"All too human" or the emergence of a techno-induced feeling of being less-able: identity work, ableism and new service technologies

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"All too human" or the emergence of a techno-induced feeling of being less-able: identity work, ableism and new service technologies

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ABSTRACT
The increasing use of semi-automated technologies in service work has implications for employee's conceptions of their own abilities, and their processes of identification at work. Drawing on theorizing from the identity literature, we examine how employees come to think about their own abilities in relation to and in comparison to machinic norms, creating unattainable expectations of an "ideal worker". Through a qualitative case study of the introduction of a semi-automated system in a supermarket service setting, we examine cashiers' sense of devaluation on the basis of their humanness, which comes to be seen as of a less-abled nature in relation to the automated system. We show how cashier perceptions of customers' changing interaction norms contribute to this sense of identity void, as traditional encounters of care or mutual regard are replaced by automated processes. We discuss the implications for Human Resource Management, laying out a future research agenda around identity processes and human-technology interaction.

The error of the self-checkout is like zero, if you compare, I'm a bad cashier. It's the whole way of seeing yourself that changes with that too. – Simon, interviewed cashier

Introduction
The growing introduction of advanced technologies in customer services has led to new workplace identity dynamics inside requiring academic study (Fleming, 2019; Sergeeva et al., 2017). Conceptions of the ideal
worker (e.g., Reid, 2015) may be affected by the fact that work, or parts of it, may be replaced, supplemented or modified by machines (Huang et al., 2019). To the extent that identity at work builds on a sense of ability linked to accomplishing workplace tasks (cf., Dumas & Sanchez-Burks, 2015), automating task components may shape how employees understand their own abilities and thus how they see themselves. Working together with machines has been the object of a long-standing academic literature around scientific management (Haber, 1964) and socio-technical systems (Emery & Marek, 1962), along with more recent algorithmic versions which have been studied in terms of performance (Cappelli et al., 2020), and control and surveillance (e.g., Norlander et al., 2021; Sewell & Taskin, 2015). Few studies have indeed investigated individual’s changing work experiences. As a result, we still know little about how identity dynamics relate to the repartition of work across human and machinic components, and about implications for employees’ sense of value and self-worth.

Theorizing self-conceptions of ability can fruitfully draw upon discussions from emerging debates around “ableism”, that draw attention to how conceptions of ability and disability are constructed among employees (Mik-Meyer, 2017; Williams & Mavin, 2012). While ableism discussions sometime focus specifically on the construction of social categories of “able-bodied” or “disabled” (e.g., Jammaers & Zanoni, 2021; Williams & Mavin, 2012), they also provide conceptual tools to understand how notions of ability shape identities more generally. Without making assumptions about who is/is not disabled, or what constitutes disability, the concern with ability that has been thematized in this literature provides a source of theorizing about the ability-identity linkage. This linkage can be characterized as both (intra-)personal, as it touches on people’s intimate sense of who they are and what they can do, and political, as it examines the processes and architectures through which social identities are constructed.

From the perspective of ableism, the introduction of new technologies raises questions about how employees’ sense of their own ability is developed in relation to machines and provides, in turn, a refined picture of employees’ workplace identities emerging from this relation in the context of technology-driven work environments. With this focus, we ask: How does the introduction of semi-automated service technologies shape beliefs about worker ability, and what are implications for worker identity?

To address this question, we conducted a qualitative case study of “BigGrocery”, a supermarket that had introduced self-service check-out machines (SSCOs) to operate alongside cashiers. SSCO’s settings is a rich case to overcome limitations in the appraisal of human-technology interactions in contexts where workers seem to
be disappearing. Indeed, since the implementation of technological developments often suggests a decrease in work intensity and therefore in workload (Avgoustaki & Frankort, 2019), a resulting logic of elimination of routine jobs (Acemoglu & Restrepo, 2019; Wamba et al., 2008) feeds the assumption of non-existent workers. The consequence of such logic is that experiences of those working with these technologies are overlooked.

Importantly, despite the apparent marginalization of cashiers, SSCOs often neither eliminate cashiers entirely nor do cashiers become less important in dealing with customers. However, the conditions under which cashiers perform their tasks often change dramatically with the introduction of such technology.

Drawing attention to cashiers’ perception of worker-customer interactions and changing expectations, we show how these forms of perceived customer regard can shape service worker self-attributions with important implications for their own work-related identities. As a result, our study extends understandings of working in the context of semi-automated machines in terms of the identity and ability norms that are shaped by such work.

The rest of the paper will unfold as follows: First, situating our study within a broader discussion of human-technology interaction, we show how the introduction of new workplace technologies and automation reshape conceptions of how ideals work in practice. We argue that the identity implications of such ideals are an important yet overlooked aspect of human-technology interaction literature. Then, applying an identity-ableist lens to this question, we establish our own approach motivating our research question before moving to our findings. Theorizing from these findings, we draw broader conclusions and lay out a future research agenda around identity processes in the context of human-technology interactions.

**Constructing the ideal worker: identity dynamics and semi-automated work**

Work environments give rise to expectations around how workers should behave and be. These expectations involve the more or less explicit construction of the ideal worker (e.g., Dumas & Sanchez-Burks, 2015; Reid, 2015) whose attributes employees are measured against by colleagues, managers, and workers themselves. The aspiration toward being an ideal worker is a powerful identity motive (Brown & Coupland, 2005), shaping employee’s workplace behavior and relationships, including their views of themselves (Reid, 2015). Both a psychological aspect of worker identities and a motivational tool for management, the ideal
worker image shapes workplace dynamics as employees strive to develop themselves to realize this image in practice (Granberg, 2015).

Particularly in technology-driven work environments, the idea of employee “value” may contradict a system of expectations. Unsurprisingly, individuals rework their self-concepts along social, physical and intra-personal dimensions to changing criteria to establish guidance in performing their jobs (Heelas & Morris, 1992; Islam & Zyphur, 2005; Zahavi, 2010). Such variability may render it difficult for individuals to arrive at a coherent sense of self-worth. Instead, they may see the need to balance internal tensions (Watson, 2008), and recraft their narratives (Ricoeur, 1984).

While such processes of self-development and aspiration may be key parts of meaningful work (Moulaï et al., 2021), their potential pitfalls in organizational life have been well-noted (e.g., Pagis, 2016; Picard & Islam, 2020). Linked to cultural images of ideal selves, notions of the ideal worker shift with the dominant ideologies of a given system of production, and shape workers’ experiences of themselves, their bodies, and their abilities (Chari, 2015; Vandekinderen et al., 2012). In contemporary organizations, the concept of the ideal worker is inflected by categories of “talent”, “productivity” and “employability” (Barnes & Mercer, 2005), which are concepts that co-determine one’s value in the workplace (Foster & Wass, 2013). While aspiring to an ideal self can be a source of internal meaningfulness, it can also lead to harmful excesses and frustration (Bailey et al., 2019). Fleming (2015, p. 21) notes how contemporary organizations produce “the ideal employee who never sleeps: habituated to the notion of working for the sake of it, unable to stop”. Under such conditions, the identity-anchoring function of ideals can chain employees to norms beyond their control or choice.

