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The Medical Tech Facilitator

An Emerging Position in Dutch Public Healthcare and Their Tinkering Practices

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Abstract

This article focuses on the emerging position of the 'medical tech facilitator' developed by practitioners in the Dutch public healthcare system. The analysis is based on anthropological fieldwork conducted in Dutch hospitals. It highlights, firstly, the practices and ongoing negotiations that these facilitators engage in, to maintain a position between two parties—the medical sector and the technology industry. I argue that the practices of medical tech facilitators are not (only) a result of personal, lucrative interests, but should be seen as a pragmatic way of coping, or tinkering, with a healthcare system that is experienced by them as frustrating and inefficient. Secondly, the article reveals the outcomes of these practices for public healthcare. I will pose that this emerging and ambiguous position leads to a co-production of specific health policies—something which is concerning, considering the fact that medical tech facilitators typically lack technological expertise. As such, they both resist and reproduce the problems they experience in their daily work.

Keywords

Digital healthcare, Tinkering, Dutch healthcare system, Medical tech facilitator.

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Introduction

It is past 6 p.m. The waiting room area, visible from the staffroom through large windows, is nearly empty. Only a cleaner walks in circles in the hallway, slowly, pushing his mop and a bucket with water and soap. M. closes the door to the hallway, then rolls his chair closer to me and says, in a frustrated tone of voice:

> My work with this [technical] device is possibly going to save our patients' lives and might solve many of the problems that this hospital faces, but it feels like I am doing all of this pioneering work by myself—my colleagues are more often critical than supportive.

The 'work' that M. refers to here isn't his day job as a clinical expert in the hospital, but the additional activities for which he gets paid an extra salary by a technology startup. M. tests a health app that was developed by this technology company. He does so on a frequent basis during his work, and is paid for every hour. Moreover, he also serves as a consultant, advising the company on how to move ahead in the field of health, and, as a sort of lobbyist, he actively provides them with access to a larger market. He has joined them for sales pitches with health insurers and at other sales events, both in and outside of the Netherlands. He calls this a 'side job', but M. spends at least as much time on his work for this company as he does working for the hospital. He even spent a full year abroad exploring a potential new market for the company—a year which was formally a sabbatical from the hospital for him to spend more time with his family.

Nothing that M. does goes against the rules or stated values of the hospital he works for. The name of the tech company is mentioned on his LinkedIn page; the hospital board knows about his extracurricular activities and has formally approved them. Their permissiveness is not shared by his direct colleagues, as M. told me that evening in the staffroom: many of them overtly or covertly criticise him for wearing two hats.

This article tells the story of the rise of what I call 'medical tech facilitators' in the Dutch public healthcare system. These professional caretakers, whom I have observed repeatedly during my long-term anthropological fieldwork in Dutch hospitals, take on a double role as medical experts and lobbyists for partnering actors in the tech industry. Whilst it is impossible to estimate how many medical experts can nowadays be considered medical tech facilitators, without exception all my interlocutors believed the numbers were fairly large (everyone knew at least one in their department), and growing. I have come to believe that there is a rising trend of medical tech facilitators on an international scale; there exists literature suggesting so too (e.g., Hoeyer 2019 on the Danish health system). However, in what follows I focus on this phenomenon in the Dutch context.

The position of the medical tech facilitator is not static. Instead, my analysis shows that it needs to be continuously maintained through practitioners' ongoing interactions with, and (time/energy) investments in the technological industry. At the same time, it needs to be negotiated with, justified to, or—sometimes—hidden away from colleagues in the hospital who disagree with the practices of medical tech facilitators, and who question their sincerity as medics. As such, it is reminiscent of the theoretical concept of 'tinkering', as utilised by Mol (2010) and Mol, Moser and Pols (2010). Their work on tinkering refers to the ways in which caretakers find local, practical solutions through attentive experimentation: a reflective and experimental process of all involved, through which care practices are continuously (re)invented. As clients and contexts are ever-changing, tinkering is an ongoing process and needs to be attentively followed in studies, as it can only be established in practice (Willems and Pols 2010; Heerings et al. 2021). It is for that reason that the practice of what is perceived by caretakers as good care, is conceptualised as *'persistent* tinkering in a world full of complex ambivalence and shifting tension' (Mol, Moser, and Pols 2010, 14, emphasis added).

The first part of my analysis traces how the position of the medical tech facilitator is persistently shaped by the fields in which they work, as well as by the technological opportunities therein, and by my interlocutors' own (discursive) tinkering practices. In other words: the positions of the medical tech facilitators are constantly re-interpreted by their interactions with the actors, both human and non-human, around them. In this study, key actors include representatives of technological startups developing mobile applications and algorithms that support care work, and clinical colleagues disapproving of the decisions and practices of medical tech facilitators. The second part of the analysis reveals an equally strong inverse influence: beliefs and facilitating practices of medical tech facilitators also impact policies relevant to the public healthcare system, and hence, to their own work.

My observation that professional caretakers sometimes are influenced by, collaborate with, or make money via the corporate sector is obviously not a new one. There exists much literature about medical 'mediators' or 'facilitators' being paid by the pharmaceutical industry, with case studies from all over the world (e.g., Berkhout 2021 and Dehue 2014 on the Netherlands; Wachter 2017 on Western Europe; Ecks and Basu 2014 on India; and Oldani 2004 and Matheson 2008 on North America). It could thus be argued that the tinkering practices of medical tech facilitators are merely an extension of this well-known position, albeit in a new field (medical technology). However, in this article I argue that the impact that my interlocutors have on public healthcare is not just potentially as damaging as collaborations with Big Pharma, but also highly untransparent and unpredictable.

In order to build that argument some foundations must be established. First, the context section maps out the public healthcare system in the Netherlands, sketching the challenging circumstances under which professional caretakers work, and in which the position of the medical tech facilitator has emerged. Next, the methodology section outlines data collection, and pays attention to major ethical and positional issues. I then move on to describe common practices and beliefs underlying the position of the medical tech facilitator.

