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'Meaningless work': How the datafication of health reconfigures knowledge about work and erodes professional judgement

Klaus Hoeyer ⬤ and Sarah Wadmann ⬤

Abstract

How do digital tools for datafication interact with contemporary ideas about what counts as knowledge about work? Based on a study of the thoroughly digitalized and data-intensive Danish healthcare sector, we argue that as digital datafication creates new forms of inspection and control, it also reconfigures perceptions of work throughout the healthcare system, and thereby potentially erodes goal orientation and the room for professional judgement. Although policy papers justify the accumulation of data with the aim of making decisions more evidence-based and rational, we now hear clinical staff and data analysts complaining about a 'yoke of Kafkaesque idiocy' and 'meaningless' data practices. When is something seen as 'meaningless work'? Through which dynamics does such work emerge? And what are the implications of such work?

Keywords: Big Data; datafication; digitalization; healthcare; judgement; meaninglessness.

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Introduction

What counts as knowledge about work? This question has invigorated and haunted the social sciences from their inception, and stimulated controversies between positivist approaches in line with Frederick Taylor's scientific management school and hermeneutic approaches such as those proposed by Elton Mayo and Karl Weick. These classic debates are revitalized by current policy ambitions of public sector digitalization and data-driven decision-making. In both high- and low-income countries, policymakers invest in the digitalization of public services with the expectation that more data will lead to better healthcare and social services (Sheikh *et al.*, 2015). According to strategy papers and consultancy reports, data are supposed to ensure better performance, accountability, transparency and efficiency (Danske Regioner, 2015; Deloitte, 2014; Digital Vækstpanel, 2017; McKinsey & Company, 2016; Microsoft, 2009). However, the increased data intensity also changes every day working conditions and introduces more detailed tools of surveillance – both regulating and documenting what people do (Amoore & Piotukh, 2015; Moore, 2018; Petersen, 2019).

In his famous identification of an ideal type of legal-rational bureaucracy, Max Weber identified a persistent longing for archival work (Weber, 1947, 2003). Archives could help build authority by creating sources of information and documenting competent use of power. Weber's hermeneutic approach led him, in the search for objective data, to identify a particular way of establishing meaning in work. At the time when Weber wrote about the legal-rational bureaucracy, records were kept in closed cabinets, and while professionals were expected to exert professional judgement and base decisions on their orientation towards organizational goals, they were also to be partly protected against political involvement in their exertion of professional judgement in individual cases: 'Every bureaucracy seeks to increase the superiority of the professionally informed by keeping their knowledge and intentions secret' (Weber, 1947, p. 233). Today, however, digitalization has opened up many of the 'secret archives' for inspection. This process is reconfiguring work, information flows and governance.

In this paper, we explore how the dual ambitions of datafication and digitalization influence work and goal orientation among professionals in contemporary public organizations. We do this through interviews and observations of data-intensive work practices in the Danish healthcare sector. Beginning in the 1980s, and with determined dedication since the 1990s, the Danish authorities have strived to be at the forefront of data-intensive and digitalized service delivery, and the country was recently ranked by the United Nations as having the world's most digitalized public services (United Nations, 2018). If Denmark is at the forefront of digital developments, it is worth noting that there are also worrisome elements in the data-intensive mode of working. Today, Danish healthcare staff discuss 'meaningless data work' as a factual and unavoidable part of working in the clinic. One Danish physician, for example, recently published a book in which he blamed his resignation from

the post of chief physician on the current 'yoke of Kafkaesque idiocy, grotesque over-administration, EPIC-systems,[1] crazy demands of documentation, [and] marginalization of medical competence and care' (Jacobsen, 2018, p. 31, authors' translation). Another physician claims that the health services are drowning in data work and that health professionals are losing the motivation that used to be essential for them: 'You have to survive, and you can cope only by letting a sense of indifference take over' (Olesen, 2018, p. 84, authors' translation). A recent Danish bestseller even describes meaningless 'pseudo work' as a characteristic of modern organizations across all sectors in Denmark (Nørmark & Jensen, 2019). Even if governments and civil servants have introduced reforms to reduce 'unnecessary bureaucracy' in healthcare organizations (e.g. Implement, 2009), this does not seem to have reduced the data work. It is therefore time to explore the complaints from a different angle. Since people talk about meaninglessness, we suggest exploring this proclaimed loss of meaning and ask: *When is something seen as 'meaningless work'? Through which dynamics does such work emerge? And what are the implications of such work?*

Whereas authorities typically argue the need for objective measurements, and physicians complain about the resulting bureaucracy (as exemplified above), we, in our critique, take neither side. First, we avoid a bifurcation between rational and irrational agency (Callon & Law, 2005) and argue that there is no ontological distinction between meaning*less* and meaning*ful* work. What is considered meaningless in one place or situation is typically considered meaningful for others or in other situations and places. Second, we argue that experiences of meaningless work partly result from technologically mediated ways of making sense of work. Staff today operate in what Kitchin (2014) calls data assemblages. Data assemblages are socio-technical systems comprising not just a given data archive or repository but also the technological, political, social and economic apparatuses that shape how these systems operate. These assemblages affect the very perception of what counts as knowledge about work. We suggest that contemporary Danish healthcare organizations have produced a data assemblage where data can operate as symbols of knowledge (rather than pathways to knowledge). Because the assemblage makes local data available to people higher in the hierarchy (who cannot assess the clinical value of the data), it makes people invest meaning and effort in data, even when they do not 'believe' in their veracity. Third, we identify three important implications of the data intensification: a shift in the allocation of resources from patient-oriented work to data work; data becoming self-referential and giving rise to new forms of epistemic doubt; and a change in organizational culture and values that may threaten goal orientation and professional judgement.

