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Employers have a Duty of Beneficence to Design for Meaningful Work: A General Argument and Logistics Warehouses as a Case Study

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Abstract
Artificial intelligence-driven technology increasingly shapes work practices and, accordingly, employees' opportunities for meaningful work (MW). In our paper, we identify five dimensions of MW: pursuing a purpose, social relationships, exercising skills and self-development, autonomy, self-esteem and recognition. Because MW is an important good, lacking opportunities for MW is a serious disadvantage. Therefore, we need to know to what extent employers have a duty to provide this good to their employees. We hold that employers have a duty of beneficence to design for opportunities for MW when implementing AI-technology in the workplace. We argue that this duty of beneficence is supported by the three major ethical theories, namely, Kantian ethics, consequentialism, and virtue ethics. We defend this duty against two objections, including the view that it is incompatible with the shareholder theory of the firm. We then employ the five dimensions of MW as our analytical lens to investigate how AI-based technological innovation in logistic warehouses has an impact, both positively and negatively, on MW, and illustrate that design for MW is feasible. We further support this practical feasibility with the help of insights from organizational psychology. We end by discussing how AI-based technology has an impact both on meaningful work (often seen as an aspirational goal) and decent work (generally seen as a matter of justice). Accordingly, ethical reflection on meaningful and decent work should become more integrated to do justice to how AI-technology inevitably shapes both simultaneously.

Keywords AI-technology · Duty of beneficence · Meaningful work · Meaningful work in logistic · Warehouses

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1 Introduction

Technology increasingly shapes work practices and, accordingly, employees' opportunities for meaningful work. Consider the example of an order picker in a logistic warehouse. Warehouses increasingly use voice-picking artificial intelligence-based technology that directs the order picker through the warehouse by incessantly giving very detailed instructions on where to go, which items to pick for completing an order, and for confirming the pick (Gutelius and Theodore 2019: 33). As a result of the introduction of such voice-picking technology, order pickers have less opportunity to develop their skills, exercise their judgment, and be autonomous in the performance of their jobs. Accordingly, their jobs have seemingly become less meaningful. For their team-leaders, in contrast, work often becomes more meaningful as the warehousing technology supports their decision-making and provides them with opportunities for exercising skills such as coaching team members. So, in general, technological innovation in a workplace may benefit some—e.g., by making their work more meaningful—while disadvantaging others—e.g., by making their work less meaningful (Smids et al. 2020).

Meaningful work—roughly, work that is somehow worthwhile and significant (Lysova et al. 2019; Rosso et al. 2010)—is an important good. As we will explain in more detail in Sect. 3, we are taking it that if work is made more meaningful, then this benefits the people doing the work. Lacking opportunities for meaningful work is, as we will elaborate below, a serious disadvantage. Most adults in many contemporary societies must work for a living and spend considerable time and energy at work. It therefore matters greatly to what extent their work is meaningful. Consequently, several political philosophers have argued that society cannot be indifferent to the meaningfulness of work (Roessler 2012; Schwartz 1982), and that this is a matter of justice (Gheaus and Herzog 2016). However, there is no scholarly nor societal consensus on a duty of justice to safeguard meaningful work, in contrast to decent work, i.e., work that "reflects basic workplace conditions to which all employees are entitled" (Blustein et al. 2023: 298). Accordingly, decent working conditions are subject to hard regulation, while the conditions for opportunities for meaningful work are not.

In this paper, we analyze how the implementation of technology in the workplace shapes meaningful work, and what follows for the ethics of meaningful work. We do so with a particular focus on whether employers have a more modest but still substantial duty of beneficence to promote meaningful work. Specifically, we investigate how technological innovation impacts employees' opportunities for meaningful work, both positively and negatively. Our main ethical question is: if it is indeed possible for employers to guide and implement technological innovation in ways that safeguard opportunities for meaningful work, to what extent do they have the duty to do so? We defend the existence of a substantial duty of beneficence to promote meaningful work, and we relate this idea to a range of different moral perspectives. Moreover, we illustrate this idea with our case study of technological innovation in logistics warehouse work. In doing these things, we

build on previous work in which we draw on the available literature in philosophy and psychology to identify five key dimensions of meaningful work. The duty of beneficence to promote meaningful work can be understood as a duty to promote and safeguard these five key goods that are constitutive of meaningful work.

The paper is organized as follows. We first define meaningful work by identifying and explaining the just-mentioned five dimensions that, based on the relevant literature, we consider to be the main constituents of meaningful work (Sect. 2). Next, we briefly sketch the philosophical discussion about the idea of a duty to provide meaningful work and then introduce our claim that employers have a duty of beneficence to foster opportunities for meaningful work when using workplace technology. We explain why this is a substantial duty, which cannot be easily overridden. Still, this duty of beneficence on the part of employers is more modest than a duty of justice on the part of governments to foster or safeguard meaningful work would be, if they would indeed have such a duty (Sect. 3). This is followed by a justification for the duty of beneficence that we propose from the perspective of the three main moral theories, and a defense against objections (Sect. 4). We then go on to employ the five dimensions of meaningful work as our analytical lens to investigate how technological innovation in logistic warehouses has an impact on meaningful work and provide an illustration of the feasibility of the duty of beneficence to design for meaningful work (Sect. 5). In Sect. 6, with the help of the literature on work design, we show that the way in which technological innovation shapes work practices and consequently the meaningfulness of work is subject to various design choices. This further adds to our claim that the duty of beneficence we defend is feasible. Finally, building on our analysis of warehousing technologies, we discuss how technological innovation often shapes both traditional issues regarding decent work such as privacy, and decent wages and working hours, or exploitation as a threat to decent work on the one hand, and meaningful work, on the other hand (Sect. 7). We therefore call for more integration in the ethical reflection on meaningful work and decent work in business ethics. We end the paper with some concluding remarks (Sect. 8).

2 What is Meaningful Work?

If it is the case that organizations ought to design for meaningful work, it should be clear what meaningful work is and how it can be fostered. On a general level, we have a fairly clear and intuitive grasp of what meaningful work is: it is work that is somehow worthwhile and significant (Cf. Lysova et al. 2019; Rosso et al. 2010).[1] However, beyond that core notion, there is less agreement on a more specific definition of meaningful work, on its antecedents, and on how it can be adequately measured (Bailey et al. 2019; Both-Nwabuwe et al. 2017; Lips-Wiersma et al. 2018; van der Deijl n.d.). This lack of agreement is partly caused by the variety of scholarly

[1] Since we are concerned with work in the context of an employer-employee relationship, we use a commonsense notion of 'work', sometimes referred to as work in the "economic sense". However, we are open to the idea that several forms of unpaid purposeful activity also qualify as work.

disciplines studying meaningful work, most prominently work and organizational psychology, sociology, business ethics, and political philosophy.