In the first part of my analysis, I show how facilitating practices and interactions with the technological industry help these practitioners to pragmatically cope with the problems and frustrations of their daily work, and also how their positions are constantly negotiated through and with disapproving colleagues at their hospitals. The second part of the analysis considers the potential impacts of the tinkering practices of medical tech facilitators on their own work and wider society, especially when they engage in techniques in which they lack training and expertise. The conclusion relates these findings to other scholarly work about emerging positions or roles in times of social or economic change. Importantly, here, I raise the inherent risks of classifying positions or groups into overly static or impermeable categories—and discuss how a more dynamic understanding of what Mol, Pols and others have conceptualised as 'tinkering' in a care environment can inspire a more careful approach.

Context: Public healthcare in the Netherlands

Over the past decades, the Dutch healthcare system has gradually changed from 'social service to a commercial industry' (Wachter 2017, 24). According to different scholars, especially since 1986, the sector has turned 'merchandise'[1] (Rutgers 2018, 11; see also Maarse 2011; Maarse, Jeurissen, and Ruwaard 2016; Tuohy 2018) and is now characterised as 'managed competition' (Groenewegen 1994; Hassenteufel et al. 2010; Helderman and Stiller 2014; Hester van de Bovenkamp, Annemiek Stoopendaal, and Ronald Bal 2017; Bertens and Vonk 2020). The changes stemmed from a growing concern among Dutch policymakers and medical experts about the increasing percentage of gross domestic product that was being spent on public healthcare. There existed a widely shared feeling that this could not continue indefinitely, because healthcare threatened to become unaffordable in the long run (Trappenburg 2021). Solutions were sought to make healthcare cheaper through keeping the basic insurance package limited, progressive disengagement of the state from health service provision, and so-called 'new public management measures' which facilitated the marketisation of some publicly funded healthcare services (Mason and Araujo 2021; McKee and

1 All translations from Dutch to English are the author's own.

Stuckler 2012). Together, these processes have paved the way for growing private involvement in healthcare delivery.

This situation is not at all unique to the Netherlands. New public management measures, state disengagement from healthcare provision and funding, and the active fostering of private endeavours in healthcare funding and delivery have taken place in all European countries during the 2000s (André and Hermann 2009; Maarse 2006; Schmid et al. 2010; Kehr, Muinde, and Prince 2023; Eurofound 2011, 5, 11), as well as in the UK (Dowling 2021). One of the most visible indications of the extent of healthcare privatisation in Europe is the growth of a lucrative market for the corporate, for-profit provision of health services (Lethbridge 2013, 14; André and Hermann 2009; Krause and Ezzedine 2023). This process has affected countries across the European region (Lethbridge 2013; Kehr, Muinde, and Prince 2023).

Indeed, several of the practitioners that participated in the presented research complained to me about the ever-growing amount of tech startups that visited hospitals for sales pitches. One hospital manager even confided that she had forbidden such visits, because it was overly distracting for her—already overburdened—medics. She also admitted, though, that tech companies and medics sometimes agreed to meet outside work hours in the office, at conferences or even in their private homes, and that this sometimes led to collaborations. Below, I will show how these collaborations look like, how they are developed and maintained.

Methodology, ethics and positionality

Over the course of one and a half years (2021–2022), I conducted anthropological fieldwork in the Dutch public healthcare system, which included hospitals, international and national medical conferences, and lobby events for the medical tech sector. To do anthropological fieldwork in medical settings can be challenging as it involves sensitive, private knowledge of both patients and caretakers, which is why it is relatively uncommon (Long, Hunter, and van der Geest 2008; but there exist splendid recent examples of ethnography in hospitals and other care locations, e.g., Featherstone and Northcott 2022). In this case, the focus of my research was not on the patients, but solely on their professional caretakers and other key stakeholders in the realm of public healthcare provision.

The main methods used during fieldwork were semi-structured in-depth interviews with 30 medical experts, tens of informal conversations with key agents in the public healthcare domain, as well as participant observation in canteens and staffrooms of medical centres. I also observed during medical conferences and lobby events, as I followed key actors in this study to the professional events they

attended. Whilst the formal interviews led to useful insights, it was during these moments of travelling together and standing in line for the lunch buffet at work events that trust was built between myself and practitioners participating in the study. This proved crucial, given the tension that existed between practitioners who positioned themselves as medical tech facilitators, and medics disapproving of collaborations with the technology industry. These tensions were hardly ever expressed during first interviews; it was only in later or more informal conversations that gossip, accusations, and frustrations were shared with me. At med-tech conferences, where they met with (current or potential) technology partners, practitioners seemed more open than in hospitals, where medical tech facilitators are surrounded by disapproving clinical colleagues. They appeared more direct and concrete about their beliefs, and—as we will see below, tech-optimist—hopes for the future. Most importantly: observing during such events offered me indispensable information about the practices in which medical tech facilitators engage to maintain and negotiate their positions. I learned that this was done in the shaking of hands, the clapping on backs, the munching on cheese sandwiches during ‘pitch’ lunch meetings organised by tech startups, and the sharing of future dreams between practitioners and programmers, in which technology would offer solutions to most of practitioners’ problems. It was then and there that I saw how the economy of health is developed in practice.

Ethnographic data added to scientific literature research, analysis of newspaper clippings and relevant podcast recordings. Interviewees were selected using ‘snowballing’ techniques: initial participants were asked about who else they deemed influential in the field of healthcare, and introductions to these new interviewees were made through them, which enabled easier access. Again, the issue of trust was very important here: if practitioners who themselves collaborated with the technical industry introduced me to a colleague doing the same, the conversation was more open from the start and I was able to get a more holistic, honest idea about the way in which these people carve out their facilitating positions.

In order to protect the privacy and wellbeing of my research participants, I have anonymised their names, as well as important and telling details like the hospitals that they work in. Audio recordings were made of almost all the interviews; if the interviewee was not comfortable with that, I made notes by hand during the interview and recorded my additional observations and memories of the interview directly afterwards. All data was coded, anonymised and stored digitally, and analysed by myself and a research assistant.