While current discussions of worker identification note the central yet ambivalent role of ideal worker images, the introduction of new workplace technologies and automation compels us to nuance conceptions of how ideals work in practice. Automated technologies create a material work context that shapes performance expectations and work norms (Dale & Latham, 2015; see also: Ter Hoeven et al., 2016). Beyond the worker surveillance and control facilitated by automated technologies (e.g., Meijerink et al., 2021; Moulaï, 2020; Trittin-Ulbrich et al., 2021), co-working with automated technologies also affects the experience and dynamics of work (e.g: Chao & Kozlowski, 1986). For instance, Bucher et al. (2021) showed how employees attempted to anticipate algorithmic decisions by changing their behavior in relation to perceived machinic processes, shaping themselves to fit the machines. Classical disparagement of organizational work as “machine-like” as opposed to human (e.g., Cohen & Taylor, 2003, p.39) finds their contemporary descriptions
of digital labor as the human-as-machine, as suggested by an Amazon worker who noted “We are a cog in this machine” (Fuchs, 2014, p. 2). Eliciting a distinction between the motivating, aspirational aspect of seeking an ideal and the dehumanizing aspect of conforming to a programmed rule, critical scholarship repeatedly gestures at something discomforting about digital work: “With the machine, it is as if man were suddenly divided between what makes him most alive (here, his capacity for motion or animation) and what makes him most like a machine: his capacity for productive labor,” (Bajorek, 2008, p. 59).

In short, new technology adoption not only noticeably changes the nature of work (Bhave et al., 2020; Leonardi & Barley, 2010; Pink et al., 2021; Vrontis et al., 2021), but the way individual workers need to position themselves (Shantz et al., 2014) – along with their skills (Pereira & Malik, 2015) and experiences – within the new work setting (see for example: Sergeeva et al., 2017). This positioning is imbued in an individual’s self-narratives that evolve across contexts (Ibarra & Barbulescu, 2010). In the context of working in semi-automated settings, this evolution has been associated with a sense of loss of personal worth and the human side of work.

It is this sense of loss and its relation to socially constructed ideals of ability, and how this was expressed in our empirical setting, that led us to consider recent organizational literature on abilities and “ableism” in its relation to worker identity (e.g., Jammaers & Zanoni, 2021). The dynamic nature of how humans add value to work problematizes traditional norms of productivity and employability (Roulstone, 2002) - especially in technology-driven workplaces (e.g.: Jaiswal et al., 2021; Huang et al., 2019; Kaptelinin & Nardi, 2012 )- where (not) meeting such norms has long been considered a hot topic in HRM research and beyond (see e.g. Michie & Sheehan-Quinn, 2001; Neal et al., 2005; Wood, 1999).

Under the aforementioned productivity and employability norms, human limitation used to be assessed in terms of the (in)ability to function properly and perform (Oliver, 1983). Recent literature, however, has problematized this premise and thus provides a novel analytical lens through which to examine the dynamics of human-machine interaction.

**Working around machines: an identity-Ableist lens**

Ableism perspectives have questioned taken-for-granted assumptions about disability and related norms of employability and performance (Mik-Meyer, 2016; Williams & Mavin, 2012). Campbell (2001) defined ableism as the ‘beliefs, processes and practices that produce a particular kind of self and body that is projected as the perfect, essential and fully human’ (Campbell, 2001, p.44). Deconstructing the premise of
“ablebodiedness” as socially constructed (Jammaers & Zanoni, 2021), such judgments are seen as structures through which dominant values and behavioral expectations are set and reproduced (Hough, 2010) to serve organizational interests.

Ableist scholarship has dovetailed with identity literature (see Kwon, 2021) to examine how individuals struggle to affirm positive identities in organizational settings that rebuff their identity claims. It has drawn on identity theorizing that highlights “the process of developing, maintaining, repairing and re-forming identities, enabling individuals to maintain a positive sense of self” (Sveningsson & Alvesson, 2003, p. 1165). In this sense, the theorizing emanating from ableist literature is not restricted to traditional categories of disability, and indeed rejects such categorizations. Rather, it reconsiders ability as a socially-constructed concept that depends on ongoing discourses and political struggles within the organization (Williams & Mavin, 2012).

Workplace discourses around ability norms establish the idea of an ideal worker and create pressure on workers to align their performance with these ideals (Ortlieb & Sieben, 2019). Doing so confirms their “able-bodiedness” as a form of identity work vis-à-vis co-workers (Hastuti & Timming, 2021; Hennekam & Richard, 2020). The power to construct organizational norms around ability unfolds through individuals’ intra-personal efforts when they narratively construct who they are relative to who they feel they are supposed to be (Boussebaa & Brown, 2017; Brown, 2015). The pervasiveness of ableist norms thus lies in the fact that they work, in part, through the identity work of employees positioning themselves vis-à-vis normalized ideals (See for example: Williams & Mavin, 2012). Deviations from these ideals lead employees to feel "abnormal" (Campbell, 2009), "not capable" (Roulstone, 1998a, 1998b), and “worthless” (Vandekinderen et al., 2012). By contrast, they can engage narrative, reparative identity work to reaffirm a sense of positive self-worth (Leary & Tangney, 2003; Winkler, 2013), or critique the sources of the normative orders from which such ideals were constructed.

In the context of technology, pressures around ability-related norms take particular meanings. While scholarship has established that new technologies shape identity processes (e.g., Sergeeva et al., 2017), how these enroll beliefs about abilities or ability-comparisons is still to be understood. Ableism perspectives have tended to focus on ability-comparisons with other employees (e.g: Kwon, 2021; Jammaers & Zanoni, 2021), as do social identity perspectives more generally (cf., Turner, 1975). Self-comparisons with machine performance are less well-understood. Despite the above-mentioned proliferation of discourses such as “working like a machine”, “cog in the machine” and the like, (See also: Anders, 2002) we know little about how people may actually
compare their abilities to those of machines with which they work and how people develop self-conceptions on that basis.

Nevertheless, while ableism scholarship in organizations has not directly highlighted technology, much of it suggests that technology would be an important site within which ableist mechanisms would operate. For instance, Jammaers and Zanoni (2021, p. 447) note that ableism theorizing extends beyond conventional accounts of disability and should be “understood as part of organizing norms established around able-bodiedness” more generally. Park et al. (2019), moreover, examines how ableist premises are built into HRM technologies. This literature stops short, however, of fully extending the implications of the ableist approach to the construction of notions of ability in semi-automated work, although such settings are likely to deeply shape how people conceive of what they can and cannot do. To examine this type of work more closely, we describe our empirical context below.