Notwithstanding this variety, we hold that the characterizations of meaningful work presented in the literature from different disciplines show sufficient overlap for the purposes of this paper. We hold that the following five dimensions, which we explain in further detail below, together capture the essence of meaningful work (Smids et al. 2020):

1. Pursuing a purpose
2. Social relationships
3. Exercising skills and self-development
4. Autonomy
5. Self-esteem and recognition

That is, we propose that work is meaningful to the extent that workers can pursue a purpose at work, enjoy collegial social relationships, their work allows them to exercise and develop their skills, they enjoy some degree of autonomy in deciding how, where, or when to do certain tasks, and, finally, enables them to build self-esteem and, relatedly, receive recognition from others for their work. We call these "dimensions" because they represent distinct ways in which work can be meaningful. Accordingly, they could also be called constituents of meaningful work.[2]

While this might seem a rather pragmatic approach to characterizing meaningful work, it has in fact several theoretical virtues, two of which we will highlight here. Most importantly, upon reflection it seems evident that work can be significant and worthwhile in more than just one way. Our treatment of meaningful work as a multi-dimensional phenomenon is in accordance with this insight, which also finds support in the literature (Bailey et al. 2019: 99; Cf. Lips-Wiersma et al. 2018: 36; Veltman 2016: 19–20). A clear advantage of a multi-dimensional approach to meaningful work is that it allows for a comparison and integration of what various scientific disciplines have discovered with respect to meaningful work.

A second virtue is that our approach does justice to both the objective and subjective side of meaningful work. Following the objective side of meaningful work, our approach allows for an assessment of a job's meaningfulness by others than the person holding the job, such as those who design the job. This is because the five dimensions are sufficiently specific and substantive to justify the claim that work is objectively meaningful to the extent that it comprises them. This is important for purposes of ethical reflection and normative criticism. If employers have a duty to design for meaningful work, it should be sufficiently clear what counts as meaningful work (Michaelson 2019); it should be recognizable from the outside. So, for

[2] Note that these dimensions do not coincide with job characteristics, but rather, that job characteristics significantly influence whether workers can enjoy certain dimensions of meaningful work. For example, jobs with an appropriate degree of task variety and which call for sufficient skill variety, generally will be conducive to exercising one's skills and developing oneself, and in that way experiencing one's work as meaningful.

example, it can be assessed more or less objectively how much room a certain job provides for autonomous agency, whereas it is up to the worker to utilize the available opportunities.

At the same time, the five dimensions are sufficiently general to allow for considerable individual differences in the subjective experience of work as meaningful (Cf. Lysova et al. 2019). For example, workers will differ in what kind of work they find the purposefulness that contributes to experiencing their work as meaningful. Similarly, employees can differ widely in the type of job in which they can develop themselves, since that depends on a fit between a job and their interests, skills, and talents. Furthermore, individuals also differ in how they value each of the five dimensions relative to the others. Therefore, our approach allows for variation in individuals' experience of meaningful work, while at the same time having sufficient normative substance to serve ethical reflection.[3]

Despite these two virtues, some may ask what unites our five dimensions over and above the fact that they are mentioned in the relevant literatures. In response to this worry, consider, firstly, the fact that for each of the five dimensions, the empirical literature emphasizes their importance for workers' actual experience of meaning in their work.[4] Secondly, philosophers and others typically also formulate various conceptual links between the dimensions and meaningful life more broadly. And thirdly, the five dimensions have several mutually reinforcing conceptual and empirical relations.

These uniting features of the five dimensions will become apparent below, where we expand on each dimension and show how it is supported by various scholarly disciplines.[5] While we think that the dimensions together capture the essence of meaningful work, we are not wedded to our specific formulations, and we are open to additional dimensions if these can be shown to be sufficiently distinct.[6]

2.1 Pursuing a Purpose

Having purposes in life that are valuable, or that one sees as valuable, is seen as contributing to a meaningful life in general (Baumeister and Vohs 2002), and a widespread idea is that being part of something larger than oneself (a worthy cause, but

[3] On this issue of objective versus subjective approaches to meaningful work, see also Christopher Michaelson's discussion of the need for a normative theory of meaningful work. The first part of his definition, which stays at the general and abstract level, reads "Meaningful work is purposeful activity that one has good reasons to experience as meaningful…". Our five dimensions can be seen as five different good reasons for workers to experience their work as meaningful. (Michaelson 2019). For another helpful discussion of the distinction, see (Yeoman 2014).

[4] This, of course, invites the further question as to how that empirical literature conceptualizes 'meaningful work'. This varies from just the unanalyzed concept itself, to 'work that is significant', work that gives a 'sense of fulfillment', and more (Cf. Martela and Pessi 2018), which qualifies this empirical support for the unity of the five dimensions.

[5] For more detailed treatments of each dimension, see (Smids et al. 2020).

[6] For example, we have not treated 'self-efficacy', put forward by (Rosso et al. 2010), as a "mechanism of meaning", as a separate dimension of meaningful work, because it significantly overlaps with 'autonomy' and 'exercising skills and self-development'.

also, e.g., a team, or a profession) contributes to meaning in life (Wolf et al. 2010). Following Susan Wolf, we note that while not any purpose will do, we should avoid being elitist about what qualifies as a valuable purpose. Moreover, employers who aim to design for opportunities for meaningful work inevitably have to consider what employees actually value. Often there will be considerable consensus amongst employees on what qualifies as worthwhile purposes, such as 'the provision of good care' in case of nursing personnel.

Even though work may not always enable the experience of actually contributing or achieving something meaningful, merely being in the process of striving towards something might contribute to meaningful work. Several work psychologists argue that if we actively pursue a purpose in our work, and contribute to society by doing so, this makes work more meaningful (Grant 2008; Martela and Pessi 2018; Pratt and Ashforth 2003; Rosso et al. 2010). As the following quote from Andrea Veltman nicely illustrates, this connection between purposefulness and meaningful work also finds support in philosophy:

> Work can be objectively meaningful in virtue of …providing a personal purpose or serving a genuinely useful purpose for others, and especially producing something of enduring value (Veltman 2016: 117).

2.2 Social Relationships

Meaningful work is characterized by having positive social connections (Madden and Bailey 2016; Martela and Riekki 2018; Ward and King 2017). Having positive social relationships with colleagues satisfies the human need (Baumeister and Leary 1995) for belonging and relatedness in life more generally (Deci and Ryan 2000; Hicks and King 2009; Lambert et al. 2013). As Monika Betzler and Jörg Löschke (2021) argue, it is plausible to think that there are distinctive relationship values involved in collegial relations and that are different from the relationship values involved in relationships like those between romantic partners, family members, or friends. Colleagues are, for example, uniquely able to understand and recognize the value of the work that their colleagues do, as well as the challenges involved in the work, something that enables distinctive and valuable forms of solidarity and recognition among colleagues. In line with this analysis, working collaboratively fosters a shared identity (Rosso et al. 2010: 111) and a shared sense of agency and purpose (Lysova et al. 2019).

2.3 Exercising Skills and Self-development

Work is a place where we can exercise our skills and, while doing so, develop ourselves. This is because we spend significant amounts of time at work and typically get better in our jobs over the years. Through the sustained effort workers invest in meeting the demands of their job, people acquire specialist knowledge, various skills (often complex ones), and virtues. Accordingly, exercising skills and self-development are recognized as an important dimension in what makes work meaningful by both psychologists (Hackman and Oldham 1976; Lysova et al. 2019; Rosso et al.