Data and meaningfulness in modern organizations

In this paper, we explore how knowledge about work has become technologically mediated in new data-saturated ways, and how that has produced new

ways of gaining – as well as losing – the sense of meaning in relation to work. The literature is replete with reasons as to why organizations request more and more data on work, such as to achieve increased accountability, performance management, improved budget control, effectiveness and evidence-based governance (Wadmann *et al.* 2013). All of these ambitions rely on epistemic ideals aligning quantification with objectivity, impartiality and truth (Daston & Galison, 2010). Porter (1995) argues that 'trust in numbers' reflects a belief in the universality of quantitative measures through 'the appearance of being fair and impersonal' (p. 8). In healthcare, the quest for more data-intensive modes of working is associated also with issues of liability, quality improvements, and changing relationships between medical professions and management (Levay, 2016), as well as new technological infrastructures that make comparisons between hospitals feasible and desirable (Triantafillou, 2014).

Along with the many reasons for data collection, an important social science critique has pointed out many of the unforeseen consequences of attempts to govern through data (Dahler-Larsen, 2012; Power, 1997; Strathern, 2000). Governmentality studies have explored the power effect of audit regimes that invite people to assess their own performance in light of organizational goals (Dean, 2010; Rose, 1999). As remarked by Elizabeth Dunn, data collection tools have come to serve as 'paper panopticons that view and discipline individuals' (Dunn, 2005, p. 185). With digitalization, the panopticons have become far more pervasive than what paper ever allowed, as Shoshana Zuboff (1989) pointed out in her seminal work on computer-mediated work. Sociologist Phoebe Moore found that 75 per cent of American companies now use digital surveillance on their employees. They do so in pursuit of constant optimization, but they also produce a form of precariousness, which Moore thinks represents 'the purest form of alienation where the worker loses all personal association with the labour she performs' (Moore, 2018, p. 79). In technologically saturated organizations, data operate as symbolic forms of capital indicative of organizational knowledge and strength (Zuboff, 2015). Amoore and Piotukh (2015) thus argue that digitalization delivers new technologies of perception affecting even what counts as real.

Digitally mediated data intensification thereby reinvigorates old debates on what counts as knowledge about work at the organizational power/knowledge nexus. Frederick Taylor did not trust workers to know how to improve their own performance, or as he put it:

> the workman who is best suited to actually doing the work is incapable of fully understanding this science, without the guidance and help of those who are working with him or over him, either through lack of education or through insufficient mental capacity. (Taylor, 1998, pp. 9–10)

An effective analysis of work, Taylor asserted, should be based on numerical evidence and informed by statistics and not by the worker him- or herself. With the introduction of digital surveillance technologies, the pursuit of data-

mediated optimization has spread far beyond the factory floor (Moore, 2018). Max Weber (1947) saw in these 'rational' modes of organizing the basis of his famous claim about bureaucracy carrying a seed of disenchantment and alienation associated with the 'iron cage'. Weber and Taylor thus introduced enduring questions in the social sciences regarding knowledge about work and how knowledge claims interact (and overrule each other) in the establishment of dominance and authority in organizations.

We wish to add to these debates by pursuing the question of meaning. Our approach to meaning and meaninglessness is inspired by Weber, Weick and Mayo and other hermeneutical scholars of organization who along with revered traditions in continental phenomenology (Merleau-Ponty, 2002) and American pragmatism (Dewey, 1998) have approached meaning-seeking as a basic human inclination. Rather than locating meaning-seeking in the individual, however, we wish to acknowledge the pivotal role of technologies in creating new data assemblages through which people orient themselves. Meaning resides in no individual alone, but depends on socio-political as well as material-technological context. Our understanding of meaning and meaninglessness is inspired also by contributions from analytical philosophy, where we find classic attempts at defining the terms. Analytical philosophers have discussed meaning and meaninglessness as pertaining to conditions of truth (Erwin, 1970; Ewing, 1937) or sought to integrate the epistemological issue with an understanding of meaninglessness as a 'psychological state of dread and anxiety' (Blocker, 1974, p. ix). The sociological treatment of meaninglessness, conversely, has grown out of alienation studies and focused more on moral disorientation and the sense of powerlessness (Seeman, 1975).