Semi-automated service technologies

To understand how the introduction of semi-automated service technologies affects employees’ identity dynamics, we examined cashiers in a human-machine work design context. Cashiers are a working population whose job, role and work environment have become strongly affected and reconfigured by the recent introduction of a particular service technology, the so-called self-service checkout (SSCO) (Bernard, 2005; Hilton et al., 2013).

**BigGrocery as a case study of self-service checkouts (SSCOs)**

Self-service checkouts (SSCOs) are part of the broader category of self-service technologies (SSTs), defined as interfaces directed at customers use and which minimize interaction with employed workers (Oyedele & Simpson, 2007). The use of SSTs by retailers responds to two major concerns: cutting labour costs (Kleemann et al., 2008), and increasing productivity (Anitsal & Schumann, 2007). Since SSTs call upon direct and active customer involvement (Anitsal & Schumann, 2007; Hilton et al., 2013), studies have extensively discussed individuals’ experiences, turning attention away from traditional workers toward this new hybrid customer role. As a result, today, the on-the-ground experiences of workers during and after the transition process, remain insufficient to understand identity dynamics.

Our case, BigGrocery is a European-based retailer. BigGrocery was particularly interesting to examine because it provides a hybrid checkout environment. This model can now be seen in a large number of retail
store brands globally. In such hybrid model, any particular store includes an area dedicated to SSCOs while other areas have traditional cashier-staffed checkouts.

The interviewed cashiers are randomly assigned either to the SSCO area, or to the traditional checkout machines area, where they perform their traditional cashier role. Both areas are clearly delineated yet adjacent. In the case where cashiers enact the role of supervisor of SSCOs, they intervene to assist customers. For example, interventions are needed whenever customers buy products requiring identity verification, such as alcohol, or to perform random checks (Orel & Kara, 2014).

Since traditional cashier machines and SSCOs are available to customers at the same time, customers can choose to use either one or the other. In their everyday work, the cashiers are asked to switch from one area to the other, rotating on a day-to-day basis between a SSCO area supervising role and a traditional cashier role. Table 1 gives an overview of all interviewees.

**Data collection and analysis**

Our research design involved a qualitative approach to examine cashier experience following the implementation of SSCOs in the employing supermarket. Based on our research question, we focused on how employees constructed their ideals about ability in relation to their worker identities. Qualitative methods were chosen because of the complex and emergent nature of the phenomenon, to achieve a thick, experience-based understanding of work in practice (Strauss & Corbin, 1998; Yin, 2003).

Our approach was broadly inductive, based on our research question around identity in the context of technology and focusing on how the employees understood their abilities to complete their tasks. As elaborated below, the recurrence of sentiments of distance or contrast between ideals

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Gender</th>
<th>Age</th>
<th>Experience</th>
<th>Duration of the interview (in minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandrine</td>
<td>Female</td>
<td>48</td>
<td>12</td>
<td>127 min</td>
</tr>
<tr>
<td>Mathieu</td>
<td>Male</td>
<td>65</td>
<td>19</td>
<td>98 min</td>
</tr>
<tr>
<td>Michel</td>
<td>Male</td>
<td>43</td>
<td>8</td>
<td>97 min</td>
</tr>
<tr>
<td>Annick</td>
<td>Female</td>
<td>40</td>
<td>16</td>
<td>120 min</td>
</tr>
<tr>
<td>Samuel</td>
<td>Male</td>
<td>37</td>
<td>14</td>
<td>118 min</td>
</tr>
<tr>
<td>Sabrina</td>
<td>Female</td>
<td>46</td>
<td>20</td>
<td>124 min</td>
</tr>
<tr>
<td>Théo</td>
<td>Male</td>
<td>38</td>
<td>11</td>
<td>115 min</td>
</tr>
<tr>
<td>Simon</td>
<td>Male</td>
<td>41</td>
<td>20</td>
<td>130 min</td>
</tr>
<tr>
<td>Clémence</td>
<td>Female</td>
<td>51</td>
<td>31</td>
<td>99 min</td>
</tr>
<tr>
<td>Christian</td>
<td>Male</td>
<td>34</td>
<td>8</td>
<td>112 min</td>
</tr>
<tr>
<td>Stéphanie</td>
<td>Female</td>
<td>42</td>
<td>18</td>
<td>105 min</td>
</tr>
<tr>
<td>Alain</td>
<td>Male</td>
<td>37</td>
<td>7</td>
<td>124 min</td>
</tr>
<tr>
<td>Nadine</td>
<td>Female</td>
<td>49</td>
<td>29</td>
<td>128 min</td>
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of work and ability in our interviews led us to focus on the nature of these contrasts. Thus, an “abductive” component (e.g., Walton, 2014) was added as we turned to literature on the construction of ability concepts, identifying similar discussions within ableism scholarship, and drawing on these in our conceptualization of the data. Ultimately, ableism perspectives developed as an emergent analytical lens with which to understand human-technology identity dynamics, and grounding our theoretical contributions.

We conducted in-depth semi-structured interviews with the informants to access a spontaneous expression of workers’ experiences (Cañibano, 2019). Our interviews involved themes around perception of the ideal worker, cashiers’ sense of self and self-value, self-performance perceptions following the implementation of SSCOs, the evolution in the nature of tasks performed, and the interviewees’ conception of SSCOs. As a check for face validity of the interview protocol (Turner, 1979), the first author discussed the interview questions with independent researchers in the domain, and made minor adaptations to the protocol. All interviewees were interviewed based on the final version of the interview guide.

To capture the dynamics of identity work and interviewees’ sense of ability facing technological change, we asked interviewees for both retrospective and current experiences (Gioia et al., 2013). Overall, we collected thirteen rich narratives from individuals who possessed several years of experience working as cashiers, with an average duration of 110 minutes for each narrative.

Two specific aspects supported the collection of rich, thick descriptions. First, the first author, who also conducted the interviews, had previous experience as a student cashier for several years in a supermarket chain, giving her specific knowledge of this work environment, and strengthening a contextual knowledge that supports empirical interpretation (Muratbekova-Touron, 2005). Given that the interviewer’s background affects how interviewees recount their stories (Wilhelmy et al., 2016), this has helped interviewees feel more comfortable about sharing ideas and feelings. It also saved valuable time around familiarization with technical details of the cashiers’ job, which were already known to the interviewer.

The second aspect relates to the socio-linguistic dimension of qualitative interviews. The first author conducted the interviews in French, the language of the interviewees. An aspect that facilitated the expressions of feelings and emotions that the interviewees would associate with their narratives.