2010) and philosophers (Danaher and Nyholm 2021; Gheaus and Herzog 2016; Roessler 2012; Veltman 2016). A clear link with the 'social relationship' dimension is constituted by the fact that cooperation, feedback, and mentoring in a work environment characterized by high quality relations with colleagues all significantly contribute to mastering skills and self-development, and hence to meaningful work.

2.4 Autonomy

Autonomy as a dimension of meaningful work involves having sufficient discretionary room in the shaping of one's work-related activities, so that one is able to use one's capacities for judgment and decision-making at work in a way that recognizes the value of these capacities. Such ideas of autonomy relate to the idea of job crafting, the modification of one's tasks, one's interactions, and the way one perceives and construes one's work (Wrzesniewski and Dutton 2001). The relation between having meaningful work and (developing the capacities for) living an autonomous life is emphasized by various philosophers (Bowie 1998; Roessler 2012; Schwartz 1982). Finally, several psychological studies empirically support the view that autonomy contributes to the experience of meaningful work (Hackman and Oldham 1976; Lysova et al. 2019; Martela et al. 2021; Rosso et al. 2010; Ward and King 2017).

2.5 Self-esteem and Recognition

If work is a source of self-esteem and social recognition, it will foster the experience of work as meaningful. Here we see clear relations with the other dimensions of meaningful work. If workers exercise and develop their skills, and serve worthwhile purposes, this will warrant perceptions of self-worth and foster self-esteem. These, in turn, will foster one's sense of self-efficacy, which is conducive to personal autonomy. Moreover, when workers' process of mastery and their contributions are recognized by co-workers, managers, and society, this also contributes to meaningful work (Montani et al. 2017). Therefore, both self-esteem and recognition are part of what makes work meaningful and experienced as meaningful (Gheaus and Herzog 2016; Montani et al. 2017; Rosso et al. 2010; Tweedie 2010; Veltman 2016).

When we go on to discuss whether there is a duty of beneficence to design for opportunities for meaningful work, we will be understanding meaningful work as work that involves one or more of the five key constituents of meaningful work that we have just reviewed above. That is, the more work involves these aspects, the more meaningful it is.

3 A Moral Duty of Beneficence to Design for Meaningful Work

Research on technology as an antecedent of work design [i.e., how work is organized in tasks, relationships, and responsibilities (Parker 2014: 662)] shows that technology can have both positive and negative effects on meaningful work.

Whether technologies, such as robotization, foster or subvert meaningful work is dependent on the design choices made by several stakeholders (Berkers et al. 2023). The role of technological innovation is highly relevant to the ethics of meaningful work. The fact that we *can* design for meaningful work gives rise to the question whether we *ought* to do so, and how far-reaching such duties would be. In our case study below, we will illustrate these ideas when we discuss technological innovations in logistics warehouses. But first we will discuss these ideas in more general terms.

Importantly, the ever-growing role of technology in the workplace, fueled by artificial intelligence, adds urgency to questions debated in political philosophy regarding whether it is a matter of social justice that workers have access to meaningful work, and accordingly, what would follow regarding state policies. Some authors emphasize that meaningful work is one value among others and argue that it is up to citizens how they value meaningful work relative to wage, leisure time, and other values. According to that stance, a neutral and just society ought not to devise policies that promote the availability of meaningful work (e.g., Arneson 1987; Kymlicka 2001).

Others take a 'mildly perfectionist' approach and argue that the kind of goods constituted by our five dimensions of meaningful work contribute to human flourishing in crucial ways, and, unsurprisingly, are in fact valued by many people. They further note that virtually all citizens must work for a living and spend considerable amounts of time and energy at work. Consequently, if work does not enable them to have good social relations, to develop their skills and capacities, to be recognized for their contribution, and so on, people face a serious disadvantage (Gheaus and Herzog 2016; Veltman 2016). Anca Gheaus and Lisa Herzog go on to argue that the meaningfulness of work belongs, just like wages, to the benefits and burdens of paid work, which is "one of the main forms of social cooperation" Consequently, like wages, the distribution of citizens' opportunities for meaningful work is a matter of justice, as Gheaus and Herzog see things (2016: 70).

Several political philosophers also put forward the so-called formative argument for meaningful work. They focus on autonomy in particular, and argue that meaningless work has a negative formative influence on our capacities and appetite for living an autonomous life. If work does not offer workers sufficient discretionary space and challenging tasks, they do not have to exert their own understanding and decision-making. Therefore, if many citizens have to do meaningless work, a liberal society, which places high value on autonomy, should not stand by but take action (Hsieh 2008; Roessler 2012; Schwartz 1982).

We will not enter these debates, but instead briefly emphasize how technological innovation is directly relevant to them. First of all, the ever-increasing role of technology in workplaces might, on balance, lead to a decrease in the availability of meaningful work (Berkers et al. 2023; Danaher 2019). If so, and assuming again that many workers value one or more of our five dimensions of meaningful work, then this puts pressure on the position that stresses the neutrality of the state. For, as we noticed above, for most workers it will be hard to achieve the goods of meaningful work in their lives outside work. A refusal to implement policies that help to make

meaningful work more widely available in order to remain neutral as a state would be indifferent towards those many citizens who in fact value meaningful work.[7]

Second, as we already briefly noted, the perspective of technological innovation also shows that societies in fact can take measures to increase the share of work that is at least somewhat meaningful. As we just noted and will elaborate below (Sect. 6), how technology affects meaningful work is subject to many design choices made by the various parties involved in technological innovation processes. So, if we think that many of the jobs in our society are not very meaningful (Cf. Holman 2013), we can do more than merely lament and think that this is a form of injustice that is not possible to redress. The fact that, in practice, much can be done makes it even more important to reflect on what a just society owes its citizens in terms of providing meaningful work to those who value it. We do not take up that task here, but instead focus on businesses, because there is reason to think that employers have a duty of beneficence to design for meaningful work, even if the distribution of meaningful work in society should ultimately not be regarded as a matter of justice.

It is important to be precise on the nature, scope, and justification of this duty of beneficence for employers to design for meaningful work. Significantly, we use 'design for meaningful work' as shorthand for 'design for opportunities to have meaningful work'. This is because employers cannot ensure that their employees subjectively experience meaningful work. But employers can design work practices in such a way that workers can realize the dimensions of meaningful work.

Furthermore, we argue for a substantial duty of beneficence, which cannot easily be overridden. Given the objective value of the five dimensions of meaningful work, together with the facts that employees do in fact often value them, and must work for a living, employees are seriously disadvantaged if and when they lack opportunities for meaningful work. For example, for most of us, it is only in a work context that we can exert the sustained effort needed to realize complex skills, motivated by purposes we find valuable, and be supported by collegial feedback, in cooperation with colleagues with whom, ideally, we have good social relations. This importance of meaningful work is confirmed by well-established empirical findings that meaningful work is moderately to even strongly correlated to outcomes such as job satisfaction, work engagement, general life satisfaction, and health (Allan et al. 2019; Hu and Hirsh 2017a). So, having opportunities for meaningful work is generally a substantial benefit.[8]

Therefore, the duty of beneficence to design for meaningful work is a substantial duty, which cannot be discharged by, for example, paying higher wages instead. One reason is that sectors with a large share of less meaningful jobs, such as warehousing, are characterized by small margins. So, any potential wage raise may be very limited and will only provide small benefits compared to the significant benefits of

[7] Some object that market mechanisms ensure that if many workers would indeed value meaningful work, it would become more widely available (Arneson 1987). However, this objection presupposes that markets are functioning in an ideal way and that workers have choice to accept a lower wage in turn for meaningful work. (Gheaus and Herzog 2016). In fact, typically low wage jobs are also less meaningful, as also observed in (Berkers et al. 2020).