We integrate the moral and epistemic aspects in our conception of meaning because actors negotiate both value conflicts and epistemic concerns when discussing 'meaningless work'. Furthermore, the concepts of meaning and meaninglessness are used empirically (by workers) as well as analytically (by external observers) to express a *moral attitude* towards, as well as an *epistemic assessment* of, particular tasks or working conditions. If work is not seen as serving a valuable purpose (goal orientation), it affects the moral attitude. To understand how health professionals in the data-intensive Danish health services came to talk about their data work as meaningless, we therefore on the one hand approach meaninglessness as an empirical concept and explore how staff members use complaints about meaninglessness. On the other hand, we also see how acts can become meaningless in an analytical sense, for instance by losing their goal orientation. The point is to keep in mind the hermeneutical orientation towards the pursuit of meaning, namely as human action with a sense of direction. We believe it is by combining the insights from analytical philosophy with the old hermeneutic-phenomenological tradition as well as studies of governmentality, audit cultures and standardization, that we shall find inspiration to move beyond the impasse of 'bureaucracy-bashing' and better understand what drives 'meaningless work'. 'Meaningless work' might very well, albeit paradoxically, be a product of particular ways of producing meaning in data-saturated organizations.

Setting and methods

We build our analysis on ongoing fieldwork in Denmark aimed at understanding the drivers for, and implications of, the unfolding data intensification in the health services. Denmark is a wealthy welfare state in Northern Europe with universal access to healthcare and a high degree of digital literacy. Since 1968, all citizens have been ascribed a personal identity number, which facilitates tracking of individuals across contexts and over time (Bauer, 2014). The data infrastructure and the universal access to formal healthcare support digital integration at the national level, and for decades significant public investments have been made to ensure pervasive digitalization (Frost & Sullivan, 2017).

Since 2015, we have identified data policies, participated in seminars, workshops and conferences on data uses in the health services, and interviewed people working with data. We seek to understand the implications of data work by moving between the different organizational 'layers' within the health services. Currently, Danish healthcare has three levels of government: state, regions and municipalities. We engage all three. Besides analysing policy documents, we have interviewed 74 persons, comprising: five working on developing the frameworks for data collection at the state level; at the regional and municipal levels, 13 data analysts along with five people working with data integration tasks; three hospital managers; four clinical department managers; four staff nurses at hospitals; one hospital-based quality manager; three nurses sub-specialized as quality coordinators working in hospital departments; 22 physicians working in hospitals and general practice; eight hospital-employed nurses; three hospital secretaries; and three audit workers. Wadmann also undertook four days of observation on two different wards and one day of observation of a management seminar. Furthermore, we interviewed three patients working to influence data practices from formal positions in patient organizations.[2] We have also served as discussants for policymakers and given invited lectures at a number of public institutions, and we have participated in public debate and received plenty of reaction. While this engagement has informed our understanding and been used to confirm our observations, we do not cite from these informal interactions.

To understand the claims about meaningless work, we first tried to code our material according to what the various actors found 'meaningful' and 'meaningless' as well as how they reacted to and coped with meaninglessness. We realized, however, that we could not make any clear distinction between the meaningful and the meaningless. What some people challenged as meaningless was seen as meaningful elsewhere in the organization or re-inscribed with meaning later in the interview by the one raising the complaint. We therefore recoded the material thematically (Madden, 2010) and here present it according to the following structure: in the first section, we outline what people discuss as meaningless and meaningful, and, in the second, we describe why clear distinctions between the two are elusive and form part of an organizational dynamic

that produces 'meaningless work' in pursuit of meaning. Then, in the third section, we explore the implications of installing tasks in healthcare work that are experienced by the staff as meaningless.

Meaningless and meaningful data work

Though the public debate about data work in healthcare is full of complaints about the 'yoke of Kafkaesque idiocy' and 'grotesque over-administration', it is important also to note that a survey from the National Centre for Work Environment Research places physicians at the top of a ranking of 'meaning and engagement in work' across different occupations in Denmark (Det Nationale Forskningscenter for Arbejdsmiljø, 2018). How can widespread complaints about meaninglessness coexist with such engagement? To answer this question, we begin by outlining what people talk about as 'meaningless' work.

Meaningless work

When grouping and categorizing complaints among the clinical staff, we can see that they talk about meaningless tasks when data are not valid or are inaccurate, not used, irrelevant to clinical tasks, when nobody has tried to justify the tasks related to data generation, or when the purposes to which data are put are deemed illegitimate by the staff. We will provide various examples below, but first note that though these complaints cover both epistemological and normative concerns, the act of complaining primarily expresses a moral discomfort with a sense of digression from the goal of helping the patient.