All interviews were recorded and transcribed verbatim. Regarding validity and reliability enhancement in coding, in addition to the initial coding performed by the first author, the interview transcriptions were also independently coded by another author who is also a French-speaking native. This exercise was further followed by interactions between coders
and provided a space for discussion and reflexivity (MacPhail et al., 2016), which allowed to make small shifts, securing consensus in the analytical process eventually leading to our theorization of the identity-ability linkage. Later on, another author was asked to code samples of the data selected randomly (O’Connor & Joffe, 2020). This measure provided an extra check for validity.

We applied standard ethical guidelines regarding consent, confidentiality, and privacy (Creswell, 2013) and used pseudonyms to refer to the interviewees in our manuscript. We also ensured transparency (Wilhelmy, 2016) regarding the objective of the interviews – studying cashiers’ experiences after the introduction of SSCOs.

The coding and interpretation of interview data was done in four phases: (1) immersion in the data to familiarize with interviews (Masset & Decrop, 2020), (2) open coding, (3) more focused coding, and (4) thematic analysis. We combined inductive coding and emergent theorizing with the progressive consultation of existing theories around ability and identity, which helped us make the "conceptual leap" from data to theory (Klag & Langley, 2013).

The “open coding” phase, was descriptive, generating a high number of initial codes often around experiences of identity threat and expressions of fear, frustration, disappointment or resentment. Interviewees articulated their ongoing struggle with how to make sense of their roles in the new scenario, and these expressions were incorporated into codes (Booth et al., 2018). The third phase involved the analytical move to focused coding. The initial codes and their connections were discussed to establish a more focused and theoretically synthetic set of concepts. They took an iterative quality as we moved between transcripts and existing theorizations (Rossman & Rallis, 2003). We ensured to reflect the ability-related aspects evoked by the interviewees when recounting their experience working alongside machines. For instance, we relied, when relevant, on deductive concepts and categories from both the literature on identity and ableism. The combination of inductive and deductive approaches further facilitated consistent theorizing. In the fourth and final phase, we proceeded with thematic analysis, turning back to the study’s primary objective around the research question (Paillé & Mucchielli, 2016). Two distinct central inductive themes emerged from such analysis and became the anchor of our theorizing: the machine as the ideal worker and the devaluation of cashier’s sense of humaneness.

**Results**

Entering the field to examine the cashiers’ experiences of work in the context of the new human-machine configuration, what emerged in our
interviews was a combination of shifting normative conceptions of performance, which gave rise to new images of the ideal worker and a diffuse sense of dehumanization associated with those images. These experiences resulted in ongoing efforts by employees to make sense of their work situation, with a complex mixture of frustration, resignation and new identification. These experiences intermingled in practice; below, however, we analytically unpack their components to ground our subsequent theorization of human-machine interactions.

**Shifting normative performance benchmarks and the resulting feeling of frustration**

Running across our interviews was a shared feeling of shifting internalized norms of performance and productivity when the self-service check-out operators (SSCOs) were introduced. This shift seemed to displace the benchmarks upon which workers had conceived of themselves in their role of cashiers. Describing their conceptions of performance, this was understood as a combination of cashiers’ ability to complete technical tasks along with a persistent yet challenged insistence on valued interactions with customers. In minor cases, engaging in meaningful exchanges with customers was defined more straightforwardly as the core condition for performance.

The internalization of new expectations would become a significant source of frustration and self-doubt. These expectations created a fracture with normative benchmarks that workers had relied on in their self-construction as cashiers. As Sabrina noted, “I don’t feel like I’m doing my job well today, and that bothers me. For the same things, before I was doing well, but now, how can I be satisfied with what I do? I feel lost”.

The interviewees’ narratives suggested that the establishment of new productivity norms was promoted by employers and customers in diverse ways. A sense of constant vigilance and top-down pressure was explained by Stéphanie:

*I need to have my eyes all over the place because there are thefts. The manager doesn’t like it when I do something else, like putting the bags away, and she waves to me to tell me that I have to take a good look. Then once a week, when she sees us upstairs for the debriefing, she tells us, ‘come on, you should have your eyes everywhere. When I say that two eyes for four self machines are not enough, she tells me, ‘ah, then you need glasses’.*

As Stephanie notes, the feeling of inadequacy is almost felt as a sense of physical infirmity (“two eyes (...) are not enough”), to which the manager responds by categorizing it as a physical condition requiring adjustment (“you need glasses”). Despite this managerial surveillance,
however, often self-assessments were themselves highly judgmental and self-critical, as the employees tried to make sense of the effects of external changes. Such an internal state is reflected in expressions of shifting internalized standards that acted as established norms against which cashiers felt judged. Clémence describes this particular feeling as paradoxical given her objectively improving performance:

“I remember in the early 90s. I took much more time to scan items. Today, I am faster and never make any mistakes with the cashing. But I don’t know...I know it’s weird, but I feel like I am working poorly or that I am not doing enough.”

Such feelings of inferiority persisted despite the interviewees’ own recognition of their performance improvements, a fact which they explained by contrasting their experiences before and after the implementation of SSCOs. Specifically, we found that they described this implementation as a displacement of the object of comparison, comparing their abilities with the SSCOs rather than their human colleagues as they previously had:

“I remember that 10 years ago, it was always possible to do better than a colleague. But you must know that it was rare that the one who scanned the fastest was also the one who was preferred by the customers. (...) Today, the package is this machine. The sad thing is that the customer explicitly shows us their preference. Théo

Noting the shift from human to machine comparisons, Theo uses the expression *package*, which defines a ‘complete formula’ to respond to the customers’ needs. Théo’s quote is an example of the feeling of frustration experienced by a worker who questions their added value in the eyes of customers.

Such changes in productivity/performance expectations negatively affected job satisfaction and suggested an overall effect on individuals’ stance associated with their job, as Nadine explains:

“I used to have fun at work, then we were sold this as the solution, no more cash register errors, no more problems, but this does not mean that I am happy with it. There are some who like it, usually young people who are there for their student job. Yeah, sure, it’s better; just check it out. Actually, it’s a quick little job for them, but it’s a job for us, so it’s harder to take.”

Nadine’s view of being “sold” on a solution signals her disappointment, as does the sentiment that only someone who did not see this as a “real” job could find it acceptable.

In sum, the introduction of SSCOs produced external and internal challenges that led the employees to feel that they lack something and are judged as such by their managers and themselves, and dismissed by their clients. As suggested by Théo’s and Clémence’s quotes, such frustration seemed related to self-comparisons with the new machines and increasing self-imposed standards. Below, we describe such comparisons in terms of the ideal worker.
**Internalizing the machine as the new ideal worker**

When describing their conception of an ideal worker, we observed a shift in the interviewees’ narratives. The interviewees contrasted their self-conceptions at the time before the machine’s implementation to that after implementation: regarding the former, they evoked various human skills they saw as sources of value, involving the disappearance of these skills and the advent of new forms of value.