[8] We thank one of our anonymous reviewers for urging us to clarify the nature of the duty.

meaningful work. Moreover, research suggest that people often place so much value on meaningful work, that they accept lower wages in turn for work they find meaningful (Hu and Hirsh 2017b). This makes all the more sense, given that the goods of meaningful work, e.g., self-development, cannot be bought by money. To generalize, the meaningfulness of work is intrinsic to work, unlike other goods that employers could provide to their employees to benefit them. Accordingly, their duty to foster meaningful work is part of their role responsibility as employers.

These considerations also help to explain why providing opportunities for meaningful work should be seen as benefitting employees, despite the fact that meaning and well-being can be seen as distinct concerns (Wolf et al. 2010). If we conceive of well-being in the narrower sense of happiness, work that is clearly meaningful can nevertheless make workers unhappy. To take the example of nurses again, they may sometimes invest too much energy and dedication in their caring for their patients, more than is good for their own well-being in terms of their health and happiness. However, apart from such cases of conflict, when we construe well-being not merely in narrow terms as merely 'what make us happy', but also in eudaimonic terms of what contributes to the good life, then meaning in life and work is constitutive of well-being.

In our paper, we work with that broader notion, because, in our view, it makes perfect sense to argue that employers benefit employees by providing (opportunities for) meaningful work, because it helps employees to flourish and live their good life, the life that they *find* valuable and that *is* valuable. Moreover, the various dimensions of meaningful work are associated with benefits for employees that can make them happy, thereby fostering their well-being in the narrower sense. In fact, the empirical literature shows that hedonic well-being (roughly happiness and life satisfaction) and eudaimonic well-being are clearly correlated in our lives. Accordingly, experiencing meaning in life and in work not only contributes to eudaimonic well-being, but is also conducive to happiness (for a review, see Ward and King 2017).

Regarding the duty's scope, employers of course operate in contexts that pose many constraints, and their continuation requires that they stay competitive. The duty to design for meaningful work is the duty for organizations to seriously attempt to safeguard and promote meaningful work within these constraints. That is, the design objective for meaningful work may sometimes conflict with other organizational goals and with external constraints. It may very well be possible to solve or ease these conflicts by taking a joint optimization approach to technological innovation from the very start. However, if they cannot be resolved, the objectives need to be balanced, and it is possible that, for example, having to stay competitive limits the options for firms to make work more meaningful.

Therefore, although substantial, employers' duty of beneficence is defeasible and less stringent than a duty of justice would be, and hence entails no right to meaningful work for employees. However, once this duty of beneficence becomes widely recognized by employers, governments, trade unions, etc., various forms of soft regulation may be designed that will enable employers to foster meaningful work. For example, training programs, learning networks, and policy recommendations (Cf. Alasoini et al. 2017). In this respect, meaningful work differs from decent work, which in developed countries is regarded as a matter of justice and subject to hard

regulation: workers often have a legal right to things such as maximum working hours, minimum wages, and legal protection against things such as health hazards.[9]

4 Justifying the Duty of Beneficence to Design for Meaningful Work

Notably, a duty of beneficence in this context can be justified with reference to all the major moral theories—Kantian ethics, consequentialism, and virtue ethics. These all offer direct or indirect support for a duty of beneficence. And as is noted by e.g., John Broome, a duty of beneficence is also part of common-sense morality (Broome 2012). So, if promoting meaningful work is a key way in which corporations can discharge a duty of beneficence, the duty to promote meaningful work finds support both in all main moral theories, and common-sense morality. We will now illustrate these points by considering some of these just-mentioned theoretical perspectives.

Firstly, justification for the claim that organizations that engage in technological innovation have a duty to design for meaningful work can be found in Kantian ethics. Kant held that his Categorical Imperative entails a general duty to adopt the happiness of others as an end. In his *Groundwork for the Metaphysics of Morals*, Kant argues that positive harmony with treating others as an end in themselves requires that "everyone … also endeavours, as far as he can, to further the ends of others" (Kant 1785, 4:430). He also derives this duty of beneficence from his first formulation of the Categorical Imperative. In his *The Metaphysics of Morals*, Kant writes:

> The reason that it is a duty to be beneficent is this: since our self-love cannot be separated from our need to be loved (helped in case of need) by others as well, we therefore make ourselves an end for others; and the only way this maxim can be binding is through qualification as a universal law, hence through our will to make others our ends as well. The happiness of others is therefore an end that is also a duty. But I ought to sacrifice a part of my welfare to others without hope of return, because this is a duty, and it is impossible to assign determinate limits to the extent of this sacrifice. (Kant 1797, 6:393).

The limits of our duty of beneficence depends on both the needs of others and on avoiding sacrificing one's own welfare to the extent that it would contradict treating oneself as an end. Accordingly, Kant calls the duty of beneficence a 'wide' duty, which means that we have considerable latitude in determining how much we should do.

Business ethicists have explained how this very general duty of beneficence also applies to managers in their dealings with various stakeholders, while they also stress the room and need for judgment in fulfilling the duty (Mansell 2013; Robinson 2019). That room for judgments is in line with how we described the scope of the duty to design for meaningful work. When firms consider

[9] We thank one of our anonymous reviewers for suggesting that we employ the distinction between hard and soft regulation in this context.

technological innovation, they are dealing with more stakeholders than employees alone, and they face different sorts of constraints. Taking the duty of beneficence to design for meaningful work seriously, therefore, in the first place means a serious and firm commitment to take meaningful work as a design objective from the very beginning to the end of the innovation trajectory. This entails the willingness to sacrifice some profit in order to safeguard meaningful work, as long as the continuation of the firm is not in danger.

However, as we will explain more fully in Sect. 6 below, it will often be the case that designing for optimal human-technology interaction, including employees' opportunities for meaningful work, will overall foster the successful implementation of the technology and benefit all stakeholders. In addition to the positive outcomes for employees already mentioned above, in the work and organizational psychology literature, several associations between meaningful work and positive outcomes for organizations are given. These include performance, intention to stay, organizational citizenship behavior, and organizational commitment and identification (Bailey et al. 2019; Fletcher and Schofield 2019; Michaelson et al. 2014; Wingerden and Stoep 2018). These studies, however, do not identify a direct causal path from meaningful work to profit.

