly consider engagement activities.

The strongest force behind transformative research we found were *individual-level forces* such as the desire to have a societal impact, develop solutions, or do something valuable and meaningful.

4.2. Force conflicts for transformative researchers

Despite these numerous forces behind transformative research, in line with previous research, our interviewees perceived many (counter-) forces in favor of more conventional research approaches, leading to force conflicts in two broader aggregate dimensions, namely (1) role and identity conflicts and (2) goal conflicts (see Fig. 1, area 'Conflicts').

4.2.1. Role and identity conflicts

Identity conflicts were identified in relation to the *organizational identity* of universities and to the *identity and role of researchers*. Regarding conflicts in *organizational identity*, our data revealed that the shift toward transformative research challenges the traditional view of universities as spaces of free and unrestricted pursuit of truth and high-quality education. From this traditional viewpoint, the focus of universities is on "research and teaching" (IP_6) and universities are evaluated based on their academic excellence (e.g., publications in renowned outlets, prestigious research grants), leading to a certain position in university rankings. Currently, transformative research is at odds with the traditional view of what role a university should be taking in society. Hence, according to IP_9, this movement toward transformative research is nothing less than a paradigm shift "that we are going to have

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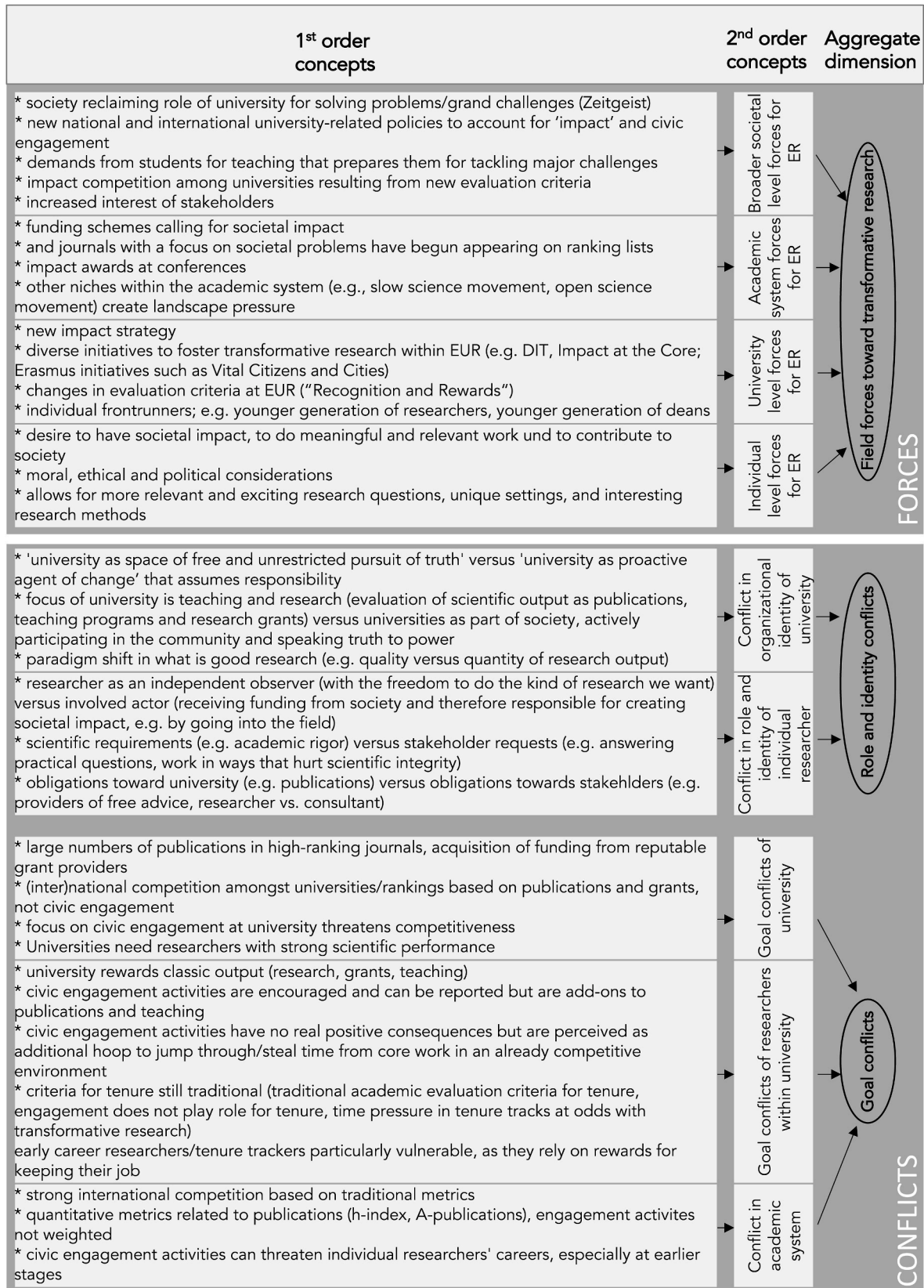[2] We have slightly edited direct quotes to increase their readability.