Sabrina, for instance, noted with some bitterness that what would have been valued as an important feature of human customer service interaction would now be considered inadequate in the context of semi-automated work. Describing her “perfect” colleague, she notes:

> At that time, I was a bit jealous of one of my colleagues. She was very kind to clients; she often knew their names and their habits; everybody loved her. People said that she was doing really good work; basically, she was the perfect cashier. Today, she would almost be the weak link with all her sympathy.

The transformation of the “perfect cashier” into the “weak link” involved the now-superfluous expression of “all her sympathy”. This shift of the ideal worker to a non-sympathetic form was reiterated by Michel, who explained that “A smile is not a necessary task; on the other hand, knowing how to count money and be fast is essential”. The emphasis on transactional elements such as speediness and accuracy reinforced the perception of human traits as inferior to the machines.

In describing their ideas about the new ideal worker, employees emphasized two technical elements: level of focus and infallibility. Level of focus relates to the ability to complete repetitive tasks without interruption or distraction. For example, cashiers would mention how their own need to maintain social exchanges with clients could be perceived as an unnecessary distraction. Infallibility refers to the idea of the absence of any cashing errors. Across the narratives we observed that these traits provided anchor points for comparison; and eight cashiers, for instance, straightforwardly acknowledged that the machine as such embodied these traits, becoming the new ideal worker, while noting that humans may be incapable of reaching this ideal.

> The machine, if you like, is the way forward. It does not waste time asking the customer how it’s going. It has a 24-hour focus. I do not know a single colleague of mine who can work like this. Alain

The unattainability of machine-like impersonality and persistent performance was discursively connected to the perception that both employers and customers may actually prefer this dehumanized form of worker. Interviewees’ narratives suggested that the introduction of machines was perceived as validation of what employers and customers expect from cashiers and their interactions.
Sabrina, for instance laments how customers compare her with the automated check-out, “The customer always compares, always. Before, it was between us between cashiers, and now with the self-checkout. Even if it is automatic, we are compared with the self-checkout.” Similarly, Stéphanie explicitly invokes the comparison between her own self-concept and the machinic ideal “You know, the machine reminds me a bit about how people would like me to do my job,(..) and it is also a check for what employers expect from us.” Such comparisons to an automatized ideal are thus felt as impossible expectations that become part of a new sense of who they should be.

Such pressures also were perceived from employers and managers, through the demand for, and active surveillance of, task execution in a transactional form that aligned with the SSCO ideal. The direct feedback coming from such practices took the form of increasingly open and blunt criticism, as Samuel explains:

We have the cameras focused on the cash register. They tell us that it’s to monitor the cash register in case of robberies or thefts. But I do know that sometimes she glances around the control room to see if I’m going fast enough. Afterward, when she comes down, she tells me: you talk a lot, be focused, you look distracted. She wouldn’t have put it bluntly in the past.

Interviewees expressed a reinforced sense of frustration that came from the perception that SSCOs did not operate autonomously but required effective customer use, although this uncontrollable element was not factored into their own evaluations. Yet, they also internalized that the human errors and limitations of customers, including their own speed in operating SSCOs, were not relevant to their own performance assessment in comparison with the machines:

Imagine being told that they will keep me in 5 years. I won’t be surprised if I am asked to do it faster and if I am fired if I make a checkout mistake once. We were more used to errors; that time is over. Machines do whatever you ask. I scan the same item twice by mistake. I give the wrong change. I mean, not always, but it happens to me. But if I make a cash mistake once a month, not a big one, just 2 euros, for example, I’m still a good cashier for me. But today, if I do this when the error of the self-checkout is like zero, if you compare, I’m a bad cashier. It’s the whole way of seeing yourself that changes with that too. (...) It’s hard to tell yourself that you have done a good job. Well, in the end, it’s still happening now. The self-checkout is not everything. Customers still have to scan, but they have patience. They make a mistake while scanning, they call the cashier, and that’s it. When I have scanned the article twice and have to cancel it, even if it takes me a couple of seconds if they see it before me, they start to huff and grumble. Simon

Considering SSCOs as the ideal worker not only led cashiers to categorize themselves as lower performers. It also led them to face the inability of categorizing as such what they used to conceive as qualities,
leading to confused feelings of being less-able. As Annick explained, her sense of being “infallible” and “loved” was shaken by this transformation:

*I must say that there, I am no longer the most infallible. And before, people loved my little jokes. Now they don't listen to them. It's a different way of life. Sometimes I don't really feel like I have any real strengths anymore.*

The “different way of life” described by Annick went beyond the question of performance levels to mourn the loss of her “little jokes” that were no longer socially recognized. Their adaptation to the machinic work ideals was thus far from emotionally neutral. More senior workers in particular expressed feelings of fear related to the idea of aligning with machinic norms and seeing the SSCOs as the new ideal, cognizant of the dehumanizing effects this might have:

*It's scary. I mean, it's worrying. It's worrying because it breaks a little the groundings that we have. If we don't have any groundings anymore, if we don't know which direction we are going, we will end up becoming robots. Sabrina*

Sabrina’s reference to “groundings” seems to resonate with Annick’s “little jokes”, Simon’s “little mistakes”, as the micro-moments of human interaction that were now recast as impediments to ideal performance. Less-experienced cashiers, on the other hand, were often more pragmatic and tended to envision some room for the nature of their tasks to be reinvented in the future, perhaps requiring them to adapt.

*We can't continue that way. But I know that we will retrain. They will tell us what we can do and how we can do it. And being a cashier will come with new things to do and things to forget about. Alain*

**Experiencing a devaluation of humanness beyond formal roles**

Cashiers associated the arrival of SSCOs as a devaluation of their human attributes, many of which had previously been perceived as assets and internally and externally validated. However, at a deeper level, the introduction of SSCOs made cashiers perceive that many of these human traits – showing care, being able to listen, etc. – were part of their professional identity without ever being made explicit as part of their job description. As Théo noted, “Before, being a cashier had a lot to do with the ability to listen to a person, often through a brief exchange, but that could do a lot”.

In the current SSCO environment, cashiers feel that their jobs are reduced to technical transactions. As suggested in Annick’s quote above, a sense of personal and wider social loss pervaded the work experience. Sandrine complained that “people don't think about [being] social
anymore. They're on their phones, scanning articles, and no longer able to stop for a bit, for living”.

Yet this nascent social critique was often experienced as personal weakness, as a lack of adaptability by the self. Michel expresses this negative self-assessment, “I tend to get too distracted, acting casual, asking the client about their little one. This takes up time and also distracts me. I should think about being more focused on my tasks”. Turned back onto the self, the need for social contact is felt as personal weakness and lack of discipline.

The above points illustrate a dichotomy between useful tasks (those performed by the machine) and a more diffuse set of practices centered on human interactions. These other practices often were cast as unnecessary distractions in workers’ accounts, drawing on the dual pressures of clients and supervisors, but their deep attachment to these practices is also evident.