These observations imply that there is also a consequentialist justification for the claim that employers ought to design for meaningful work. Firstly, if the goods associated with meaningful work are seen as a non-instrumental goods, then consequentialism—understood as the view that morality requires us to promote what has non-instrumental value (Sinnott-Armstrong 2022) straightforwardly implies that there is a duty of beneficence to promote meaningful work. Secondly, even if the goods associated with meaningful work are not seen as non-instrumental goods in their own right, it is still the case that if the consequences of providing meaningful work to employees are generally beneficial with respect to other non-instrumental goods, then, according to consequentialism, the right action for employers is to design for meaningful work when their firm introduces technological innovation.

At this point, the following question naturally arises: if meaningful work is beneficial for both employers and employees, would it not be irrational not to design for meaningful work? Hence, why bother to argue for a duty of beneficence? In response to this, we note that often employers are not realizing the benefits as it is still very common for companies to take a technology-centered approach to innovation, in which human workers have to adapt to new technologies, aiming at efficiency gains (Berkers et al. 2023; Parker and Grote 2020). However, for technology to contribute to meaningful work, human-technology interaction needs to be considered from the earliest stages of innovation (see also Sect. 4 below). Moreover, it will generally not be possible to ascertain these positive outcomes of meaningful work at the outset of the innovation trajectory. Rather, companies must first engage in a work (re)design process, during which estimates can be made of the potential for benefits, which ultimately have to be realized in practice. Accordingly, designing for meaningful work will often involve a change of their mindset on the part of employers, requires effort, and may still require a net investment. Therefore, a substantial duty

of beneficence is not superfluous, but should have distinct normative and motivational force for employers.

The uncertainty of the benefits of meaningful work is a problem for act consequentialism, for which the solution is the adoption of a general rule that is to be expected to generate the best overall outcomes (Hooker 2016). In this case, this is a rule that instructs employers to include meaningful work as a design objective from the very beginning of the innovation process and that is likely to generate on average the best outcomes. Along the design process, it may become clear that designing for meaningful work is only possible to a limited extent, in order to avoid harmful side effects for employees and employers. So, like the Kantian justification, consequentialist injunctions to design for meaningful work also take the context and constraints into account and provide room for judgment. Nevertheless, given the substantial benefits that potentially can be achieved, the consequentialist justification of the duty entails that it is a substantial duty that cannot be taken lightly.

Regarding the third major ethical theory—virtue ethics—we suggest that from a virtue ethical approach it also follows that the right action for employers is to attempt to establish meaningful work. We follow Rosalind Hursthouse (2002) in understanding virtue ethics to imply that the right action is the one that a virtuous agent would take. And we assume that benevolence and prudence are some of the key virtues that are relevant in this context. Based on such assumptions, one can argue as follows. Benevolent managers care for the well-being of their employees. Prudent managers will notice how designing for meaningful work when engaged in technological innovation may benefit both the firm and its employees. As this fits the virtue-ethical approach very well, in considering what they can do to foster opportunities for meaningful work, managers have to take into account the context constraints within which the firm operates.

At this point, we need to clarify which theory of the firm is assumed as the background for our duty of beneficence to design for meaningful work. For, notably, such a duty might very well be rejected from the perspective of the shareholder theory of the firm. According to that theory, managers have no other obligation than to keep the law and to maximize profit for the shareholders, within the bounds of the law (Moriarty 2017). The most prominent exponent of this theory of the firm, Milton Friedman, argues that it is against the manager's contractual duties towards the shareholders to spend money in ways that do not maximize profit (Friedman 1970). Therefore, managers have no duty of beneficence to attempt to ensure opportunities for meaningful work for their employees.

In response, it should first of all be noted that a right to maximize profits is hard to justify. Rather, all that shareholders have a claim to is legitimate profit. Nevertheless, it can be argued that even the supposed obligation to maximize profit for the shareholders of the firm entails an obligation *towards shareholders* to include meaningful work as a design objective and to investigate, along the process of innovation, whether safeguarding meaningful work will on balance yield more profit. This is because as we just noted, there are indications that meaningful work, at least sometimes, may increase the profit of the firm. This way to justify a duty to design for meaningful work is different from the Kantian justification. For, when they aim to maximize profit, managers should not design for meaningful work even

if this involved only minor costs. On the contrary, the Kantian duty of beneficence instructs to give up profit in order to foster meaningful work, as long as this is feasible for the firm.

In addition to this line of response, Mansell provides a promising defense of the view that a Kantian duty of beneficence is compatible with the shareholder theory of the firm. Mansell places the Kantian duty of beneficence on the shareholders. Now, as long as it is ascertained that managers act on behalf of the shareholders, managers who attempt to create opportunities for meaningful work do not violate their contractual obligations towards shareholders (Mansell 2013).

Finally, it should be noted that if employers first and foremost envision meaningful work as a way to foster employee performance and to maximize profit, there is the risk of exploitation (Cf. Michaelson et al. 2014: 86). However, that attitude is clearly inconsistent with the duty of beneficence, which treats the well-being of others as a reason for action. Designing for meaningful work out of the duty of beneficence pays respect to the humanity of the employees by supporting them when they seek opportunities for engaging in meaningful work.

5 Technology and Meaningful Work in Logistic Warehouses

A good way to explore how technologies in the workplace might impact the five dimensions of meaningful work, and to see why the duty of beneficence we defend is often feasible, is to explore a particular type of work as a case study. An increasing variety of technologies (e.g., automated guided vehicles; voice-to-pick technology; sealing robot) is used to carry out the processes of receiving and storing goods, picking and packing orders in logistic warehouses. These technologies differ in the degree of automation and robotization involved, but artificial intelligence is becoming more and more prominent. A well-known example is the Kiva robots employed in Amazon's warehouses, which bring shelves stocked with products to human workers (Li and Liu 2016). The rapid growth of the e-commerce sector causes labor shortages, which forms a very strong incentive for warehouses to invest more in automation and robotization (Vanheusden et al. 2021). However, because the profit margins are low, investments in technological innovation are risky, and the short-term business contracts between companies and logistic providers form an additional obstacle for successful technological innovation (Gutelius and Theodore 2019: 17–29). Therefore, if we can show that even in this competitive sector with low profit margins, it is feasible to design for meaningful work, this strengthens our argument that employers have a duty to do so.

To get a broad overview of cost-efficient trends and changes in the logistics sector, independent of specific companies (e.g. Amazon), specific contexts (e.g. Europe), or technology (e.g. robots or AI) we built our case study on secondary data (Cf. Cowton 1998) to illustrate what is currently happening in the logistic sector around technology and its impact on meaningful work. We used different sources, including studies of governmental and regulatory bodies (TKI Dinalog—Dutch Institute for Advanced Logistics 2020; Van den Groenendaal et al. 2020), studies of other researchers (Gutelius and Theodore 2019), relevant newspaper articles

(e.g. Lecher 2019; Yeginsu 2018), and our own research project carried out in eight logistic warehouses in the Netherlands (Berkers et al. 2020, 2023).[10] In that way, we addressed potential weaknesses in our data, such as not being able to generalize findings to outside the Netherlands, and improved the reliability and validity of our insights.