1st order concepts	2nd order concepts	Aggregate dimension
* society reclaiming role of university for solving problems/grand challenges (Zeitgeist) * new national and international university-related policies to account for 'impact' and civic engagement * demands from students for teaching that prepares them for tackling major challenges * impact competition among universities resulting from new evaluation criteria * increased interest of stakeholders	Broader societal level forces for ER	
* funding schemes calling for societal impact * and journals with a focus on societal problems have begun appearing on ranking lists * impact awards at conferences * other niches within the academic system (e.g., slow science movement, open science movement) create landscape pressure	Academic system forces for ER	Field forces toward transformative research
* new impact strategy * diverse initiatives to foster transformative research within EUR (e.g. DIT, Impact at the Core; Erasmus initiatives such as Vital Citizens and Cities) * changes in evaluation criteria at EUR ("Recognition and Rewards") * individual frontrunners; e.g. younger generation of researchers, younger generation of deans	University level forces for ER	FORCES
* desire to have societal impact, to do meaningful and relevant work und to contribute to society * moral, ethical and political considerations * allows for more relevant and exciting research questions, unique settings, and interesting research methods	Individual level forces for ER	
* 'university as space of free and unrestricted pursuit of truth' versus 'university as proactive agent of change' that assumes responsibility * focus of university is teaching and research (evaluation of scientific output as publications, teaching programs and research grants) versus universities as part of society, actively participating in the community and speaking truth to power * paradigm shift in what is good research (e.g. quality versus quantity of research output)	Conflict in organizational identity of university	Role and identity conflicts
* researcher as an independent observer (with the freedom to do the kind of research we want) versus involved actor (receiving funding from society and therefore responsible for creating societal impact, e.g. by going into the field) * scientific requirements (e.g. academic rigor) versus stakeholder requests (e.g. answering practical questions, work in ways that hurt scientific integrity) * obligations toward university (e.g. publications) versus obligations towards stakehlders (e.g. providers of free advice, researcher vs. consultant)	Conflict in role and identity of individual researcher	
* large numbers of publications in high-ranking journals, acquisition of funding from reputable grant providers * (inter)national competition amongst universities/rankings based on publications and grants, not civic engagement * focus on civic engagement at university threatens competitiveness * Universities need researchers with strong scientific performance	Goal conflicts of university	CONFLICTS
* university rewards classic output (research, grants, teaching) * civic engagement activities are encouraged and can be reported but are add-ons to publications and teaching * civic engagement activities have no real positive consequences but are perceived as additional hoop to jump through/steal time from core work in an already competitive environment * criteria for tenure still traditional (traditional academic evaluation criteria for tenure, engagement does not play role for tenure, time pressure in tenure tracks at odds with transformative research) early career researchers/tenure trackers particularly vulnerable, as they rely on rewards for keeping their job	Goal conflicts of researchers within university	Goal conflicts
* strong international competition based on traditional metrics * quantitative metrics related to publications (h-index, A-publications), engagement activites not weighted * civic engagement activities can threaten individual researchers' careers, especially at earlier stages	Conflict in academic system	