   The complaints mostly revolve around what health professionals need to do 'to keep the system silent', as one secretary put it. They use words such as 'data massage' or 'fiddling' to describe the 'meaningless' tasks associated with data, and such comments are typically followed by ironic gestures, jeers and raised eyebrows. It is important to understand the ubiquity of complaints at the discursive level. One general practitioner used the term 'it makes no sense' no less than 46 times in the course of an interview, during which she said that the data tasks required by the regional authorities were 'just plain idiocy, gosh, it's these kinds of absolutely foolish things (…) it's without meaning or purpose'. At the hospitals, health professionals often complained about standards that they found irrelevant for their clinical specialization, such as standards that stem from standardized quality monitoring or remuneration schemes. Hospitals are financed according to an activity-based model using standardized codes for diagnosis-related groups (DRG) – and even small coding issues (e.g. the sequence of two diagnoses) can have significant economic implications without being of clinical importance (Bossen *et al.*, 2016). Also, the manipulation of registration practices to

make waiting times and similar political requests look better were much-debated issues at the hospitals – and are well-known in the literature (Bevan & Hood, 2006; Himmelstein & Woolhandler, 2015).

Clinical department managers were aware that many data tasks were experienced as meaningless by the clinical staff. They outlined the challenges of retaining authority among clinical staff when asking for data that are not essential to clinical work. One clinical department manager explained: 'Of course, it's a little absurd. But it's a consequence of being measured in a particular way. It makes it important to tick the right boxes'. A quality coordinator similarly conveyed her frustration with having to insist on data entries that she knew the nursing staff found ridiculous. She gave an example of having to screen for pressure ulcers on young patients unlikely to have any. 'It makes no sense', she said, and continued explaining that she knew the staff would get around it by, for instance, filling in screening results before seeing the actual patients to save time. Nevertheless, omitting the documentation was not an option, the quality coordinator explained, because 'the Region monitors our performance based on the numbers'. What counted as meaningless data at the ward level made sense at the administrative level. Health professionals nevertheless tend to react negatively when data in this way shift from serving as clinical tools of documentation to (inadequate) tools of surveillance (Winthereik *et al.*, 2007).

Meaningful work

When moving to what the clinical staff talk about as meaningful data practices, we see that they especially appreciate when data provide an overview of a patient case, a patient population, or tasks at the ward level, and when data analyses facilitate new insights or are used to discover sources of errors. They find data work meaningful when it facilitates action that optimizes patient care. Their goal orientation is focused on patient benefit. They also talk about wanting data in order to promote the standing of their profession or to facilitate their research – both of which again are seen as ensuring better care options (Wadmann *et al.*, 2018).

It appears that the clinical staff make an instrumental judgement of data needs; and that it is mainly when data need to be 'fiddled' with to satisfy externally imposed demands that they lose epistemic and normative value. Following this line of reasoning, it ought to be possible to separate 'the meaningful' tasks from 'the meaningless' and, in Taylor's spirit, optimize the work processes by jettisoning 'meaningless' data tasks. In fact, consultancies have been hired to do such studies in the Danish healthcare services (Implement, 2009), but the insights have not resulted in reduced data work. As mentioned, one reason might be that the data, which are considered meaningless at the clinical level, are often seen as meaningful at administrative levels. Another reason is that clinical staff tend to counter demands for 'meaningless' data with requests for

data that better convey what they believe is true and relevant – thereby causing additional data production and adding to the data work. We now go into these dynamics driving the data mill in more detail.

The dynamics driving meaningless data work

Though clinical staff complained about 'meaningless' data tasks, they became hesitant when we (in line with the hired consultancies) asked them to name the data tasks they would like to see terminated. Several data analysts similarly explained how they wanted to reduce the 'documentation burden', but found that clinical staff tended to ask for data even at meetings aimed at reducing registrations. One experienced quality monitor, for example, explained how she set up meetings with the clinical staff to discuss how to ease the data work, but found that these meetings typically ended with clinicians requesting new data:

> They say 'we want something evidence-based', 'we want to know what we are doing', 'we want to have some ammunition if anybody says, we are really under great pressure', and really, it is the way you build an argument. You can't say 'my gut feeling is that we are running very fast'. Well, it might be right, but over there on the other ward they can manage and that is how it is. [Data collection] is the way we build arguments, it is the way we work.

In a form of bureaucracy-on-steroids where only data-based forms of reasoning count, it is with data that the staff pursue meaningful action even when it implies doing 'meaningless work' in a strictly clinical sense. While 'building arguments' with data, they still seek to produce clinically valid and patient-focused results. To some extent, the frustration they raise when talking about meaninglessness might reflect the increased work pressure.

In an organization where data means visibility, it can be dangerous to rely on 'invisible work' (Star, 1991). To have efforts acknowledged by superiors, work needs to be visible in a format that the organization values. Therefore, the staff want data in order to communicate what they think *ought* to be important. As Zuboff argued, computers change the nature of work and involve new skills, because many tasks come to revolve around 'manipulation of symbols' rather than physical execution (1989, p. 23). In our case, it seems as if clinical staff operate in a data assemblage where working with people also implies working with data as signs. Interestingly, this seems to involve a potential for finding meaning in data as symbols that establish relationships. It is by becoming visible to others, as data, that tasks come to count as working with, and for, other humans.