5.1 The Impact of Technology on the Meaningful Work Dimensions in Logistic Warehouses

Let us now consider how warehousing technologies affect the five dimensions of meaningful work for order packers, order pickers, and team-leaders coordinating the order packers and pickers. Starting with the idea of *pursuing a purpose*, we found in related work that the jobs of order packers and order pickers is increasingly being divided into subtasks, because some subtasks were taken over by technology (Berkers et al. 2020). As a result, order packers no longer finalized the process in the form of a package ready to be sent to the customer, and thereby lost the former clear connection to the ultimate purpose of the process, client satisfaction. Although this was to a lesser extent also the case in warehouses with less technology, automation seemed to amplify this, for example, because order pickers worked separated from order packers (Berkers et al. 2020). This effect of automation is of course long recognized and fuels debates about alienation from one's labor (Leopold 2018). At the same time, some warehouse employees also reported that technology supported them in their goal to be productive. These employees, for example, enjoyed being able to work fast and efficient or tracking their own performance with the help of technology (Berkers et al. 2020: 336).

Second, regarding the dimension of *developing good social relations,* warehousing technology often determines how much opportunity workers have for social interactions. For example, in another research project in the Dutch context, it was observed that goods-to-person working stations were placed at such a distance that social interaction became hard for the humans working at the stations (TKI Dinalog—Dutch Institute for Advanced Logistics 2020). In previous research, some of us found, unsurprisingly, that workers had fewer social interactions when they worked with a co-bot instead of a fellow human worker (Berkers et al. 2020: 333). The predominantly negative impact of warehousing technologies on social relatedness is recognized by others as well (Gutelius and Theodore 2019: 58).

Third, warehousing technology has clearly a large potential for the simplification of jobs and thus diminished opportunities for *exercising skills and self-development*. Consider the job of being an order picker. The conventional way to pick orders is to navigate one's way through the warehouse and pick the items on a picklist. This allows for choice in the order in which to pick items and, consequently, for getting

[10] See these references for the details of our semi-structured interviews about work and technology with employees ($N=8$) and supervisors ($N=15$). We also did observations in each of the participating 8 logistic warehouses of 15 min to 1 h, where we observed employees work with different technologies from a distance and with interaction (i.e., participant-observation).

experienced in choosing an optimal picking route given a certain list of items. In the last decade, however, many warehouses have switched to so-called voice-picking (Gutelius and Theodore 2019: 33) to increase productivity, reduce errors, and enhance safety. Instead of working independently based on a picking list, order pickers receive detailed instructions via a headset. The voice tells them the right location, they confirm that location, they hear what item to pick, confirm the picking, receive the next location, and so on. Evidently, voice-picking requires less skills use than conventional picking, as also evidenced by how it is advertised by one firm: "a new associate can be trained and begin going solo in less than a day, and become proficient in one to two weeks."[11] However, alongside this large potential for simplification as just illustrated by order picking technology, other technology such as packing robots was observed to open up new opportunities for warehouse workers. That is, in some warehouses, they become responsible for the maintenance of packing robots and thereby acquire new skills (Berkers et al. 2023).

The example of the order picker stands for a general trend whereby technologies, such as pick-robots, packing machines, etc., take over tasks from human workers, leaving them with a simplified job that involves lesser opportunities for learning and developing (Berkers et al. 2020; Gutelius and Theodore 2019; Van den Groenendaal et al. 2020). Moreover, as a result of the reduced training time needed to adequately perform the job, turnover costs for employees are significantly reduced, leading to reduced job security (Gutelius and Theodore 2019: 56). Accordingly, warehouses rely heavily on temporary workers, who in general are less inclined and committed to investing in learning and self-development (Preenen et al. 2015).

Fourth, the comparison between conventional order picking using a list, and voice picking, will also serve to show the impact of technology on *autonomy*. It is evident that voice-picking reduces the decision-making autonomy of the order picker. In fact, it resembles a form of micro-management and algorithmic control: every few seconds, the computer-generated voice issues a new instruction, generated by optimization algorithms, to perform a micro action. In that way, an order picker follows hundreds of subsequent instructions in one shift. Let us compare voice-picking with another technology-based order picking method, viz. automated, self-driving trolleys that guide the order picker along the picks. Picking with follow-me carts appears to involve less micro-management, and is also less cognitively taxing, because instead of focusing on not missing the next instruction, the picker can just read the instructions on the display any time. In this respect, the follow-me cart seems less detrimental to worker autonomy than voice-picking technology. Nevertheless, both technology-directed forms of order picking hardly allow for worker initiative, nor for the independent judgment and decision-making that are crucial for an autonomous person. This applies to many warehousing technologies, as they often involve algorithmic optimization and standardization of working procedures, leaving hardly any discretionary room for workers (Gutelius and Theodore 2019: 9).

Fifth and finally, we consider the dimension of *self-esteem and recognition*. For the majority of employees, in particular those doing low-skilled jobs, it is a mixed

[11] https://www.lucasware.com/voice-picking-introduction/.

picture. As became clear above, their opportunities for exercising their skills and self-development, which in turn could enhance self-esteem, are very limited. This could lead to what Danaher and Nyholm (2021) call the achievement gap: technology undermines workers' opportunities to accomplish an achievement. Moreover, the technologies they work with, such as the voice-picking systems and the follow-me cart, deliver detailed information on their individual performance rates. In some Amazon warehouses, workers are continuously informed whether their pace is still adequate, by means of graphs and a traffic light system showing green, orange, or red (Dzieza 2019). Often these performance rates are visible to all workers and play an important role in hiring and firing decisions (Lecher 2019). Typically, the contracts of low performers are not extended, and only high performers have a chance for promotion or obtaining a permanent contract. While this practice may confer some recognition to workers performing well, a common experience for warehouse employees is that they have to compete with robots and in fact are being treated like robots (Lecher 2019; Van den Groenendaal et al. 2020: 59). Such treatment is the opposite of recognition and detrimental to worker's self-esteem.

It is instructive to zoom in on the multifaceted role of warehousing technology here. This technology leads to simplification of jobs, for which workers need very little training to do the job independently. Consequently, it is hard to distinguish oneself as a worker other than by way of routine that develops more or less automatically over time, and by the willingness to pace oneself and to accept the strain this involves. Many workers accept the trade-off, because they know that reduced training time also makes it less costly to replace them, and, moreover, the potential workforce is larger because little skill is required. Such outlook does not support self-esteem. Add to this the fact that the deskilling of jobs also puts pressure on wages, leading to wage-stagnation (Gutelius and Theodore 2019: 59). As a wage is also a source of recognition, this is another way in which technology ultimately endangers meaningful work.

Overall, we see that for order packers and pickers, technology predominantly has negative consequences for the five dimensions of meaningful work. For their team leaders, in contrast, the impact of technology is mainly positive. As was to be expected from the perspective of Skill-Biased-Technology Change (Autor et al. 2003), in the warehouses we investigated in previous work, team leaders had more opportunities for exercising skills and developing themselves (Berkers et al. 2020). For example, their jobs often became more challenging by having to solve problems with robots. Furthermore, team leaders profited from the data generated by warehouse management systems, by informing their decisions with the data, and by further improving work processes. Their room for judgment and decision-making expanded. Surprisingly, the increased use of data did not come at the expense of social relations for these team leaders, because they indicated that due to efficiency increases they now had more time to spend to, for example, coaching employees (Berkers et al. 2020). Given all this, it will come as no surprise that technological innovation in warehouses primarily helps team leaders and other higher educated employees to enhance self-esteem, build social relations, and receive recognition for their work.