One limitation of this article is that it mainly discusses the behaviour and perspectives of interlocutors interested in, and working with, the technology

industry. In turn, it allows very little space for the many medical experts whom I also came across in my fieldwork, and who oppose the usage of (too much) technology in their practices, or who principally reject collaboration with the tech industry; I write more directly about their experiences and counter-tech actions elsewhere (Van Voorst, forthcoming).

Medical tech facilitators

In a medium-sized hospital in Amsterdam I met with W., a 35-year-old female doctor and medical researcher who works with the tech sector to conduct studies on an algorithm that detects cancer from diagnostic imaging. On the tech company's website, she is described as an affiliated researcher and academic spokesperson—something that she admits to feeling uncomfortable about: 'I wish they wouldn't openly call me that, but it's part of the deal. It's only a startup though so I don't think many people will see their website.' Many people might see her work with them in real life, though: W. has joined the founders for meetings with health insurance companies where the aim was to sell the product, and tells international colleagues from outside her own hospital about it at international conferences and in other public talks, often in countries that might offer new clientele to the company.

W. wears pink sneakers below her white coat. She is cheerful and direct in conversation. We have been messaging back and forth over LinkedIn and email before we meet, and now that we sit face to face in the hospital where she works, W. explains without any hesitation that, while she does not receive a direct salary from the company, they pay for two PhD researchers on her research team: 'A dream come true, to have them working for me and test out the things we do. They can help me understand and prove what works, and what doesn't.' She has also accepted fungible materials from the company, including computers and other hardware. Like M. (the doctor mentioned in the introduction to this article), W. receives criticism from her closest clinical colleagues. This annoys her, as she believes the judgements are based on a double standard:

> 'Every doctor high up the ranks in this very hospital collaborates with the pharmaceutical industry. They are all happily being paid by Big Pharma for trips and talks and whatnot. But I'm choosing a different industry, and suddenly I am an unethical doctor?'

The question was clearly rhetorical, as W. firmly believed she was doing the right thing—something that would help her future patients, and improve her clinical work. 'Human doctors make way too many mistakes. We misdiagnose,' she went on. 'This algorithm, not yet now but once the developers manage to code it in the

right way, will not do that anymore. This is the future of health, so I'm proud to contribute to it.'

Maybe so, but that pride does not show during our interview, which is set in the spacious and public hospital canteen on a busy weekday. While patients and visiting family members sit near us W. speaks openly, but when two members of medical staff sit down two tables away, she asks me to move to somewhere more private, which we do. When I ask her why, she denies that it was because she wanted to avoid her colleagues hearing about her collaboration. According to W., they 'talked too loud and that was distracting.' After our interview, I listen to the audio tape of our interview and cannot help notice that the men were not, in fact, talking much at all (and not very loudly when they were). Clearly, collaborating with the technology industry doesn't just require a large additional workload; it also requires that one hide away this work as much as possible from disapproving hospital colleagues who may question one's compliance.

E. and A. are two final examples of the 'medical tech facilitator' position. E., a male in his fifties, in fact runs a personal website that describes him as something along the lines of a 'tech doctor'. He gives keynote talks throughout and outside of the Netherlands in which he proposes that in order for public health to improve, more and better technology is needed. He is actively involved in the development of technology through investing in mobile apps, consulting for international tech companies, and lobbying for their products in the Netherlands and abroad. He is paid for all of these activities by the companies he collaborates with. In turn, he invests a large share of the money he receives into the medical department for which he works. 'And they should pay me', E. whispers to me whilst we attend the keynote talk of a med-tech conference. 'Look at all the time I spend on representing myself in these environments, becoming known as tech-savvy. As if I am not busy enough in my daily work.'

A. is 63, and works in a genome research centre. His desk is piled with books on DNA and genetic disease, and he shares similar opinions with me more than once. A. collaborates as a consultant with several tech companies who build algorithms and apps that he considers relevant or useful. He is generally paid in the form of funding for research staff and materials, and when he is paid in cash he uses it to fly around the world and talk to potential investors about the technological discoveries of the companies he collaborates with. The day after our interview, he is set to fly to Switzerland (paid for by his research institution), the day thereafter to Austria (paid for by himself), and then on to the US (paid for by one of the tech companies he collaborates with). A. is well known in the field of public health, and more than once I heard practitioners describe his work life as 'insanely busy', and him as 'obsessed'. With the technology he promotes, that is. Which made him too

busy for his medical work, or so colleagues insinuate. ‘If you fly so much, how can you expect you’re still fresh for new patients?’ wonders one direct colleague when A. couldn’t hear us, and another half-jokingly warns me that ‘if you are looking for the busiest doctor, yes, interview him. But if you need the best, come back and ask me for recommendations.’ A. certainly seems tired of the travelling, and admits he is jetlagged and exhausted when we meet (in May 2022), but he explains that it simply wasn’t an option to stop trying to scale up the technical tools he had gotten to know: ‘My colleagues are too slow in understanding that the whole public health system is currently collapsing. We need to act now [...] invest in and use more tech to help us. It is the only way forward, and I regard it my life task.’

This certainly also goes for M., who works in a medical field known for its long waiting lists—in his hospital, a new patient has to wait at least eight months before they are able to see a doctor (sometimes longer). For some patients this long waiting list leads to a diagnosis that comes too late. When M. speaks about those instances he looks sad and sorry:

> There exist too few doctors with this particular expertise. All of us here already work over hours. The application that I am testing is not perfect yet, but since the company approached me and I started collaborating with them, I have become convinced that this thing might help us in the future to work more cost-efficient and effective. It may help save lives.

Whether that is the case is of course open for future debate, but it did become clear to me that M. and his colleagues were currently under a lot of pressure. The website of the department announces that new patients should anticipate up to a year of waiting time. It was extremely hard to make an appointment with M., as his schedule is packed and a number of times he is called for extra shifts only days before the interview is scheduled. Only after reminding him several times am I able to arrange a new interview—and that too has to be postponed. On the day we finally meet I wait for 40 minutes while he performs extra work. M. keeps apologising to me, while simultaneously calling patients—he is behind schedule and according to a note in the waiting room, his delay is actually modest: that day, the average waiting time for people with appointment is one and a half hours, which, according to the receptionist I ask about it, is ‘unfortunately the norm’.