Fig. 1. Data structure resulting from grounded analysis of interview data.
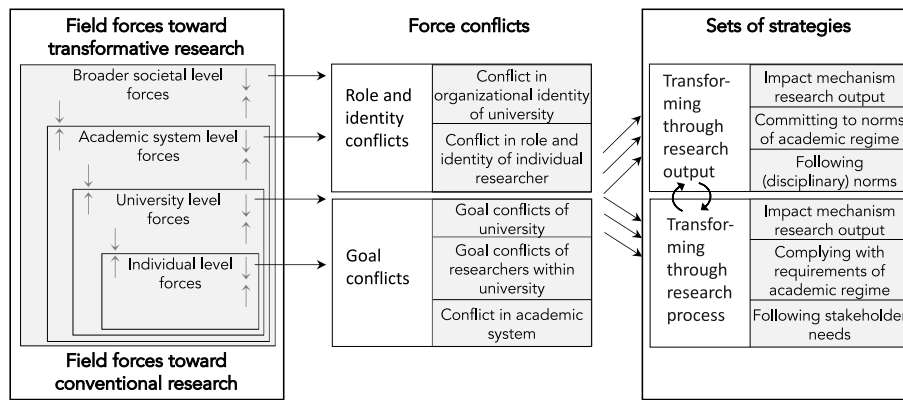
Fig. 1. (*continued*).

Fig. 2. Field forces, conflicts, and strategies of transformative research.

to discuss among scientists for the coming ten, twenty, thirty years". In their view, "it's another way of looking into the world, being curious about what's really going on instead of doing your studies in the lab and then analyzing your data and publishing it" (IP_9).

A related identity conflict that we found in our data concerns *individual researchers' identity and role in society*. While some of our respondents had a clear stance that "we are being funded by the public and our research should matter for the public" (IP_3), others expressed worries about losing "what makes a university special" (IP_13), such as freedom to do the kind of research one wants. The role of a 'transformative researcher' does not yet officially exist in academia in general, nor at EUR.

This conflict of researchers' role and identity is also related to the way that research is carried out. According to IP_15, transformative research cannot be done from an "ivory tower, [as] an armchair activity" but requires researchers to go out into the field. Stakeholders may have requests (e.g., answers to practical questions) that cannot always be fulfilled without hurting scientific integrity (e.g. when they try to intervene in the presentation of findings in their favor). Alternatively, they may also put transformative researchers in a position of acting as "providers of free advice" (IP_16). This may sometimes even come with legal issues—a challenge that is not considered in the structures of the current academic system (e.g., there is no duty of confidentiality of

sources for researchers before a court).

4.2.2. Goal conflicts

Our data revealed *goal conflicts within the university*, of *researchers within the university*, and of *researchers in the broader academic system*. Regarding *goal conflicts within the university*, IP_27 argued that transformative scholarship almost "by necessity, [… is] at odds with the institutional design [of] universities", which is optimized for achieving desired outcomes such as large numbers of publications in high-ranking journals or acquisition of funding from reputable grant providers. Hence, an individual university such as EUR striving toward more transformative scholarship faces a goal conflict between 'societal engagement' and 'international competitiveness'.

This goal conflict at the university level trickles down to the level of *individual researchers* within the EUR with their own specific *goal conflicts*. While they are encouraged to 'have impact' and can now report on their civic engagement activities in their annual evaluations, they are mostly still evaluated based on the 'classic' metrics. Many respondents stated that there is "no recognition" (IP_6) for civic engagement and that it is "not really valued" (IP_25) in the logic of the academic system. Likewise, IP_22 elaborated that "in the end, it is about what you publish. So even when we say we want someone who has a positive societal impact, […] it's still about publications". In consequence, even for those

researchers motivated to do transformative research, 'impact metrics' can become an additional burden: "It's sort of adding hoops through which you have to jump as a researcher" (IP_13).

While they are increasingly appreciated at EUR, engagement activities take resources away from what is considered 'core' research work (e.g., publishing, acquiring funding), leading to a potentially lower publication output in a highly competitive academic environment. IP_9 described it as follows: "I see that a lot of people want to move towards a new type of science and engaged work. But there is a lot of insecurity. What does that mean for my career if I am still evaluated in the old way?".