However, it is crucial to note that these differences in how technology impacts meaningful work involve many work design choices. To give an example, one warehouse we observed chose to block the order pickers' access to the service menu of the follow-me robot for reasons of efficiency, and managerial control and oversight. In other warehouses, workers who showed an interest in technology were given the opportunity to receive additional training to solve technical problems (Berkers et al. 2020).

We will now employ a comparison between the three different types of order-picking just discussed to illustrate how explicit design for meaningful work can be feasible for employers, thereby strengthening our case for a duty of beneficence. In terms of the opportunities for order pickers to make choices, thereby granting some autonomy, and room to develop at least some skills, traditional list-picking is preferable to both voice-picking and picking with the follow-me robot. However, it seems that the economic advantages of voice-picking (more picks, less errors, enhanced safety[12]) are so extensive that list-picking will be most often economically not feasible. In that case, therefore, the employer's duty of beneficence to design for meaningful work does not entail that the company should stick with list-picking.

What it does entail, in our example, is a duty to compare voice-picking with picking with the follow-me robot. Even though this robot also completely determines the route and which items to put where, it seems a clear advantage that its instructions are simple and easily understood by the picker, because this avoids the intense concentration needed not to miss any of the many detailed instructions involved in voice-picking (which makes voice-picking a paradigm example of micro-management and worse for autonomy than the follow-me cart). In earlier work, we have also observed that the follow-me cart provided at least some opportunity for social interaction, e.g., when waiting for the next empty cart to arrive (Berkers et al. 2020).[13] With respect to the other dimensions, pursuing a purpose and self-esteem and recognition, we find it hard to give a meaningful assessment, and therefore leave them out of the comparison. In Table 1, we give a stylized summary of the comparison, which shows that in terms of meaningful work (and in terms of workload), the follow-me robot is preferable. While not one of our dimensions of meaningful work, a further clear advantage of the robot is the reduced walking distance and reduced physical strain of having to pull a trolley.

Assuming, for the sake of argument, that the follow-me robot gives as much competitive advantage as voice-picking, that it fits the work process in terms of types and volumes of orders to be picked, and also that there are no further constraints, the warehouse has a duty of beneficence to opt for follow-me picking and not voice-picking.[14] That is, it is within their reach to enhance workers' opportunities for

[12] See the claims of one provider of voice-picking technology: https://www.lucasware.com/voice-picking-introduction/.

[13] We realize that this idle time may diminish when the follow-me cart is being further developed.

[14] Note that the follow-me robot benefits employees not only in terms of meaningful work, but also in terms of physical well-being. The duty of beneficence that employers have towards them of course include more than attempting to provide for meaningful work. Therefore, if it was the case that voice-picking was the preferred option with respect to physical and mental workload, this would be a consideration against opting for the follow-me robot. So, meaningful work as a design objective may conflict with other design objectives that benefit employees, here the objective to care for their physical and mental well-being.

Table 1 Stylized comparison of meaningful work scores for three types of order-picking

	Autonomy	Exercising skills and self-development	Social relations	Physical and mental workload	Performance
List-picking	+/−	+/−	+/−	−	−
Voice-picking	−−	−	−	−−	+
Follow-me robot	−	−[a]	+/−	+	+

For example, the "+/−" in the upper left entry means that the autonomy dimension of meaningful work was moderately present for list-picking and the "−−" one entry lower means it was present to a very low degree for voice picking. So the −, −−, +/−, +, and ++ are indicative of a scale running from a very low to a very high degree

[a]It might be that the follow-me cart allows for more options to develop oneself as a technical troubleshooter. However, as noted, this depends on whether the employer grants workers that opportunity

meaningful work at an acceptable cost or perhaps even an advantage to their business. And therefore, given the duty of beneficence, they ought to choose the follow-me cart.

What we see, then, is that technological innovation significantly shapes whether work can be meaningful, and, that explicit design for meaningful work may very well be possible and economically feasible. This provides further support for our claim that employers have a duty of beneficence to design for opportunities for meaningful work.

6 The Importance of Work Design

In this section, we zoom out to workplaces in general to strengthen our case by arguing how the organizational psychology literature shows that design for meaningful work is indeed possible. Since technology so pervasively shapes work practices, as shown in our case study above, it inevitably also significantly affects workers' opportunities for meaningful work. Technology thoroughly influences where, when, how, and with whom we work. It supports workers in performing tasks, takes over tasks from human workers, and in some cases, it is potentially apt to say that technology cooperates with human workers (Brynjolfsson and McAfee 2016; Cascio and Montealegre 2016; Parker and Grote 2020). In that way, technology co-shapes the extent to which workers can pursue purpose, have good social relations, exercise their skills and develop themselves, have autonomy, and develop self-esteem and receive recognition in their jobs.

The impact of technology on work has been long established in the literature on work design. Work design is defined as the "content and organization of one's work tasks, activities, relationships and responsibilities" (Parker 2014: 662). Technology is acknowledged as an organizational level antecedent of work design that affects work characteristics (Parker et al. 2016). In a recent paper, Parker and Grote (2020: 8, 15–17) discuss how various key work characteristics, such as autonomy and decision making, skill variety and use, job feedback, the relational

aspects of work, and job demands, might be affected by technology. Technology, for example, can positively impact skill variety and use whenever technology takes over the "dull, dirty and dangerous tasks" and when it provides individuals the opportunity to engage in skilled and meaningful tasks instead. At the same time, in some cases automation has been responsible for a move from active skill use to passive monitoring jobs, such as in process control in chemical or nuclear power plants or in railway operations.

It is important to underline that although technology is seen as a work design antecedent, it is not necessarily the technology itself that changes work characteristics, but rather the choices made by organizational stakeholders. In their Framework of Work Design Influences, Parker et al. (2017) explain that choices about work design, technology, people, rewards, layout and information flows in the end determine how work is organized and divided. Usually, these decisions are made by organizational stakeholders in positions of formal authority, such as managers, team leaders, and executives.

Employees, however, can also assert influence on the impact of technology on meaningful work, as they are considered an organizational stakeholder in the informal processes that shape work (Parker et al. 2017). The idea that employees can proactively change their work design is, for example, elaborated in the concept of job crafting. This concept refers to the process through which employees actively change the boundaries of their work (i.e., what they do, who they work with, what resources they have, how much challenge there is) in order to increase the meaningfulness in their job and decrease stress (Tims et al. 2013; Wrzesniewski and Dutton 2001).

The extent to which workers are able to engage in job crafting, however, is dependent not only on the proactiveness of the employee, but also on the autonomy granted to employees by their organization (e.g., their direct supervisor) to experiment with the way they perform their tasks (Thun and Bakker 2018). Therefore, granting this autonomy is one way in which employers can take their duty of beneficence to design for meaningful work seriously. So, technology's impact on the nature and meaningfulness of work is not deterministic but results in large part from active human choices of both employers and employees, even though certain technological constraints are inevitable.