How medical tech facilitators shape the future of health

What these vignettes reveal is that, while each of the medics’ individual situations are different, they have three things in common. These factors offer a glimpse of how my interlocutors perceive the problems in the healthcare system and the imagined solutions within reach, as well as on the practices they engage in to maintain their ambiguous positions.

Firstly, although they complain about their packed hospital schedules, they choose to take up extra work hours—at weekends, after work or even during holidays—to engage in collaborations with the health tech industry. This work may include attending conferences, curating online profiles to highlight one's 'tech-savviness', and socialising with strategic actors. At the same time, this work must be hidden from or justified to critical colleagues in the hospital, who otherwise question their compliance or ethical positions. While it would be all too easy to judge the practitioners that I portray in this article for their facilitating practices, and whilst the rest of this article discusses the problematic impacts thereof, my main interest is not to take a normative perspective. Rather, I want to (also) highlight the complex and often frustrating situation in which so many professional caretakers currently find themselves. All the medical experts I met in my research initially wanted to become a doctor for ideological reasons: to help sick people get better. And nearly all of them feel they are underachieving, due to the long waiting lists in their hospitals, the ageing population, the Netherlands' weakening social security system, and the increasing time pressures they face in their daily work. Medical tech facilitators perceive their collaborations with the technology industry as a way to pragmatically cope with an inefficient, highly managerial, bureaucratic and privatised public healthcare system. They invest personally into the collaborations: time, energy, and social status among their direct colleagues. Moreover, many of them invest the extra money they earn with their tech side-businesses back into their own medical departments. Hence, they use it not to upgrade their personal lives but their professional landscape. Instead of actively resisting the system that creates problems, they work around it, constantly finding creative solutions that they believe will help their patients. This finding is reminiscent of the literature on tinkering (Mol 2010; Mol, Moser and Pols 2010)—a persistent experimenting of what works, in a specific circumstance—I elaborate in the second part of my analysis.

Secondly, as justification for their ambiguous roles, medical tech facilitators use a discourse about a collapsing health system, and offer an optimistic solution that must, inevitably, come from technology. In their narratives, only the innovative and resourceful corporate sector, in collaboration with pioneering medics, would be able to solve the issue of public healthcare. This veils the politics behind every technological innovation (Pfaffenberger 1992), portraying the merging of the medical and the technological fields as 'inevitable'. While they often appeared bothered, concerned or emotionally affected by criticisms of their collaborations by colleagues, the medical tech facilitators I met also emphasised their pride in what they regard a pioneering, idealistic pursuit.

Arguably, their tech-optimistic discourse stems at least partly from optimistic or wishful thinking, and partly from their dependent positions: they are paid and

otherwise supported by the technological sector. But I would suggest that another dynamic is at play here as well: medical tech facilitators also utilise this discourse to justify their ambiguous positions against disapproving colleagues and other outsiders who may question their professionality or compliance. Importantly, it is through these narratives that public perceptions of what the future of health will and should look like shift.

Klaus Hoeyer remarks in his article on the Danish public health system that he gradually has 'come to see policy documents, along with conferences, meetings, workshops and public hearings as places where competing futures of medicine are articulated in ways that shape the present ...' (2019, 534). I could not agree more, adding as important additions to this list: business lunches, pitch events and business trips joined by a peculiar mixture of caretakers and representatives of tech companies. Throughout my research, I was struck by a sense of convergence between my interlocutors and tech employees, pitching their products on healthcare conferences and other relevant events. Their discourse was strikingly similar: the current health system is on the verge of collapsing, but new technology is on its way and will soon solve its problems (see Hoeyer 2019 for similar findings). This discourse feeds into the popular ideology of high technology, which regards technology as the inevitable way forward: 'in this day's high technological science, it's not as much about getting to the truth, as it is about shaping the truth' (Dehue 2014, 18; see also Seife 2015; Steinbrook and Redberg 2015; Horton 2015; Holleman et al. 2015; Stead 2017).

A third commonality between the medical tech facilitators in my research is that, while they have impressive formal training backgrounds in medicine, they are either totally untrained or autodidactic in the technology that they lobby on behalf of and/or work with. Yet they function as facilitators for this technology—technology that is mostly not transparent, logical or even understandable to them. The potentially negative impacts of the practices of medical tech facilitators, both for wider society and their own profession, must not be underemphasised. My analysis shows that medical tech facilitators have come to co-produce specific health policies through their collaborations with tech companies without being sufficiently trained in the technical side of things.

I've seen this, for example, with medics working with algorithms for diagnostic imaging, such as the one W. works with, as well as with research participants co-developing health incentive applications. While these medics are formally considered and presented by the collaborating tech company as advisors to the developers, and while they indeed describe themselves to me and others in that manner, it is questionable to what extent they can advise, check and evaluate a computer system they have not been trained to understand. Whenever I asked

more detailed questions about the technical details (e.g., why was this factor chosen and not that; how did the algorithm work exactly), it became clear that the facilitators had hardly been involved in the development process. Mostly they seemed to guess exactly how the technology worked, what had led to which decisions during the development process, and which factors had been included and excluded.

This is highly concerning, especially if technologies involve artificial intelligence, where misunderstandings of algorithmic systems may create a feedback loop of skewed outcomes. I argue that although medical tech facilitators try to pragmatically cope with the problematic circumstances under which they work, they also risk reproducing or even worsening those circumstances. Michel Callon and Bruno Latour (1981) remind us that outside observers, including social scientists, must not forget that powerful macro actors—states, global corporations, the technology sector—form a network, and are at the same time formed by many individuals. It is the 'micro' actions of these smaller actors that together construct the power of macro actors. Therefore it is important to capture in research the many negotiations, interactions and the building and maintaining of associations by which these actors function.