Civic engagement activities are particularly challenging for people "in tenure track positions or aspiring to some kind of promotion, who really need to get the tickets and move forward" (IP_25). Hence, researchers at early career stages are "particularly vulnerable" (IP_20) when doing transformative research because they still have to prove themselves and demonstrate that they can work within disciplinary norms. Moreover, although evaluation criteria for researchers considering civic engagement are currently being put in place at EUR, these are not well suited for researchers at earlier stages of their careers. Taken together, even at a university like EUR with its solid strategy for pursuing transformative research, in case of researchers striving for PhD degrees and tenure, the "incentives for doing transformative research are not as strong as the incentives for the more traditional, disciplinary research" (IP_F18).

Finally, there is a *goal conflict for researchers* striving for success in the broader academic system, which is "an international playing field" (IP_23). In particular, those researchers who cannot or do not want to stay at EUR face intense international competition. Most university hiring committees still apply conventional metrics; engagement activities are often simply not weighted as strongly.

4.3. Two different sets of strategies of transformative research

Our axial coding revealed that, depending on the constellation of forces, researchers follow different strategies for transformative research (Fig. 1, area 'Strategies), which we have aggregated as: 'transforming through research output' and 'transforming through research process'. In the following, we describe these two sets of strategies as ideal-types (Weber, 1978; Stapley et al., 2022), that is, abstractions that may rarely be found in their pure forms. Instead, in 'reality', transformative researchers may apply nuances and combinations thereof. A summary is given in Table 1 and Fig. 2.

4.3.1. Transforming through research output

By 'transforming through research output', we refer to a set of research strategies with the goal of achieving academic excellence according to the criteria of the academic regime while at the same time producing an outcome that serves a higher purpose (i.e., a benefit for society).

Researchers pursuing such strategies first gain new knowledge through scientific inquiry and then "go into society and bring their knowledge there and have discussions on how things can be changed" (IP_17) or "have a voice in the public debate" (IP_22). Part of this set of strategies is the consideration that excellent research output (e.g., a scientific article) builds the basis for engagement through dissemination (e.g., in blogs or media). For example, IP_28 elaborated: "If you have A-level publications, you can get the maximum amount of exposure. [This] gives you the platform to have credibility, to have your TED talk or book or whatever wider and bigger sort of impact". What is more, impact through education is part of 'transforming through research output', as IP_20 explained: "The highest impact on society is, of course, by our students going out to do all kinds of work".

Researchers pursuing 'transforming through research output' are nevertheless wedded to the norms of the academic system. They are usually aware that relevant questions cannot always be answered by

Table 1
Characteristics of different strategies of transformative research.

	Transforming through research output	Transforming through research process
Description	Pursuit of academic excellence with an outcome that serves a societal purpose	Engagement in societal challenges through scientific knowledge and research methods
Mechanism of impact	*Impact through research output* via relevant publications, teaching, and dissemination (e.g., blogs, media)	*Impact through research process* by changing the 'real world' in the course of the research process (e.g., action research, stakeholder engagement)
Conformity with academic regime	*Committing to norms of academic regime* i.e., striving for academic excellence in line with the criteria of the academic system; largely following disciplinary norms; acknowledged procedures applied to societally relevant topics and settings	*Complying with requirements of academic regime* i.e., meeting demands of their academic job (e.g., publishing the required amount) but focusing on engagement; oriented toward stakeholders' needs; research methods often outside disciplinary norms
Constellation of forces	*Forces toward transformative research:* personal values and intrinsic motives; changes in recognition and reward at university; changing requirements in the academic system regarding funding	*Forces toward transformative research:* strong personal values and intrinsic motives; view of role of university as 'actor of change'
	Forces toward conventional research: view of the role of university as free space for knowledge creation, role of researchers as providers of that knowledge; external pressure (e.g., requirements of qualification, tenure, promotion); competition in broader academic system	*Forces toward conventional research:* need to produce outcomes that are accepted as 'scientific' within the conventional academic system to secure job, obtain resources (e.g., funding, PhD students); a good academic reputation increases opportunities for societal impact
Main challenges	Remaining competitive in the academic system despite 'engagement activities'; doubts of having 'real impact'	Meeting stakeholder needs while doing research; publishing inter- and transdisciplinary research in acknowledged outlets; publishing research outcomes with 'uncommon' research methods