As we already briefly addressed in relation to the consequentialist justification of a duty to design for meaningful work, research on work-design also underlines the potential benefits for both employers and employees. In an overview of one hundred years of work design research, Parker et al. (2017) emphasize the evidence that has been gathered showing that so called 'high quality work design' instigates positive outcomes for both individuals and organizations. Work that is motivating, meaningful, and not (too) strenuous results in satisfied employees and better performance. A meta-analysis showed that experienced meaningful work best explains the relationship between work characteristics and work outcomes (Humphrey et al. 2007). In other meta-analyses, meaningful work has been moderately to strongly positively associated with work engagement, commitment, organizational citizenship behavior, general health and self-rated performance,

as well as, negatively associated with withdrawal intentions and negative affect (Allan et al. 2019; Hu and Hirsh 2017a).[15]

In conclusion, we see that organizational psychology holds that work design choices determine whether work can be meaningful, and that meaningful work has many beneficial outcomes for both employers and employees. Accordingly, design for meaningful work is possible and often feasible, which further strengthens our case for a duty of beneficence to design for meaningful work.

7 Decent Work Versus Meaningful Work

In this final section, we highlight how our analysis supports the idea that ethical reflection on technological innovation in the workplace should focus on both meaningful work and decent work in tandem (Cf. Blustein et al. 2023). In business ethics and political philosophy, these are largely treated as separate issues.[16] Dale Tweedie characterizes decent work as work that provides "decent levels of resources and entitlements …for example, decent wages, decent hours of work and leave, adequate job security" (Tweedie 2010: 204), and, we might add, privacy. These topics are typically seen as matters of justice that imply clear and strict duties on employers. Accordingly, they are often subject to hard regulation, e.g., laws that regulate working hours and legal minimum wages. Meaningful work, in contrast, is seen more as an aspirational ideal, giving rise to at most limited employer duties. However, technological innovation, often shapes both the extent to which work is decent and the extent to which it is meaningful, and hence, a more integrated ethical analysis might yield more valuable ethical guidance of the design process.

Our case study that we discussed in Sect. 5 above, illustrates that one and the same technological innovation may have repercussions for both decent work and meaningful work. Warehouse management systems in combination with voice-picking frustrate meaningful work by causing deskilling and decreased space for autonomous decision-making. But this deskilling also leads to wage stagnation and to reduced job-security, because less training time makes replacement easier. These are threats to decent work. Warehouse management systems also cause a further threat to decent work, viz. 'work intensification' (Gutelius and Theodore 2019: 52ff). They speed up the pace and enable to monitor and publicize employees' performances, which puts them under pressure and makes them feel like robots (see Sect. 3 above). Finally, they can be used in ways that threaten privacy. From the detailed interaction of workers with warehousing technologies such as voice-picking and cart-following

[15] In line with our remarks in footnote 4 above, we should note that the individual studies in those meta-analyses employ different measures of meaningful work. Therefore, from the results of these meta-analyses it does not directly follow that when our five dimensions of meaningful work are present, these positive outcomes will be found as well. However, given that in section II above, we cited empirical literature showing for each dimension its relation with experiencing meaningful work, it is not unreasonable to expect such positive outcomes to obtain, at least to some extent.

[16] With the exception of some, e.g. (Bowie 1998) who treats a wage that enables a decent life as a constituent of meaningful work.

picking, a lot of data are generated, leading to concerns about excessive surveillance and threats to worker privacy. An extreme example of this trend is Amazon's wristband, that helps workers navigating the warehouse by giving haptic feedback (Yeginsu 2018).

Looking beyond logistic warehouses, this 'algorithmic control', i.e., the deployment of artificial intelligence-based algorithms to direct, evaluate, and discipline workers, also increasingly affects high-skilled jobs. Managerial control of workers by way of algorithms is pervasive, instantaneous, fine-grained, and comprehensive, and potentially extends beyond the workplace into their private life (Kellogg et al. 2019). Algorithmic control enables unprecedented micro-management of workers, the very detailed control of every part of a job (Gutelius and Theodore 2019), also sometimes referred to as 'digital Taylorism' (Frischmann and Selinger 2017). This clearly threatens the autonomy dimension of meaningful work. However, it also threatens their privacy, which is a characteristic of decent work. It does so because of the detailed insight managers gain into when, where, and how employees work and into their interactions with colleagues.

To prevent such negative impacts, we think that reflection from an ethical and work design perspective should be looking closely and simultaneously at how technology shapes both decent work and meaningful work. This is the case even though decent and meaningful work remain distinct concepts, which are currently still subject to highly distinct regulatory regimes. We therefore support the recent plea for more integrated scholarly research into both (e.g. Blustein et al. 2023).

8 Concluding Remarks

Given the centrality of work in our contemporary societies, it matters greatly to what extent work is meaningful. Our case study of logistic warehouses illustrates how technology that incorporates artificial intelligence significantly affects opportunities for meaningful work, both positively and negatively. However, as illustrated by our case study and established by organizational psychologists, how technological innovation shapes work practices is to an important degree subject to the choices made in the design process. Meaningful work can be thus fostered by making the right sort of choices. Therefore, we have argued, employers have a substantial duty of beneficence to include meaningful work as a serious design objective when they engage in technological innovation. That is, within the constraints they have to operate, such as remaining competitive, they have a duty to attempt to safeguard employees' opportunities to enjoy the five dimensions of meaningful work that we identified. Such a duty of beneficence finds support in common-sense morality and is also supported by the three major ethical theories.

The insight that the impact of technology on meaningful work depends so much on design choices is also relevant to debates in political philosophy on whether having meaningful work is a right and a matter of social justice. We believe that the analysis throughout our paper has supported the view that having opportunities for meaningful work is a significant good, whose distribution ought to be regarded as a matter of justice. Such a duty of justice to provide for meaningful work would

be stronger than the duty of beneficence we have been discussing. Yet, it would still have to be established what that would mean for employer duties (Cf. Veltman 2016). In the meantime, we think that if employers would take their duty of beneficence seriously, this would considerably improve the current situation, for in many cases it would mean a rather significant shift in their mindset. This is because far too often, technological innovations are still primarily technology centered as opposed to human centered (Parker and Grote 2020), and specifically in logistic warehouses, managers engaged in innovation seem very much focused on cost-reduction (Berkers et al. 2023). Various forms of soft regulation such as 'good practice' guides and learning networks (Alasoini et al. 2017) should increase the number of employers that design for meaningful work.

At some far-off future point in time, advanced AI-based technologies may take over most tasks we today associate with work (Danaher 2019). But in the near future, this is an unrealistic prospect, and it is instead more important to investigate how increased use of technology in the workplace can be made compatible with opportunities for meaningful work, while at the same time safeguarding decent work. This is particularly important for contexts—such as the logistics sector—where more and more technologies are constantly being introduced, and there are more and more threats to human workers' opportunities for meaningful work, even when human contributions are still necessary to carry out a lot of the tasks.[17]

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Declarations

Conflict of interest The authors declare they have no financial interests.

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