The next section aims to do this by looking not just at the persistent tinkering that is required of medical tech facilitators to develop and maintain their positions in a healthcare environment that they experience as increasingly stressful, inefficient and frustrating, but beyond that: to the implications of such tinkering for public healthcare.

Technical experts without technical expertise

So far, I have argued that medical tech facilitators use a tech-optimist narrative to justify facilitating practices to outsiders, and that this discourse both describes and shapes an imagined future. Concerningly, this same discourse is utilised to downplay the potential serious consequences of facilitators' lack of expertise about the technologies they are actively promoting. This may have huge and negative implications for individual and public health.

Several medical tech facilitators who participated in my research admitted that the algorithms or apps they promote are black boxes to them. They do not understand how they were made, or how they gather or process data. As noted, collaborations between medical practitioners and industry are not new, but the type of risks that are inherent to the medical tech facilitating position described in this article are. Aforementioned authors like Robert Wachter (2017), Trudy Dehue (2014), and Karel Berkhout (2021) have written about the historically familiar, yet still ongoing and ever-deepening entanglement of medics and the pharmaceutical industry in

the development of medicines. Whilst medical experts were never trained to understand details about the production of new drugs, one could still argue that the fields of pharmacy and medicine overlap. It seems, for example, likely that a doctor would at least recognise the ingredients in a promoted drug either by training or from practical experience with other similar drugs. A medical expert would also be able to understand reports on how a medicine is tested: double blind, or not; on human volunteers, and how many? In contrast, in the case of medical tech products, most often medical experts find themselves in the pitch dark.

Medical app developers regularly mentioned this lack of expertise in interviews with me. A programmer of an app that is designed to diagnose skin cancer describes the collaborative process as ‘speaking in different languages’: ‘The questions we ask, the medics we work with do not even understand. So then we just develop it as we deem right. But we aren’t doctors, are we?’ Another coder reveals: ‘The company states on the website that medics advise us, but trust me, they have nothing to do with the development. How could they? That’s not their job; they have no clue about codes.’

When probed, most of the medical tech facilitators appeared well aware of their own lack of technical expertise, and several admitted it is problematic—but at the same time they dismissed concern as unnecessary, as any problems would be solved in the near future by the tech industry. M. explains that while the collaborative agreement between him and the tech company states that he would co-develop the algorithm, in practice this proved impossible because he lacked expertise:

> I realise now that this was a naive idea, of both the company and of me. I don’t actually understand what it does, or why it works as it does. But it seems to be doing what it should, although the system also gives a lot of false alarms and that needs to be fixed in the future. The developers will get to that any day now, I am sure.

A similarly tech-optimistic hope for the future of the device she works with is held by W. ‘Now it’s just this mysterious thing that does what I used to do, let’s hope it doesn’t do something weird inside,’ she laughs. ‘But even if it would make small mistakes at this stage, the developers are constantly improving it.’

These narratives show that medical tech facilitators acknowledge their lack of technical expertise, but stick to a tech-optimist discourse to downplay that problem. The fact that they work with the technology nevertheless, and even help to promote it, is due to the interrelated facts that: they trust the staff of the tech companies they work for; they genuinely hope that in the near future technology will offer ways out for problems in their daily work, for which they see no other solution; and they

need to stick to this tech-optimistic discourse in order to justify their own ambiguous positions against disapproving outsiders.

This discursive practice might help them maintain their positions (and the idea that they are good doctors/people); it could also have massive negative implications for their own profession, and public health. If, for example, an algorithmic outcome *seems* right, but is brought about by a false process or weak data, the effects on individual patients and public health can be enormous. Another imagined negative future scenario points to the daily work of medics: if medical tech facilitators succeed expanding the use of these technologies, more doctors will be tempted to use the computer systems, and sooner than later a large part of society will likely also embark on this path, but without having a say in the route, and possibly against their will, pressured socially or by their medics.

It has by now become clear that the position that tech facilitators have carved out for themselves, and continually need to negotiate, should not be seen as a result of their personal interests. Rather, it is a response of medical professionals, gifted with the skills and willingness to socialise, work in a high-tech environment and take on consistent tech-optimist attitudes, to the daily stressors and frustrations in the public healthcare system. Interestingly, this finding accords with what others have found on informal practitioners in India, who collaborate with Big Pharma brokers and give out medicines. Jamie Cross and Hayley Nan McGregor (2010) and Stefan Ecks and Soumita Basu (2014) observe that while most studies assume these caregivers are in this business for the money, the caregivers themselves feel they do their job to serve their community—without their help, people would not get medical help when needed. Their position can thus be seen as a way in which specific medics are able to deal with challenging working conditions.

Although the circumstances are very different, this is reminiscent of the situation of the Netherlands' medical tech facilitators. They are at once pushed and pulled into their role. Pulled by the extra income, the adventure and the high technology ideology that they have adopted. Pushed by the need for resources, for a relief of the increasing pressures on their shoulders, the long waiting lists and numbers of suffering patients that they want to, but are not always able to, help.

On the one hand, the position of the medical tech facilitator helps them succeed in those circumstances—the perspective that technology will solve their problems gives them the hope to persist, while resources provided by the sector lessen the daily problems in their hospital departments. On the other, it becomes clear from my analysis that their discursive and facilitating practices both describe and shape an imagined future that may have important implications for individual and public health. Uncovering the practices of the facilitator as a way to cope with all these

needs and pressures reveals ‘the slippery relationship between capitalist resistance and its reproduction, demonstrating the importance of recognizing coping as a practice that is capable of both’ (Blankenship and Hayes-Conroy 2017, 189).

Of course, collaborations between medics and the tech sector can lead to effective health interventions. However, because these collaborations currently generally occur in ways that aren’t transparent to the public—with roles and expertise being merged, with standard ways of working being hastened or with perverse incentives for certain actors—the implications for public health could be serious and require critical attention.