using standard research methods but indeed perceive the scientific community to be demanding these methods. As IP_9 explained, when trying to use an unconventional method, "you get into this swamp of methodology discussions because [...] within our scientific community, we tend to say we need to stick to our rigorous methods. Otherwise, you can't get it published". Hence, in many cases, these researchers follow standard procedures because "it's easier. If you try something new, you might need to justify it more" (IP_6). This strategy of committing to the norms enables transformative researchers to publish in highly acknowledged outlets and thus succeed in mainstream academic terms.

A closer look at the constellation of forces revealed a common pattern for the strategies of 'transforming through research output'. Besides intrinsic motives (e.g., desire to do something meaningful), strategies of 'transforming through research output' are encouraged by additional *forces toward transformative research,* such as changing recognition and reward structures that account for 'engagement activities', as well as changes in requirements for research funding or changing topics in scientific journals, at conferences, and for awards (see section 4.1.).

At the same time, scholars pursuing these strategies usually perceive strong *forces toward more conventional research*. Some of them regard universities as arenas of knowledge production that provide scientifically informed perspectives on the challenges of our time and see themselves as providers of that knowledge by applying the most rigorous scientific methods, which, in turn, encourages them to stick to conventional research. On that note, some of the researchers pursuing these strategies view the classic job of an academic as one of the best ways to engage in society, as a quote by IP_28 illustrates: "I just believe in a more sustainable world and, at this point, I think academia is the best way to achieve that".

In addition to these intrinsic forces, our data revealed several strong external forces related to requirements for qualification (e.g., PhD), tenure, or a promotion (e.g., to Full Professor) pressuring one along to more conventional forms of research. These extrinsic forces are particularly strong for academics at early career stages. As IP_19 explained, "a lot of tenure trackers […] only focus on getting tenure within three or four years. They just have no interest in losing time on talking with other people". The same holds true for those who have to compete for academic positions within the broader academic system where "A-level publications" (IP_28) and h-indices are still the most critical criteria for success.

Researchers pursuing 'transforming through research output' benefit from the EUR's 'impact strategy'. While some claim a discussion of the exact definition of impact (e.g., "Who will impact whom, by doing what?"), they generally appreciate the foreseen change in the evaluation criteria that puts a stronger emphasis on civic engagement. Furthermore, they realize that EUR's new mission can be seized for their purposes, as IP_25 describes: "I think that we inevitably […] try to strategically use the space for impact […] to make our research more prominent or more relevant or get more funding".

Researchers following these strategies face several obstacles. Even if they are able to publish their work in recognized academic outlets, engagement activities take away time from publishing. Hence, in a competitive academic environment where many academics are "leaving academia despite career prospects" (IP_20), it can be challenging to be both engaged with the community and to publish at the levels required. At the same time, some transformative researchers pursuing these research strategies that are more leaning toward mainstream academia ask themselves if what they do is really useful. As IP_3 put it, "there is also a bit of a struggle: How do you maintain your own academic interests while also being relevant for policy?".

4.3.2. Transforming through research process

The set of strategies of 'transforming through research process' aims for societal impact and relevance already while carrying out the research. Hence, this set goes beyond the dissemination of knowledge. It can include activities such as co-defining the research question with stakeholders as well as "co-designing the intervention" (IP_9) and data collection, as illustrated by a quote by IP_6: "For this final research, I thought, 'OK, I can do interviews again and share them with people. But what if we can actually make it into some kind of co-creative process?'".

Researchers pursuing 'transforming through research process' tend to fulfil the basic requirements of their job within academia ("I publish what I need to publish", IP_10) and focus on a positive contribution to the 'real world'. They use the freedom and status of their academic role to address complex societal problems, which often cannot be tackled by standard research methods. In many cases, researchers following these strategies have to develop new trans- and interdisciplinary research designs that fit their purposes. They often put in signficant effort in building trustworthy social relationships with stakeholders outside academia to involve them in all stages of the process.