Elaborating on this dualistic description, the employees distinguished between what they considered valuable in a holistic way from what was valuable for task performance in the new configuration of work. Such a distinction explains the ambivalence of the interviewees vis-à-vis the value of human interaction, which is embraced even in its perception of being devalued. Clémence expresses this by noting “I need human contact to feel good. There, you have it. The machine does not need that”.

Clemence states her essential difference from the machine almost as an ultimatum (“there, you have it”), while removing it from the task context – she needs it not to do her job properly, but to “feel good”. However, this boundary was often blurry, and employees often held onto the idea of human interaction as integral to their work, if only perceived in the negative sense, of a lack. Christian notes this lack and its effects on his sense of self:

*I will confess something to you, sometimes when I go back home, I feel bad. I have always been liked by customers, and now well, I do not know. Over the days, I feel a sense of emptiness, not a depression, but a small void.*

This sense of identity void, although “small” (echoing Annick, Sabrina and Simon above) and seemingly not directly task oriented, was experienced as an “emptiness” produced by the transformation of work.

Such an identity void suggests that cashiers did not internalize norms of the ideal worker without remainder; indeed, the sense of persistence of a “human” conception runs through many of the examples given above. Having to balance the new demands with the attempts to avoid dehumanization, cashiers engaged in subtle forms of discursive resistance to being reduced to machines, thus reaffirming their humanness. For
example, Annick responds sarcastically to being forced to work without taking any breaks.

Sometimes, I get tired, or I have to take a break or go to the bathroom. You can’t imagine the machine going off and saying, “wait”. I got it last time, and nobody could replace me for three minutes, so I closed the checkout, and people started grumbling. They get used to it, and you are not even allowed to pee anymore.

Again, the basic human need of needing to use the bathroom is interpreted as a transgression, but nevertheless affirmed by the employee. Interestingly, such limitations were virtually never mentioned with regards to technical aspects of SSCOs- mechanical failure, power cuts, or other forms of disruption. It suggests that, rather than the machine, the sense of devaluation arose of the machinic norms embodied by the SSCOs, that of error-free and depersonalized task completion.

Feeling less-able and marginalized for being human

The presence of the SSCOs was internalized by employees as a silent yet powerful visible injunction to conform to a new work standard personified in the object of the machine. This presence had implications for the interviewees’ sense of their own abilities, as the machines paralleled many of their tasks while being seen as embodying a higher standard.

This “same-but-better” framing diminished employees’ sense of ability both by framing them in machine-like terms, and by showing their inadequacy to compete on those terms. As Sabrina noted of this framing, “Here, for us, the machine does not assist us in our jobs like, for instance, the computer for an engineer. Here, the machines are colleagues and work like us, but better”. Experienced as a form of misrecognition and abandonment by customers, who were not perceived as caring about the loss of direct contact, the employees developed a sense of being marginalized and almost physically excluded, Mathieu describes this lack of empathy for their “smiles”: “The client is the one who dictates their law. To my knowledge, none of them has protested in the streets because the cashier’s smiles are missing when they go to the self-service checkout”.

Interviewees described customers as playing a significant part in their perceptions of exclusion, internalizing a tangible disappearance of customers’ care for their expressions of humanness:

Ten years ago, we were not weighed down. It was more convivial. It was my job to be a cashier. People came to me, and they were chatting. There was no comparison between me and the self-checkout, it was me and the colleagues, for example. (...) I had my favorite little ones, and I was the favorite of some. It was a good time. I was doing my job well, fast enough, but it was good enough to have time to chat with clients. Nadine
Nadine’s nostalgic memory of a better time of conviviality is contrasted with the sense of abandonment with the arrival of SSCOs, which not only raised performance expectations (from “fast enough”) but also created an alternative model for employee-customer relationships, as Simon describes:

*Before, the customer was king, and they had to be satisfied and with a smile. When we had a client who was a little too demanding, it was a real challenge to satisfy them, but when they ended up leaving with a smile because we had managed to deal with the tensions, we felt good, yes, proud. (...) Today, all that doesn’t count anymore. When a client knows the self-checkout, they expect you to be efficient, always more efficient without the greetings or the blah-blah, it is go-go-go, and it never goes well enough. The client does everything on their own, no problem, when they don’t get out, they call you, but that’s it. Simon*

The implicit lack in Simon’s “*but that’s it*” does not specify what exactly is missing in this new relation, but presumably it is something about the previous challenge of managing to “deal with the tensions”, which had made employees feel “proud”. Notably Simon does not describe a uniquely positive prior customer relation, but rather one that was thick with negotiations and interpersonal challenges. Without these, employee’s human qualities as cashiers seemed become less relevant.

As Annick’s above statement about bathroom breaks suggests, however, it was not only the symbolic-relational link with the customers that defined this humanness, but also the characteristics and perceived weaknesses of the human body itself. Annick elaborated on the sense of feeling less-able– compared to SSCOs – because being human comes with challenges that SSCOs do not experience:

*My impression is that we dedicate body and mind to end up being ejected. I mean, there is an aim behind that. You do not bring machines to a place to change the entire job of a cashier just because you want some change. The employers are certainly fed up with paying people who can get sick, who may not come to work, or who may have babies. Self-service checkouts do not have these problems. Annick*

Rather than task performance *per se*, and its possible relation to bathroom breaks, it becomes here evident that a broader preoccupation with humanness as such is seen as the motive for the SSCOs, as an attempt to avoid the risks, and what is depicted in this fragment as fragilities and sensitivities (“get sick. have babies”) of the human body as such.

One consequence of this feeling of exclusion was a sense of an impending end of the job of cashier, a prospect which worried those for whom this occupation had a more established place in their identities. Christian, for instance, recounted how being a cashier was part of his family history and how the arrival of SSCOs puts an end to this:
There are people like that who don't want to be cashiers, and that doesn't change anything for them. We ask them to monitor or scan; it's the same. But when this job gets under your skin, you identify with it. I'm a cashier, I come from a cashiers' family, and I'm proud of it. But the cashier job has changed, and what I have in mind, it almost no longer exists, and it will no longer exist, so here it is, it's hard.

Self-reflexive accounts also included resignation with regard to what seemed the natural outcome of a changing environment, while some emphasized a sense of pragmatism. Mathieu's example is an interesting illustration of how his previous experience had helped him mitigate feelings of exclusion and accept things as they come:

Some retrain better, for sure. I don't have a lot of stress, actually, but it's because I can see what's going on; that's how the world is going. In the past, I worked in a factory, they changed the mechanisms and they no longer needed so many people, so I ended up here, and in a few years, just like that, I will go somewhere else.

Placing the current automation in a history of prior automations, Mathieu framed the resulting employment displacement as a natural result that he would thus accept.

In sum, the entry of SSCOs gave rise to complex and ambivalent experiences on the part of the cashiers, involving shifting normative performance benchmarks that resulted in a machinic conception of the ideal worker while devaluing interpersonal contacts and expressions. The resulting sense of loss of ability was experienced in heterogeneous ways, from resistance to melancholy to resignation, each involving a re-orientation of the self vis-à-vis work.