Conclusion: On positions, tinkering and the reproduction of capitalist pressures

This article has offered an analysis of the practices and expressed beliefs of the medical tech facilitator, an emerging, ambiguous position that can be observed in the Dutch public healthcare system. This position is constantly reinterpreted by the practitioner’s interactions with the actors around them. My analysis exposes the ways in which medical tech facilitators develop, negotiate and maintain their positions, through interactions with the tech industry and through the justification of their facilitating practices to disapproving colleagues by promoting tech-optimist discourses.

Different scholars before me have utilised the description of recognisably distinct societal positions (in their framings, ‘typologies’ or ‘archetypes’) as an analytical lens, to gain an insight into how people’s practices can be understood as both shaped by and shaping the circumstances in which they live and work (see Baudelaire [1863] 1964; Desroches 2007; Dorn, Levi, and King 2005; Pearson and Hobbs 2001 for examples in criminology and drug trafficking studies; Nooteboom 2006 and De Haan and Zoomers 2005 for anthropological and livelihood studies). Blankenship and Hayes-Conroy’s (2017, 183) archetype of ‘capital coasters’ offered inspiring examples for my own thinking, and it is relevant here to briefly reflect how my work overlaps with and differs from theirs.

Blankenship and Hayes-Conroy (2017) describe different mediating positions that emerged out of major socioeconomic changes. They write about the relations between capitalist modernity, and what they call ‘capitalist coasters’: people that personify ‘a particular sort of privileged mobility that enables surviving within contemporary life’ (Blankenship and Hayes-Conroy 2017, 185). Interestingly however, through their coping practices coasters strengthen rather than resist capitalism. For example, ‘slow food activists’ appear to successfully navigate the capitalist food landscape by self-governing a bodily desire for less processed

foods, and by becoming admired citizen-consumers along the way. At the same time, they spend their money on expensive products, and hold on to a discourse in which shopping is crucial for social change. Blankenship and Hayes-Conroy (2017) conclude that paying attention to emerging positions like the capitalist coaster, and the ways in which they interact with the particular landscapes in which they live, is important for understanding the relationship between capitalist resistance and reproduction.

Somewhat similarly, my analysis shows how medical tech facilitators act in ways that supposedly solve the problems in their daily work, but that could equally well feed into these problems because of an absence of necessary technical expertise. However, my analysis diverges in acknowledging that categorising people into this sort of archetype presents two major risks—and it is mainly in order to avoid these risks that I have decided to look at the practices of medical tech facilitators instead through the lens of 'tinkering'.

One risk is the question of validity—what if the outside researcher labels people's practices in a way that is unrecognisable or alienating to insiders? (For discussions on this problem, see Nooteboom 2005; van Voorst 2015). In my study, medical tech facilitators are clearly recognisable to their colleagues and other insiders of the Dutch public healthcare system as a specific 'type' of medic. Colleagues typically judged their collaborative practices as corrupt, or wrong. While this suggests that the category I describe is empirically valid, nevertheless I have aimed to move beyond the staticity of this perspective by highlighting the ongoing facilitating (or tinkering) practices required of practitioners to maintain their positions. That is the second risk inherent to any type of archetypal categorisation: oversimplification, making overly rigid or static the complexities being studied. Peoples' practices and beliefs constantly change in daily life, just as roles and positions continually change in society. This becomes particularly clear in the aforementioned work on tinkering by Mol (2010) and Mol, Moser and Pols (2010). In accordance with their writing, my analysis of the emerging position of the medical tech facilitator has emphasised its flexibility and the interaction between practitioners with both their medical and technological work environments.

It has been shown that the beliefs and practices of medical tech facilitators are continually shaped by the wider dynamics and pressures that currently exist in the realm of public healthcare. Whilst their tinkering practices can be regarded a lucrative side job for them personally, this is not the full story: as I note above, often medical tech facilitators reinvest the money they earn into the hospitals and clinics they work for. Therefore, I argue that their beliefs and practices can be seen as a way to pragmatically cope, or tinker, with their realistic concerns about the

wellbeing of their patients, and emerge out of their frustrations about overwork, time pressures and a lack of resources.

Frustrated by the pressures of the public healthcare system, medical tech facilitators make use of their talents to connect, network, lobby and collaborate with the technological industry. In order to justify these practices, they echo a popular discourse that positions the public healthcare system as on the verge of collapse, and technology as its only saviour. The same discourse, I have shown, is replicated at the global conferences, pitch and sales events, and business dinners in which facilitators participate regularly as part of their collaborations with actors in the technological sector. It appears, then, that the speakers and attendees of these events constantly feed into each other's fears and hopes for the future of health by presenting technology as the much-needed, inevitable way out of what may soon become a health crisis. As such, medical tech facilitators, as self-proclaimed 'pioneers' in the realm of public healthcare who publicly announce the future of health to be high-tech, are not just predicting but also shaping this particular future.

While it is true, on the one hand, that facilitators believe that they will be better able to help their patients in the near future by making use of the technological sector's resources and expertise, this article also shows that the tech-optimist discourse utilised to maintain and justify their ambiguous position leads to an unwillingness to consider the potential risks of their collaborations. Medical tech facilitators are aware of their own lack of expertise in the technical realm, but remain inattentive to the problems that this may cause. As such, medical tech facilitators impact public healthcare policies that may lead to new stressors and frustrations that they will have to cope with. Even stronger: this type of collaboration runs the risk of leading to rambling research projects promoting new technology—a highly concerning future scenario.

Authorship statement

I am the sole author of this work.

Ethics statement

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References

André, Christine, and Cristoph Hermann. 2009. 'Privatisation and Marketisation of Health Care Systems in Europe.' In *Privatisation Against the European Social Model*, edited by Marica Frangakis, Cristoph Hermann, Jörg Huffschmid, and Károly Lóránt, 129–44. London: Palgrave Macmillan.

Baudelaire, Charles. [1863] 1964. 'The Painter of Modern Life'. In *The Painter of Modern Life and Other Essays*, translated and edited by Jonathan Mayne, 1–40. London: Phaidon.

Berkhout, Karel. 2021. *Meester van de Medicijnen: Hoe een apotheker strijdt tegen dure geneesmiddelen*. Amsterdam: Ambo Anthos.