In interesting ways, patient activists also employed this language of acquiring visibility through datafication. When we asked why they wanted to collect more data on patient experiences, one woman for example acknowledged that it often

felt meaningless to fill in questionnaires and that the collected information was not used, but she saw no other way of directing clinical attention to patient needs than by turning patient narratives into data. 'It has to make sense, it simply has to make sense to produce knowledge [about patient experiences]', she exclaimed agitatedly, thereby conveying how a patient narrative without data was not 'knowledge' that could be seen or heard. Because of the reliance on data to convey anything that is to be considered 'knowledge', the distinction between meaningful and meaningless dissolves. Meaning becomes a matter of communication and recognition within and between organizations and, in the process, is detached from clinical goal orientation.

Standardization and visibility

One element of this dynamic of increased emphasis on symbolic communication reflects classic issues of standardization (Brunsson, 1999; Busch, 2011; Hogle, 1995; Timmermans & Berg, 1998). For documentation to be acknowledged across different contexts, it must be standardized. While standardization in many instances ensures interoperability among organizations (e.g. enabling exchange of information through a common format), the transfer of standards from one context to another also implies a potential loss of validity (epistemic value). When health professionals no longer recognize standards as valid signifiers of their practice, they also lose legitimacy (moral value). It is typically in these situations that discourses of 'meaningless work' begin proliferating among the clinicians.

As an example of this dynamic, hospitals are held accountable by politicians for the time it takes to diagnose patients, and are therefore required to report data on the 'time of final diagnosis'. One neurologist commented: 'Often it's in the course of treatment that you determine the diagnosis' and 'really, it's quite arbitrary as to when we can say that we have a final diagnosis'. Like others, he explained how patients in his specialty did not conform with the imagined pathways of the digital reporting systems and added: 'It appears that they build on orthopaedic surgery when making standards'. Because standards are embedded in the same digital reporting systems, and often reflect shared legal demands, and because they need to be comparable across contexts, they cannot fit all clinical needs equally well. Even when a standard is developed by clinicians, it tends to travel to places where it does not work equally well, and then it is typically seen as an imposition of management.

In a study of attempts to make 'meaningful data' out of patient voices, Langstrup (2019) also found that once the data practice was routinized, it was easily co-opted by management. When data became used for managerial purposes, it undermined the meaningfulness for those clinicians and patients gathering the data (see also Storeng & Behage, 2017). In what is often referred to as 'Cambell's Law' it is stated that: 'The more any quantitative social indicator is used for social decision-making, the more subject it will be to corruption

pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor' (Campbell, 1979, p. 85). The power dynamics involved in Cambell's framing relate to people trying to optimize their own position and income. Here we instead emphasize how the pursuit of meaning and knowledge about work has become mediated by technologically embedded standards. We thereby point to a communicative aspect where people invest in these standards, not only to gain resources, but also to produce meaning. It is when data are seen as necessary to make sense of work that the phenomenon identified by Pollitt and colleagues (2010) as a 'logic of escalation' in data work becomes particularly difficult to halt.

'Meaningless work' is imposed by others

We were struck by the way in which nearly all our interviewees presented themselves as merely responding to 'meaningless' demands imposed by external actors or by IT systems. In one of the hospital departments, the clinical staff complained that their ward management insisted that they should document that they had examined and approved all prescriptions for all patients – even when no medication had been administered (e.g. in the case of the relatives registered as 'patients' because they were staying in the hospital to accompany sick children). When we mentioned the frustration among the clinicians to the ward manager, it turned out he was frustrated too. He said it made no sense to count patients who received no pharmaceuticals as 'not monitored' but the IT systems were set up to count the 'not monitored' as deviations from the standard of good care. Such deviations count as 'bad quality'. To get a more useful overview of the patients and their pharmaceutical needs, the ward manager had the ward generate their own supplementary statistics to prove the centralized monitoring system wrong. Nevertheless, the ward manager routinely had to present at the hospital management's office each week and explain the 'quality breach'. The ward management would then be asked to audit their clinical records on the following day to compensate for the 'lack' – a procedure he described with irony and references to Kafka's bureaucracy. When we later asked one of the hospital managers about the standard that caused the clinicians' frustration, he also agreed that it did not make sense to demand pharmaceutical monitoring of *all* patients, and added: 'Sometimes it is so bureaucratic that it is almost unbearable'. He proceeded to convey his frustrations with officials at the regional administrative level who demanded explanations of deviation from the standard.

When trying to understand why the Regions would enforce these standards, several people at the regional level said that it was because the Regions needed to document their performance to the national authorities. Because cessation of regional self-rule has been on the political agenda for some years, the Regions have been under great political pressure and needed the data to document their ability to manage the hospitals. A step further up the hierarchy, we asked a representative from the state level about the pressures for data

collection. She gave a really interesting insight into a sense of responding to the data needs of others even at the highest level of government:

> My experience is that a lot of people want more data, [and] it's also the clinical research staff that request more data. And a lot of patients cannot understand why they cannot get an answer on this or that, and there's a whole parliament also asking, 'Why can't you tell us this or that?' And when we say, 'No, we can't because we don't have the data', they say, 'Well, then you've got to get it'. So it's kind of funny … I think (…) it's not necessarily the ministry and the civil servants requesting more data. I experience it more as a response to needs articulated in various environments.