Our data suggest particular constellations of field forces related to the set of strategies 'transforming through research process'. Researchers pursuing these strategies usually perceive strong (individual-level) intrinsic *forces toward engagement*. They typically see little merit in academic research without practical relevance, view a university's role as an 'agent of change' and tend to feel an ethical obligation to give something back to society or "speak out on injustices and unsustainability" (IP_27). While they reported that different forces toward transformative research at the university and academic system level (see section 4.1) encouraged their engagement activities, some of these researchers were rather critical regarding the seriousness of the 'impact movement' at EUR. They perceived it as an ambition rather than a reality and in some cases even as a form of "impact washing" (IP_21). Similarly, IP_24 feared that despite the impact strategy, "everyone will remain doing what they have been doing for the last ten years. They just come up with a beautiful story, why it's very impactful". Nevertheless, they believed that "in the last five years, within EUR, there is a bit more chance for people like me" (IP_24) – that is, for those following strategies of 'transforming through research process'.

At the same time, these researchers are exposed to the common overarching pressures of the academic system and thus experience *forces toward more conventional research*. First, in order to meet the requirements of their jobs, they have to publish a minimum amount of research articles. Such 'successes' in conventional terms are also needed if they want to scale their activities – access to resources (e.g., human resources such as PhD students) is dependent on being considered successful along conventional metrics. Finally, the status and reputation of their position enable them to ultimately have an impact. For instance, IP_27 explained that they deliberately seize their position as "[Mr/s]. Professor" to "criticize the regime" or to "speak truth to power".

Yet, these pressures are not perceived as existential by those pursuing strategies of 'transforming through research process', for example, because these scholars are tenured and thus lack strong further aspirations of climbing the academic ladder (e.g., becoming Full Professor). As an Associate Professor (IP_19) from our sample said, "I'm working at the [anonymized unit] because I want to make a change. I want to do this research and I know that doing this blocks my career. But I don't care too much about it". Other reasons why they may be less affected by pressures of the academic system are that they work in a 'niche', like a research institute purely dedicated to doing transformative research, or have created their own niche, for example, by doing consulting work next to their academic jobs, which gives them more independence.

As the main obstacles to 'transforming through research process', researchers explicitly mentioned a lack of time and resources. However, a closer look into the data reveals additional, more profound challenges. The first is due to the goal of putting participants' questions and needs center stage. This comes with several risks, one of which is related to research topics and questions. That is, stakeholders frequently "have very practical questions. So it's not always possible to publish related to it" (IP_24). Moreover, stakeholders may be interested in questions on which much research already exists and say, "'But I don't know about that research. Can you please tell me?'" (IP_21). The problem then is that the researcher "has no time to share earlier research" or "doesn't think that it is the task of the academic to inform people what research is available" (IP_21). Hence, the core principle of reciprocity in transformative research is at odds with the output-driven 'efficiency' principle of the current academic system.

The second challenge is related to applying non-standard research methods. Part of the problem is the current understanding of knowledge development underlying existing structures of the academic system: "The structures are built to facilitate a way of doing research that is, to a large extent, linear. It's about applying methods to develop knowledge and understanding, then formulating recommendations and then giving them to policymakers" (IP_27). However, academic engagement methods are often not sequential: "At [anonymized unit], we do action research with an impact focus. And I experienced how challenging it is to do that in a traditional academic environment" (IP_30). Deviating from standard methods can make it difficult to publish research findings because, in the peer review system, reviewers usually reward papers written in line with disciplinary standards and often reject those that

deviate. Hence, researchers sometimes retrofit their methods, like IP_6, who did stakeholder workshops, explained: "I'm trying to fit it within the existing frameworks. I'm calling it a focus group with an action research aspect in it. I would prefer to say, I did workshops […]. But then I'm afraid that [reviewers] won't accept it". Hence, such academic engagement can be challenging due to judgments from the powers of the academic regime on what constitutes '(good) research'.