Discussion

Our study investigated how the introduction of semi-automated technologies shapes beliefs about workers' abilities as part of the ongoing construction of worker identity. The above findings describe how individuals think about themselves in relation to the machines, their managers, and the customers as they work alongside semi-automated service technologies, in this case, the self-service checkout (SSCO) machines. Synthesizing these findings and interpreting through identity and ableism literatures, we formulated an emergent theorization illustrated in Figure 1 below. This theorization involves a self-appraisal dynamic as employees perform work with machines executing similar tasks:

As illustrated in Figure 1, workers experienced an identity tension as they positioned their way of being at the intersection of a). an ideal worker image composed of a machinic, tireless and errorless norm, and b.) a continued – and often valued – sense of who they are as human individuals with abilities to interact and connect with other humans as
part of the job role, and which we call ‘sense of humanness’. This continued sense of humanness was experienced in heterogeneous ways, some employees insisting on its (perceived obsolete) value and others experiencing it as a failure to meet the new job demands. The tension is initially elicited by the shifting norms developing through the implementation of the SSCO, which establishes a (machinic) object epitomizing a new standard of efficiency and constancy, without breaks or mistakes. Acting as a constant reminder of productivity-related discourse, this technology can be conceived of as a contemporary illustration of what Foucault (1977) calls the microphysics of power.

Relatively, a first distancing between workers’ abilities and the ideal associated with the machine is experienced as involuntary and generated by workers’ intellectualization of their own limitations to align with the new ideal.

The new ideal worker image formed by this shift pervades workers’ self-worth and provides an anchor for a devaluation of workers’ human abilities. Importantly, the role played by social interactions in one’s identity work is crucial (Islam, 2014; Winkler, 2013). Valued external views -such as those of clients or employers in our case- shape identity processes (Brown & Coupland, 2015; Watson, 2008). Also, the aforementioned devaluation, initially perceived as coming from both supervisors and customers, is internally sustained by the worker. In turn, the devaluation leaves employees in a double identity-threat, both unable

Figure 1. Self-AppraisalDynamics inHuman-Technology Interaction and Techno-induced Feeling of Being Less-Able (TIFLA).
to live up to the demands of an (imagined) perfect machine and unwilling to entirely give up their increasingly devalued human abilities. The resulting impasse leads to heterogeneous positions, where workers self-reflexive accounts oscillate between a self-disparagement (See: Anders, 2002) of their own abilities and a lamentation about the loss of a humanized work environment. In both cases the impasse is experienced as a fracture in their interactions with clients that comes to stand for the transformed work situation.

Moreover, workers internalized customers’ perceived adjustment to the new process reinforced the human workers’ marginalization. Superficially, cashiers experience a constriction of the social space of non-transactional interactions, leading to a sense of rigidity and control of their work context. From an identity perspective, this constricted space was described as an ongoing social disqualification of workers’ human qualities. Given the service-oriented nature of their work, personal-professional identity boundaries relied on ongoing social recognition (e.g., Baas & Cayla, 2020; Endrissat et al., 2015). The new automation undermined that recognition, leaving workers in doubt about the social value of their humanness (See: Anders, 2002). In the previous work configuration, such gestures could have been justified as part of customer service quality, but in the semi-automated context, they became seen as superfluous, rather than the basis of work quality.

Interestingly, workers used personal resources in their identity work as self-verification resources (See also: Swann et al., 2004). Importantly, even if workers engaged intermittently in some micro-resistance in the form of sarcasm (Collinson, 2002; Roy, 1959), they seemed unable to permanently oppose the situation they were facing.

In sum, workers’ felt impossibility to align their abilities with the new machinic ideal, combined with the distancing of their positively-experienced abilities, created an identity void in which workers were left unsure about who they could or should be. This sense of identity void gathered mixed reactions and crystallized emotional responses ranging from frustration and anger to resentment, leading workers into a persistent and compromised sense of self-worth that translated in their professional roles into what we call a techno-induced feeling of being less-able (TIFLA). Below, we describe how this kind of dynamic informs current literature on human-machine relations and how it can be built into an ongoing agenda in HRM.

**Theoretical contributions**

The current study’s primary theoretical contribution to HRM involves understanding how semi-automated work shapes perceptions of ability
and employee identity. This complements a growing body of scholarship that examines how automation trends and recent technological developments impact work processes and workers (Angrave et al., 2016; Lindsay et al., 2014; Park, 2018). Such scholarship has shown how human-technology interactions affect important aspects pertaining to the execution of work (Davenport & Kirby, 2016). We knew so far that technology shapes the nature of work (Leonardi & Barley, 2010) and that employees seek to find ways to adapt to these changes (Shantz et al., 2014). The more critical side of this literature has examined how such labour can build the sense of being part of a machine and locked into a control system that is difficult to reconcile with notions of human freedom (Fuchs, 2014).

Within the context of HRM, the human-machine issue raised here addresses questions of employee identity and job design in the context of technology (cf., Vrontis et al., 2021). Recent work in HRM has pointed to the control aspects of technology in job settings (e.g., Meijerink et al., 2021), but how advanced technologies may redefine the ideal worker poses identity questions that relate to job design and employee recognition. We explore how such technologies shape the identity referents for employees from human to non-human standards, creating identity processes that differ in important ways from current discussions.

For instance, while some research has pointed out the identity implications of working with technology (e.g., Miscenko & Day, 2016; Strich et al., 2021), this has been in terms of maintaining and protecting professional identity, without acknowledging how employees may be led to compare themselves directly to machines as anchor points for identity. In the long social identity tradition, identity has either involved comparison with other members of a social group, or with the group itself, such as the case of organizational identity (cf., Abrams & Hogg, 1990). In the case we studied, the need for workers to identify with the performance standards of a machine while continuing to feel “human” connections to those around them created a persistent and frustrating displacement that we describe above as an identity void. As humans increasingly share tasks with machines (Davenport & Kirby, 2016; Huang et al., 2019), pressures for this kind of post-human identification process may become more frequent, with unpredictable consequences.

Moreover, in our analysis, identity processes were anchored to a new form of ideal worker constituted by the machine, with important implications for the dynamics of identity norm compliance as compared to that described in current literature. Scholarship on ideal selves and ideal workers (e.g., Reid, 2015) often notes the motivational aspects of bringing one’s identity into line with an ideal (Boyatzis & Akrivou, 2006), for instance, improving one’s work in relation to a respected identity referent.
In the current case, an impossible and non-human ideal embodied by a machine seemed to short-circuit this motivational process. Rather than the ideal being something that could embody a possible form of human development or flourishing, it effectively located the ideal outside of the human as such. As a consequence, the demand for what is internalized as the ideal, rather than an aspirational and developmental anchor-point, acted as an impossible demand and an alienating pressure. This opens up questions around how ability and development must be reconsidered in the light of technological developments.