Bertens, Roland M., and Robert A. A. Vonk. 2020. 'Small Steps, Big Change: Forging a Public-Private Health Insurance System in the Netherlands'. *Social Science & Medicine* 266: 113418. https://doi.org/10.1016/j.socscimed.2020.113409.

Blankenship, Jeffrey D., and Jessica Hayes-Conroy. 2017. 'The Flâneur, the Hot-Rodder, and the Slow Food Activist: Archetypes of Capitalist Coasting.' *ACME: An*

International Journal for Critical Geographies 16 (2): 185–209. https://acme-journal.org/index.php/acme/article/view/1383.

Callon, Michel, and Bruno Latour. 1981. 'Unscrewing the Big Leviathan: How Actors Macro-Structure Reality, and How Sociologists Help Them To Do So.' In *Advances in Social Theory and Methodology: Toward an Integration of Micro- and Macro-Sociologies*, edited by Karin Knorr-Cetina and Aaron V. Cicourel, 277–304. London: Routledge.

Cross, Jamie, and Hayley Nan MacGregor. 2010. 'Knowledge, Legitimacy and Economic Practice in Informal Markets for Medicine: A Critical Review of Research.' *Social Science & Medicine* 71 (9): 1593–600. https://doi.org/10.1016/j.socscimed.2010.07.040.

Dehue, Trudy. 2014. *Betere mensen: Over gezondheid als keuze en koopwaar*. Amsterdam: Atlas Contact.

De Haan, Leo, and Annelies Zoomers. 2005. 'Exploring the Frontier of Livelihoods Research.' *Development and Change* 36 (1): 27–47. https://doi.org/10.1111/j.0012-155X.2005.00401.x.

Desroches, Frederick. 2007. 'Research on Upper Level Drug Trafficking: A Review.' *Journal of Drug Issues* 37 (4): 827–44. https://doi.org/10.1177/002204260703700405.

Dorn, Nicholas, Michael Levi, and Leslie King. 2005. *Literature Review on Upper Level Drug Trafficking*. London: Home Office. https://webarchive.nationalarchives.gov.uk/ukgwa/20080305180128/http://www.homeoffice.gov.uk/rds/pdfs05/rdsolr2205.pdf.

Dowling, Emma. 2021. *The Care Crisis: What Caused It and How Can We End It?* New York, NY: Verso.

Ecks, Stefan, and Soumita Basu. 2014. '"We Always Live in Fear": Antidepressant Prescriptions by Unlicensed Doctors in India.' *Culture, Medicine, and Psychiatry* 38: 197–216. https://doi.org/10.1007/s11013-014-9368-9.

Eurofound (European Foundation for the Improvement of Living and Working Conditions). 2011. *Employment and Industrial Relations in the Health Care Sector*. Dublin: Eurofound. http://www.eurofound.europa.eu/eiro/studies/tn1008022s/tn1008022s.htm.

Featherstone, Katie, and Andy Northcott. 2022. *Wandering the Wards: An Ethnography of Hospital Care and Its Consequences for People Living with Dementia*. London: Routledge.

Groenewegen, Peter P. 1994. 'The Shadow of the Future: Institutional Change in Health Care.' *Health Affairs* 13 (5): 137–48. http://doi.org/10.1377/hlthaff.13.5.137.

Hassenteufel, Patrick, Marc Smyrl, William Genieys, and Francisco Javier Moreno-Fuentes. 2010. 'Programmatic Actors and the Transformation of European Health Care States.' *Journal of Health Politics, Policy and Law* 35 (4): 517–38. https://doi.org/10.1215/03616878-2010-015.

Heerings, Marjolijn, Hester van de Bovenkamp, Mieke Cardol, and Roland Bal. 2022. 'Tinkering as Collective Practice: A Qualitative Study on Handling Ethical Tensions in Supporting People with Intellectual or Psychiatric Disabilities.' *Ethics and Social Welfare* 16 (1): 36–53. https://doi.org/10.1080/17496535.2021.1954223.

Helderman, Jan-Kees, and Sabina Stiller. 2014. 'The Importance of Order and Complements: A New Way to Understand the Dutch and German Health Insurance Reforms.' *Journal of Health Politics, Policy and Law* 39 (4): 811–40. https://doi.org/10.1215/03616878-2743051.

Hoeyer, Klaus. 2019. 'Data as Promise: Reconfiguring Danish Public Health through Personalized Medicine.' *Social Studies of Science* 49 (4): 531–55. https://doi.org/10.1177/0306312719858697.

Holleman, Frits, Mick Uijldert, Lennart F. Donswijk, and Edwin A. M. Gale. 2015. 'Productivity of Authors in the Field of Diabetes: Bibliographic Analysis of Trial Publications.' *BMJ* 351: 2638. https://doi.org/10.1136/bmj.h2638.

Horton, Richard. 2015. 'Offline: What is Medicine's 5 Sigma?' *Lancet* 385 (9976): 1380. https://doi.org/10.1016/S0140-6736(15)60696-1.

Kehr, Janina, Jacinta Victoria Syombua Muinde, and Ruth J. Prince. 2023. 'Health For All? Pasts, Presents and Futures of Aspirations for Universal Healthcare.' *Social Science & Medicine* 319: 115660. https://doi.org/10.1016/j.socscimed.2023.115660.

Krause, Kristine, and Petra Ezzeddine. 2023. 'We Cannot Afford to Not Care About Care.' Episode of the *Crossroads* podcast, 7 January 2023. Prague: Deník Alarm. https://crossroads.transistor.fm/episodes/kristine-krause-we-cannot-afford-not-to-take-care-about-care.

Lethbridge, Jane. 2013. *Expansion and Consolidation? Major Trends and Eligibility for European Works Councils*. London: PSIRU; Brussels: EPSU.

Long, Debbi, Cynthia Hunter, and Sjaak van der Geest. 2008. 'When the Field is a Ward or a Clinic: Hospital Ethnography.' *Anthropology & Medicine* 15 (2): 71–78. https://doi.org.10.1080/13648470802121844.