In conclusion, our interviews suggest that, as things stand in the current system, pursuing strategies of 'transforming through research process' requires the readiness to put one's professional aspirations on the back-burner. While tenured Assistant or Associate Professors can have much freedom to do what they want in their research, some feel that "people [who do that kind of transformative research] can never become real professors. The ceiling stops at the Associate level" (IP_10).

5. Discussion

The motivation underlying our work was to gain in-depth insight into how scholars conduct transformative research in the current academic system in order to better understand how the potential of research for tackling sustainability challenges and other societal problems (Sauermann et al., 2020) can be reaped. Our findings revealed forces and force conflicts, as well as strategies for transformative research in the face of those conflicts.

5.1. Forces and force conflicts related to transformative research

Using Lewin's (1947a, 1947b, 1951; Kump 2023) field theory as a lens, we found forces at work toward transformative research at different levels, including broader society (e.g., 'Zeitgeist'), the academic system (e.g., funding schemes), the respondents' university (e.g., 'impact strategy'), as well as the individuals themselves (e.g., desire for purpose in one's research). It seems that, currently, multiple actors (e.g., funding agencies, research managers) are coming together in their implicit and explicit efforts to mobilize research on grand challenges.

Nonetheless, our findings testify to the conflictual and contested nature of the academic system's transition toward transformative research, where field forces compel individual researchers and the university in different directions, creating different types of force conflicts. One set of force conflicts that we observed is related to organizational and individual identities and roles. Researchers that view universities as arenas of scientific knowledge production and conceive of themselves as 'objective' observers are struggling with some of the implications of 'impact' and 'engagement' movements. These findings correspond with earlier work by Bien and Sassen (2020) who observed that reactions to an attempt to introduce an 'impact strategy' at a university varied based on the prevailing understanding of science, as well as the disciplinary backgrounds and dependencies that influence researchers' identities.

In addition to identity conflicts, we found goal conflicts for EUR related to the tension inherent in pursuing an 'impact agenda' without compromising its reputation and status as one of the 'top 100 research universities' worldwide.[3] These conflicts at the university level had repercussions for individual researchers, too. Respondents perceived that even at EUR, which had committed to a rigorous 'impact strategy', they were still mostly rewarded (e.g., through tenure, career progress, or resources) for classic academic outcomes, whereas engagement activities were desirable and could be reported, but did not bring about any concrete benefit. These findings are in line with known tensions of citizen science research and transdisciplinary research (e.g., Adler et al., 2009; Bien and Sassen, 2020; Sauermann et al., 2020). They also bolster Reed and Fazey's (2021, p. 2) concerns that universities are adding

"impact or implode" to the "publish or perish 'mantra'"; it seems that, currently, for many transformative researchers, engagement activities create an additional layer of burden to academic work.

5.2. Strategies for navigating force conflicts

Our findings revealed ideal-typical sets of strategies for dealing with those force conflicts. Using the set of strategies of 'transforming through research output', transformative researchers focus on impact through research outcomes, therein staying closer to conventional understandings of academic research where research activities and civic engagement activities are separated, and the latter often only manifest at the end of the research process. With the second set of strategies of 'transforming through research process', transformative researchers focus on impact already whilst conducting the research, while engagement occurs at different points in time. The different strategies to transformative research are an expression of actors skillfully navigating a highly dynamic environment depending on the forces they experience.

One of the central claims of Lewin's field theory (1951) is that the constellation of perceived forces, as well as force conflicts, ultimately change over time and across circumstances. In the context of transformative research for sustainability, Elangovan and Hoffman (2021) theorized on doubts and perils for academics at different points in their career. They argued that, while at all career stages—from doctoral student to professor emeritus—A-level publications remain relevant, yet forces for publishing become less existential over time; hence, academics at later stages in their career may have the latitude to focus more strongly on civic engagement. Indeed, our data enrich and refine these arguments. That is, due to the specific constellations of field forces at work (see sections 4.3.1 and 4.3.2), earlier career scholars who are aiming to succeed in the academic system tend to stick to strategies of 'transforming through research output', and in so doing, are only able to move on to strategies of 'transforming through research process' later in their careers. However, this opportunity to change strategies at later career stages does not always manifest in practice. At this point, established scholars may have become so used to the reward systems of the academic system that they have tried to satisfy throughout their entire academic lives and developed such specialized knowledge on how to meet those demands that it becomes hard to change how they operate, what they know and, eventually, who they are in their professional identity as such (Kump, 2019).