So even when we reach the highest administrative levels, staff see themselves as responding to demands raised elsewhere. Even the agency directly under parliament, Rigsrevisionen, which is responsible for independent audits of the public administration (including state-level governance), articulate similar sentiments. They serve as the watchdogs for public governance and have a mandate to control efficient use of resources. They have to build their assessments on existing laws, however, and therefore need to conduct their audits on the basis of whether regulatory standards are being met. As a consequence, they increase the pressure to follow standards, even when standards are causing clinical frustration and might not be the most economically efficient way of organizing the work. In one of their reports, they do note that the Regions, for example, claim 'it is not meaningful to record first symptom' to document waiting times in cancer treatment. Nevertheless, Rigsrevisionen insists that the ministry and the Regions must 'collaborate to reach the recommendation in [the standards]' (Rigsrevisionen, 2018, p. 12). They contend that without the data it is impossible to determine whether legal requirements are fulfilled. In this way, not even those who oversee the top of the hierarchy necessarily see themselves as being in a position to stop the data mill, even when being officially mandated to audit efficiency.

The examples above illustrate an organizational environment creating interconnectedness through data: being seen and recognized as doing important work of sufficient quality implies the use of standardized data that can travel across contexts. In principle, this happens to make local tasks visible at a distance in a classic governmentality mode. However, because the standards fail to capture the local diversity and become subject to 'data massage', data work in reality ends up hiding as much as the data show (Adams, 2016; Merry, 2016). While the dilemmas of standardization are well known in the social science literature (Brunsson, 1999; Busch, 2011; Hogle, 1995; Timmermans & Berg, 1998), we see here how they form part of a data engine that generates the dual pressures of more locally initiated data collection (to be seen for what you do) and 'meaningless work' (to respond to what the external parties want to see). What, then, are the implications of installing tasks in healthcare that are experienced by the staff as meaningless?

What are the implications of 'meaningless work'?

We wish to point to three types of implications of 'meaningless work': financial costs, epistemic doubt and a changed moral landscape influencing the nature of care. We will discuss them in turn, though they are interconnected.

Financial costs

Data generation obviously requires resources. It takes time and people to produce and analyse data; resources that then cannot be used on other kinds of work. Data analysts, in order to do their work, also need to ask for more data from the clinical staff. This stimulates a number of negative reactions (Olesen, 2018). One nurse remarked, 'it takes one second to ask for the data, but 45 min to produce it'. It is difficult to estimate the actual costs. Importantly, however, the very question of costs is already engrained in a logic of metrics and therefore stimulates a call for more data work to document the minutes used on data generation and analysis. The alternative to calculating the costs would be to discuss what hospital staff should spend their time doing. The discourses of meaningless data work can be interpreted as indicative of attempts to raise these debates from below, but we also see how easily they become co-opted by demands for documentation of expenditure when arguments must be 'built with data'. As long as it is never enough to argue from clinical experience, expenses related to data accumulation will not be reduced.

Epistemic doubt

The dependency on data to build authority is also key to the second issue: epistemic doubt. In Zuboff's early work on the introduction of computers into workplaces, she pointed out how it took effort to make people trust data and what she called their 'referentiality', that is, the idea that data represent and stand in for phenomena in the world (1989, p. 77ff.). We now see how the work associated with 'meaningless' data production brings about new validity problems: 'referentiality' dissolves again. We have described how people fiddle with work routines and do 'data massage'. Some are very frank about these work practices being manipulation, as when a hospital manager said: 'One thing is certain: you become very creative. If you are pressured on something that you can't possibly deliver, you cheat'. A quality coordinator preferred not to call it cheating, but explained the ambiguous nature of data validity in the current system when saying:

> Times are changing. People are getting more used to having everything out in the open, so if you haven't documented it, somebody will be chasing you down asking for it. I actually think you can hide as many things today as

> you used to be able to, because you can just produce bad data, invalid data, then the documentation is there. It's just as if a slippery slope has been opened somehow.

These comments point to a very profound effect of data practices that are experienced as 'meaningless'. It is reminiscent of Mark Poster's (1990) seminal post-structuralist argument about the 'database' that transforms data into a *self-referential* sign. Data serve as important signs *without* a connection to an external 'reality'. What is real to the organization is what is in the data. Employees work with data as 'signs' desired for their performative effects, while not truly trusting their referential ability. Zuboff's (1989) argument was that the introduction of computer-mediated work into organizational life involved a new basis of authority: management acquired authority through superior knowledge. Today, it appears the link between superior knowledge and authority is severed. Authority can depend on better access to data and a right of interpretation – irrespective of the referentiality of those data.