Maarse, Hans. 2006. 'The Privatization of Health Care in Europe: An Eight-Country Analysis.' *Journal of Health Politics, Policy and Law* 31 (5): 981–1014. https://doi.org/10.1215/03616878-2006-014.

Maarse, Johannes Antonius Maria. 2011. *Markthervorming in de zorg*. Maastricht: Universitaire Pers Maastricht.

Maarse, Hans, Patrick Jeurissen, and Dirk Ruwaard. 2016. 'Results of the Market-Oriented Reform in the Netherlands: A Review.' *Health Economics, Policy and Law* 11 (2): 161–78. https://doi.org/10.1017/S1744133115000353.

Mason, Katy, and Luis Araujo. 2021. 'Implementing Marketization in Public Healthcare Systems: Performing Reform in the English National Health Service.' *British*

Journal of Management 32 (2): 473–93. https://doi.org/10.1111/1467-8551.12417.

Matheson, Alastair. 2008. 'Corporate Science and the Husbandry of Scientific and Medical Knowledge by the Pharmaceutical Industry.' *BioSocieties* 3 (4): 355–82. https://doi.org/10.1017/S1745855208006297.

McKee, Martin, and David Stuckler. 2012. 'The Crisis of Capitalism and the Marketisation of Health Care: The Implications for Public Health Professionals.' *Journal of Public Health Research* 1 (3): 236–39. https://doi.org/10.4081/jphr.2012.e37.

Mol, Annemarie, Ingunn Moser, and Jeannette Pols, ed. 2010. *Care in Practice: On Tinkering in Clinics, Homes and Farms*. Bielefeld: Transcript Verlag.

Mol, Annemarie. 2010. 'Care and Its Values: Good Food in the Nursing Home.' In *Care in Practice*: *Tinkering in Clinics, Homes and Farms*, edited by Annemarie Mol, Ingunn Moser, and Jeannette Pols, 215–34. Bielefeld: Transcript Verlag.

Nooteboom, Gerben. 2006. 'Styles Matter: Livelihood and Insecurity in the East Javanese Uplands.' In *Ropewalking and Safety Nets: Locals Ways of Managing Insecurities in Indonesia*, edited by Juliette Koning and Frans Hüsken, 175–98. Leiden: Brill.

Oldani, Michael J. 2004. 'Thick Prescriptions: Toward an Interpretation of Pharmaceutical Sales Practices.' *Medical Anthropology Quarterly* 18 (3): 325–56. https://doi.org/10.1525/maq.2004.18.3.325.

Pearson, Geoffrey, and Dick Hobbs. 2001. *Middle Market Drug Distribution*. London: Home Office Research, Development and Statistics Directorate. https://eprints.lse.ac.uk/13878/1/Middle_market_drug_distribution.pdf.

Pfaffenberger, Bryan. 1992. 'Technological Dramas.' *Science, Technology, & Human Values* 17 (3): 282–312. https://doi.org/10.1177/016224399201700302.

Pols, Jeannette. 2011. 'Wonderful Webcams: About Active Gazes and Invisible Technologies.' *Science, Technology, & Human Values* 36 (4): 451–73. https://doi.org/10.1177/0162243910366134.

Rutgers, Maarten J. 2018. *Gezondheidszorg als handelswaar: worden we daar beter van? Achtergronden en ontwikkelingen*. Utrecht: Eburon.

Seife, Charles. 2015. 'Research Misconduct Identified by the US Food and Drug Administration: Out of Sight, Out of Mind, Out of the Peer-Reviewed Literature.' *JAMA Internal Medicine* 175 (4): 567–77. https://doi.org/10.1001/jamainternmed.2014.7774.

Schmid, Achim, Mirella Cacace, Ralf Götze, and Heinz Rothgang. 2010. 'Explaining Health Care System Change: Problem Pressure and the Emergence of "Hybrid" Health Care Systems.' *Journal of Health Politics, Policy and Law* 35 (4): 455–86. https://doi.org/10.1215/03616878-2010-013.

Steinbrook, Robert, and Rita F. Redberg. 2015. 'Reporting Research Misconduct in the Medical Literature.' *JAMA Internal Medicine* 175 (4): 492–93. https://doi.org/10.1001/jamainternmed.2014.8052.

Stead, William W. 2017. 'The Complex and Multifaceted Aspects of Conflicts of Interest.' *JAMA* 317 (17): 1765–67. https://doi.org/10.1001/jama.2017.3435.

Trappenburg, Margo. 2021. 'Marktwerking in de Zorg: Privatisering en Empathie.' *De Nederlandse Boekengids* 6 (6). https://www.nederlandseboekengids.com/20211125-margo-trappenburg/.

Tuohy, Carolyn Hughes. 2018. *Remaking Policy: Scale, Pace, and Political Strategy in Health Care Reform*. Toronto: University of Toronto Press.

Van de Bovenkamp, Hester M., Annemiek Stoopendaal, and Ronald Bal. 2017. 'Working with Layers: The Governance and Regulation of Healthcare Quality in an Institutionally Layered System.' *Public Policy and Administration* 32 (1): 45–65. https://doi.org/10.1177/0952076716652934.

Van Voorst, Roanne. 2015. 'Risk-handling Styles in a Context of Flooding and Uncertainty in Jakarta, Indonesia.' *Disaster Prevention and Management* 24 (4): 484–505. https://doi.org/10.1108/DPM-04-2014-0065.

Van Voorst, Roanne. Forthcoming. 'Health Incentive Apps as Technological Drama.' In *International Handbook of AI and Robotics in Healthcare*, edited by Seonsam Na. London: Routledge.

Wachter, Robert M. 2017. *The Digital Doctor: Hope, Hype, and Harm at the Dawn of Medicine's Computer Age*. New York, NY: McGraw Hill.

Willems, Dick, and Jeannette Pols. 2010. 'Goodness! The Empirical Turn in Health Care Ethics.' *Medische Antropologie* 22 (1): 161–70. https://hdl.handle.net/11245/1.342485.