6. Conclusions and implications

With our work, we advanced the understanding of those who do transformative research in the current—highly dynamic—academic system. Our findings have implications for research policies aiming to foster and mainstream transformative research at universities.

The existing academic system is organized around an understanding of universities as 'arenas of knowledge production' with researchers being the 'producers'; that is, the expert knowledge holders and analysers of that knowledge. A shift toward more transformative research challenges these established identities and roles. To facilitate the transition towards more 'relevance', governmental policymakers may convene spaces for and engage in discussions on the said role of universities and researchers in society.

Moreover, beyond talking about desired changes, there is a need for coordinated policy interventions and changes in incentive structures for rewarding civic engagement activities. Most importantly, funding design, which is crucial for changing academic norms and practices (Benner and Sandström, 2000), needs to be revamped altogether as engagement activities are less likely to fit into the traditional academic funding logic. Funding opportunities may be offered that account for the two ideal strategies of transformative research. For instance, funding for 'transforming through research output' is possible within the traditional project logic but requires a stronger focus on disseminating research

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[3] https://www.timeshighereducation.com/world-university-rankings/erasmus-university-rotterdam.

outcomes to a broad group of stakeholders (e.g., through media or stakeholder dialogues). In contrast, funding for 'transforming through research process' requires a reconsideration of linear research project logics and has to account for a certain unpredictability of tasks and outcomes when working in close collaboration with stakeholders.

Moreover, individual universities may reflect on their intended role in society and the focus and goal of their strategies for impact and civic engagement. Based on such a reflection, research management could consider what type of transformative research to support (i.e., transforming through research output, transforming through research process, or any combination of both), and to what extent this should be institutionalized. They may decide, for example, to increase the variety of all researchers' activities or allow for diversification of academic staff members (e.g., some do basic, some transformative research). Alternatively, they may want to mainstream transformative research across their faculties or host the expertise in an interfaculty expertise center, which connects faculties and builds up a transformative research community and identity along with the necessary reward, support, and educational structures.

Importantly, researchers need training to do transformative research. Beyond science communication or media competence, they need to develop attitudes, skills and competences for engaging with societal stakeholders (Sauermann et al., 2020). With the necessary skills, 'transforming through research process' may lead to outcomes and insights that cannot be gained with conventional research methods.

The broader impact of transformative research (especially for strategies of 'transforming through research process') cannot be fully captured in traditional performance metrics (Reed et al., 2021). Hence, instead of making civic engagement another 'hoop to jump through', research managers may need to think of alternative reward systems that reduce force conflicts and allow for and support heterogeneity in researchers' activities. In the same vein, they may think of ways to ease the additional burden that engagement activities put on individual scholars, for example, by reducing their teaching load or allowing them to focus on different aspects (e.g., teaching, engagement) at varying stages of their careers. It is thus crucial to differentiate between support based on career level for preventing especially early-career researchers from being left behind.

If they take engagement strategies seriously, research managers must face the fact that individual transformative researchers are currently "forced to [make a] trade-off [between] reputation and societal impact" (Fontana et al., 2022, p. 13) and are thus exposed to substantial career risks in the broader academic system. Hence, pursuing a strategy of increased societal impact implies that research managers have to find ways to mitigate those risks. These may entail new job roles for academics at their universities (e.g., integration experts; Hoffmann et al., 2022), as well as career paths centered on 'transforming through research process' rather than mere scientific excellence. This may also create new opportunities for talented scholars who would otherwise leave academia altogether.

CRediT authorship contribution statement

Barbara Kump: Conceptualization, Formal analysis, Investigation, Methodology, Supervision, Writing – original draft, Writing – review & editing. **Julia Wittmayer:** Conceptualization, Formal analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing. **Kristina Bogner:** Conceptualization, Formal analysis, Investigation, Methodology, Visualization, Writing – original draft. **Mayte Beekman:** Data curation, Formal analysis, Investigation, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The data that has been used is confidential.

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