These epistemic implications are potentially of immense importance. In this emerging organizational culture, data may overrule direct experience, while paradoxically the direct experience comes to involve that data cannot necessarily be trusted. Also in the epidemiological literature, the sense of mistrust of numbers is beginning to show as explicit acknowledgement of doubts about data validity (Chan *et al.*, 2010; Pedersen *et al.*, 2004; Severinsen *et al.*, 2010). From these quarters, however, the proposed solution is to collect *more* data to make up for data omission and errors. The result is a self-enforcing epistemological kaleidoscope relying on data that needs verification by other forms of data, which are then in need of verification from yet other data in a potentially endless regress.

A changed moral landscape

Thirdly, the imposition of meaningless data work influences the moral landscape of the clinic by changing the work culture and priorities of clinical attention. Again, a shift in priority from clinical care to data work is difficult to prove with data, but a number of scholars have observed – and criticized – this trend in various forms around the globe (Hunt *et al.*, 2017; Hutchinson *et al.*, 2018; Olesen, 2018; Taylor-Alexander, 2016; Verghese, 2008). In an attempt to explain how data work has created a change in the 'work culture', one quality monitor laughed timidly as she said: 'In the old days, we used to call it Cover My Ass [*Dæk Din Røv*], DDR'. With DDR, the Danish abbreviation, she simultaneously referenced the former East German regime known in Denmark for its widespread use of surveillance. She said 'in the old days', but talked about a recent change, thereby illustrating how practices, which used to be looked down upon, have become normalized.

Similarly, a leading quality programme developer was recently cited in a medical newspaper for her warning against a changing culture experienced as 'an inferno of documentation' that 'risks creating a Cover My Ass culture, where the physician's attention shifts from what is good for the patient to the physician's own ass' (Lange, 2017, p. 13).

If the imposition of certain forms of data work potentially undermines professional motivation and the pursuit of meaning, clinical staff have to find pride and motivation in new ways. Pride in good data is one such strategy. One anaesthetic nurse explained how he personally had come to like some of the features of a new and otherwise cumbersome IT system that he knew others found dreadful, because he could do the registration while the patient was anaesthetized. Thereby, he did not compromise patient safety, but obtained significantly better data:

> The product that I deliver is better. The way I anaesthetize the patient has not changed. It is no better and no worse. But I can document it better. The quality of the document I hand over afterwards has improved.

What he refers to here as the 'product' of his work is the data he produces, not the treatment of the patient. Others similarly spoke about good data as having value independent of use, as if the data possess a beauty in need of no further justification (Halpern, 2014). Taking pride in good data is an obvious outcome of an organizational culture that downgrades the importance of clinical judgement and distributes praise and blame based on data. It is a coping mechanism as well as an effect, and it helps to re-enchant the otherwise meaningless data work, infusing it with a sense of pride, though the patient fares 'no better and no worse'. The newly acquired appreciation of data work unfortunately comes at a price: 'good data' are no longer justified with reference to their support of clinical outcome.

Conclusion

Pervasive digitalization installed to support datafication has changed the conditions for professional work as well as what counts as valid knowledge about work. Digital tools now structure work practices and the documentation formerly kept in closed cabinets is made available for continued monitoring and reuse. We have demonstrated how the attraction of data in the Danish health services does not necessarily depend on the belief that data refer to an external 'reality' or serve a 'rational' clinical goal. What is real to the organization can be simply what is in the data. A radical implication of this is that the pursuit of meaning through data sometimes comes to reflect inter-organizational communication patterns rather than clinical goal orientation. In consequence, the urge for data-driven improvement and accountability has reconfigured the conditions for meaningful work in the clinic.

Although the data-intensive ways of working have led to complaints about 'meaningless' work among the clinicians who are to produce the data, we have argued that it is not possible to establish an ontological distinction between meaningful and meaningless tasks. What is considered meaning*less* in one place typically relates to something that is considered meaning*ful* elsewhere in the organization. Just as importantly, even when staff discuss data as 'meaningless', they tend to align them with great significance as symbolic forms of communication – and, in consequence, they invest time and resources in orienting themselves with the use of these symbols, even when they actively question their relevance and accuracy. Rather than valuing data as decision-support tools, they value data as symbols (Feldman & March, 1981). At the clinical level, discourses about meaninglessness typically proliferate when official standards inadequately support (or work counter to) clinical needs, or when data production revolves around mandatory tasks imposed by external actors. Also, inadequate IT systems that are experienced as cumbersome (such as the EPIC system mentioned in the beginning) can add to such complaints. It is impossible to cut out just these data elements, however, because of a digitally enhanced form of organizational visibility. When organizations demand visibility, and data make up the lens through which they see, then these organizations become dependent on shared data standards (Dahler-Larsen, 2012). This creates a need for technologies (in the broadest sense) to facilitate standardized comparisons, though this in turn implies asking for data that might make little sense locally.

To navigate this organizational reality, we have shown how the clinical staff and local ward managers reinvest meaning in data in at least three ways. Some actively question the ability of existing data systems to convey what they see as the proper picture of the organizational reality and therefore build their own databases to prove existing systems wrong, reflecting the problems with standardization just outlined. They 'build arguments with data', as it were. This response generates more data. Others revert to 'data massage' and 'manipulation' to acquire recognition. This generates bad data. Finally, some begin to invest pride in obtaining good data quality within existing databases – even if they acknowledge that the data are of limited clinical importance. This detaches data generation from clinical goal orientation.