This last point suggests a secondary contribution of the current study around how abilities are understood and managed at work. We believe that this contribution, directed at the ableism literature, expands the remit of this literature to less-traditional conceptions of abilities to examine broader notions of enabling or disabling experiences and their potential to feed feelings of being less-able, especially in technology-driven contexts. Emerging literature around ableism acknowledges the constructed nature of the able-bodied/ not abled-bodied dichotomy (Barnes, 2016; Campbell, 2009; Jammaers & Zanoni, 2021) that serves an instrumental focus on productivity and economic value (Barnes & Mercer, 2005; Vandekinderen et al., 2012). We find that service workers could, to some extent, disassociate the new ideal worker – the machine – from value generation and continue to see their abilities as broader than the new demands.

Nevertheless, the valuation/devaluation of social contact was a site of struggle, and workers were divided between traditional service values of kindness, friendliness and communication and the demands of the new system. Most ableism research notes the harms generated by institutionalized constructions of able-bodied/ disabled categories (Campbell, 2009). However, these studies do not situate their empirics at the moment of reconstruction. By broadening our conception of abilities beyond established categories of “able-bodied” or “disabled” (e.g., Williams & Mavin, 2012), we further the call to examine the notion of ability at work in its ongoing construction (Mik-Meyer, 2016; Williams & Mavin, 2015) while more clearly showing how ability is used to establish and evaluate workplace identity in practice. Inverting the above cited literature, rather than critiquing constructions of ability that diminish the human workers, in our setting, it was precisely the humanity as such that was being contested, where a fully human notion of the self ran up against a machinic ideal. The implications of no longer having the human as a normative anchor point in such discussions has not been broached in current literature and expands the relevance of this literature in a world where the human cannot be taken for granted as the ideal worker.
Practical contributions

Our findings have practical implications for HRM in terms of job design in customer service environments, especially retail. How employees understand the recognition or lack thereof of their abilities, traditionally linked to job design categories such as variety, significance and autonomy (cf., Oldham & Fried, 2016) take new aspects in the context of human-machine interactions. Our finding that retail staff, in the presence of self-service checkouts (SSCOs), perceive a devaluation of their human qualities, is important because SSCOs will be “an integral part of retail’s future” (Raydiant, 2021). Yet, many customers will also continue to need competent help with SSCOs (Mosteller, 2021), and many will continue to value a personalized shopping experience, rather than just efficient processing (McKinsey, 2020; Raydiant, 2021).

In such an environment it is critical to address the potentially negative effects of employee self-comparisons to SSCOs. Instead, new service roles should be introduced that only humans can perform, thanks to their emotional skills and functional flexibility, and that complement the qualities of SSCOs. First, we suggest to establish flexible and empathetic checkout attendants who can assist customers with using SSCOs. Mosteller (2021) finds that having qualified staff that can help and empathize with customers who are struggling with SSCOs is critical for customer satisfaction. Checkout attendants should therefore be trained to not only give technical assistance, but to perform care work, including coaching, calming and reassuring whenever customers get frustrated. These roles need to be paid well and should not be understaffed. Second, we suggest to introduce personal cashiers who specialize in serving older customers and customers with special needs. Such customers may need help with moving items, packaging, and paying, or they may simply prefer a personal touch (McKinsey, 2020; Raydiant, 2021). Thus, customers should be a given choice between SSCOs and “your personal cashier”. Cashiers in these roles could recognize frequent customers and know them by name. Their presence can boost customer loyalty and employee morale. Third, we consider the role of a shopping assistant to be increasingly relevant. A McKinsey (2020) study finds that the use of SSCOs will free staff to perform other roles, including that of an assistant or advisor on the sales floor who gives shopping recommendations and who helps customers in need. Staff in these positions should be knowledgeable about products and customer preferences.

Across these roles, retailers can emphasize in staff training and performance evaluation that social and emotional skills are critical to perform these roles and that no SSCO could replace that. Frequent customer surveys should capture how satisfied customers are in particular with the level of attention they are given by staff in these roles. In turn, high
customer satisfaction with the “human elements” of these roles should be rewarded financially and valued in the corporate culture.

**Future research agenda**

The current study is meant to ground an ongoing future research agenda around identity and technology in the workplace. We see several potential directions for research, which we summarize below. Regarding the identity-technology theoretical nexus, the fact that our interviewees experienced an identity void raises questions about the identity pathways that could follow from their heterogeneous ways of experiencing this void. For instance, future research could examine the conditions under which service workers internalize new ideal worker images, attempting to conform to a machinic view of themselves, versus resisting such ideals by valorizing and insisting on their previous identities.

Relatedly, while in the current setting, the experienced form of ideal worker demands took the form of a constraint and a limit to ability, there are also conditions in which working to a machine-given standard could be used as a form of self-development or enhancement. This raises the question of when human-technology interaction is experienced as a tool for human enhancement vis-à-vis a constraint on agency. Understanding the conditions under which technology gives rise to these very different outcomes is an important task for future research.

Finally, because of the service work literature’s overwhelming focus on interpersonal contact and human interaction as a basis of services (Granulo et al., 2021; Kim & Yoon, 2012), the implications of human-machine interaction in this sector may have unique aspects vis-à-vis other sectors. Although ability judgments may not be unique in this sense, the fact that these worked through customer regard and the changing shape of customer relationships adds complexity in that a third party plays a role in how the machines are experienced by workers. Future research in service work should examine not only how humans and machines interact, but how these interactions enroll broader networks of relationships, and how their interpretations depend on such relationships.

**Conclusion and limitations**

In this study, we aimed to investigate the effects of the implementation of semi-automated technologies on service workers. Research exploring the qualitative experiences of employees as they enter this new array of human-machine configurations can ground emergent theoretical understandings of their forms and consequences.

While our focus allowed the capture of critical identity-ableism dynamics, we believe that some limitations would need to be addressed
in future research. First, we focused on a case of semi-automated technologies: self-service check-outs. It is of paramount importance to broaden the spectrum of the cases studied to investigate how the identity-ableism dynamics play out across technologies, contexts, types of work, workers’ profiles and sectors. The second limitation relates to the explorative nature of our work, based on a qualitative design with in-depth workers’ narratives at the core of our emergent theorization. We believe that investigating the phenomenon of workers-machine interactions from additional methodological approaches, for instance using a combination of quantitative and qualitative approaches would contribute to the emerging theorization of the phenomenon.

In sum, the current study uses the lens of ableism to understand the identity dynamics of human-machine interactions in retail. Understanding how work identities depend on subjective ideals, and that such ideals are mediated through rapidly changing technologies, helps to track the ongoing changes in the world of work and their impacts on the subjective experience of workers.

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