We have pointed to three implications of this form of intensified data sourcing, all in need of further attention. First, data generation and analysis cost significant amounts of money. Unfortunately, a better understanding of what economists would see as the cost–benefit ratio depends on even more data, which would make the costs rise accordingly. Second, practices of 'data massage' can destabilize trust in data as the referentiality of data dissolves. Data users have to ignore problems of veracity (the epistemological aspect of meaning) to gain a sense of orientation (related to the moral aspect of meaningfulness). Third, as data become a prime means of inter-organizational communication and a precondition for recognition, they can contribute to causing a shift in priorities of clinical attention away from patients and towards the signs

involved in data exchanges. The Weberian ideal of a rational bureaucracy rested on an ability to exercise judgement and refer to goal rationality and best possible evidence (du Gay & Pedersen, 2020). Taken together, however, the three implications mean that it becomes possible for clinical organizations to invest time in producing and communicating data of limited evidential value. The data are severed from clinical goal orientation: they are produced only to be communicated upwards in the hierarchy. Health professionals, however, continue to care for patients – our point is not that this care has evaporated. Also, we acknowledge that the proclaimed sense of meaninglessness and other signs of frustration can stem from sources other than datafication. What we do claim, however, is that as long as work must be known through data and communicated through digital platforms, attempts of reinvesting meaning in work will tend to produce more data work of limited value for the stated organizational goals.

While the dynamics we have identified relate to a particular professional field in a country taking a particularly dedicated route of datafication, these dynamics may have broader relevance for the types of datafication sweeping across other social arenas (Amoore & Piotukh, 2015; Madsen *et al.*, 2016; Petersen, 2019). Whereas we have looked here at professional work and mainly manually manipulated data, Shoshana Zuboff has recently alerted us to a much wider transformation where all types of social relations become digitally mediated and subject to data analytics based on automated data collection and use. The ambition of making work 'data-driven' sweeps across education, social work, entertainment and characterizes both public and private sectors. Not only employment, but also citizenship is now subject to forms of power operating through datafication (Madsen *et al.*, 2016). Zuboff (2019) suggests a double aim of prediction and control as characteristic of this emerging form of 'surveillance capitalism'. Our analysis, however, questions the ability of digital datafication to 'crunch' human ingenuity. Just as the clinical staff find unexpected ways of reinvesting meaning in signs and divert from the planned attempts of control, citizens might find ways to dissolve the 'referentiality' of Big Data. Rather than becoming predictable, data may enter new cycles of symbolic exchange with limited insight into the processes they are said to control. With this point, we wish to suggest that some of the dangers of surveillance capitalism might be related, not to what Big Data *can* do, but to unrealistic expectations as to the ability of technology to control human initiative. Datafication might do most harm when people believe too much in data, and forget to retain room for judgement.

Ensuring space for judgement was the old bureaucratic way of dealing with the endless variation and ingenuity of human beings. The question now is how to nurture conditions for prudent judgement along with engaged usage of new data analytical opportunities. In medicine, some forms of computerized algorithmic-based decision making arrive at more accurate assessments of medical images than humans do (Friis, 2020). Professional judgement

presupposes an engaged use of data, including new forms of data analytics. From a pragmatic viewpoint, Dewey emphasized how 'a moral that frames its judgments of value on the basis of consequences must depend in a most intimate manner upon the conclusions of science' (Dewey, 1960, p. 274). There is no way of exerting proper medical judgement *without* data. Still, when data-intensive forms of government turn clinical staff into data producers, rather than data users, we need caution. When data-based government makes staff complain about having to do 'meaningless' work, something needs to change. We therefore believe it is time to develop theoretically what professional judgement means in data-saturated organizations.

If this theoretical development is an academic task, we need to acknowledge also that it depends on a form of academic freedom that thrives best at a distance from the organizational logics characteristic of a modern data assemblage. Even the academy, however, is subject to pervasive datafication and performance measurement of academic work. Mechanisms not unlike those we have described in the health services are crunching in on academic judgement (Sauder & Espeland, 2009). Sometimes academics even complain about alienation, exhaustion and disillusionment, much in line with the comments of clinical staff described above (Shore & Wright, 1999). However, even disconcerting developments can be made understandable through careful academic analysis. Such an analysis makes the world epistemologically accessible and subject to moral reorientation: it aligns even unfortunate events with a sense of meaning. Therefore, it is an essential task for academic research to make sense of 'meaningless work'. We hope here to have contributed with some initial steps towards that end.

Notes

1 Literally '*Sundhedsplatformen*' which is the Danish brand name for the American supplier of health record systems, EPIC.

2 Interviews lasted between one and three hours and were conducted in the offices of the interviewees in most instances. We are responsible for all translations from Danish into English. To protect the identity of the interviewees we have had to provide less contextual information about their position than what would have benefitted the transparency of the analysis.

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