Ethics and Social Welfare

ISSN: 1749-6535 (Print) 1749-6543 (Online) Journal homepage: www.tandfonline.com/journals/resw20

Slow Ethics in an Age of Fast Technology: The Ethical Implications of Industry 4.0 for Social Work

Sarah Banks, Teresa Bertotti, Daria Forlenza, Netanel Gemara, Elizabeth Reimer, Michal Segal, Jane Shears, Ana M. Sobočan, Kim Strom, María Jesús Úriz & Mai Yamaguchi

To cite this article: Sarah Banks, Teresa Bertotti, Daria Forlenza, Netanel Gemara, Elizabeth Reimer, Michal Segal, Jane Shears, Ana M. Sobočan, Kim Strom, María Jesús Úriz & Mai Yamaguchi (2025) Slow Ethics in an Age of Fast Technology: The Ethical Implications of Industry 4.0 for Social Work, Ethics and Social Welfare, 19:2, 137-155, DOI: 10.1080/17496535.2025.2512949

To link to this article: https://doi.org/10.1080/17496535.2025.2512949

Published online: 16 Jun 2025.

ETHICS AND SOCIAL WELFARE
2025, VOL. 19, NO. 2, 137–155
https://doi.org/10.1080/17496535.2025.2512949

Routledge
Taylor & Francis Group

Slow Ethics in an Age of Fast Technology: The Ethical Implications of Industry 4.0 for Social Work

Sarah Banks [a], Teresa Bertotti [b], Daria Forlenza [c], Netanel Gemara [d], Elizabeth Reimer [e], Michal Segal [f], Jane Shears [g], Ana M. Sobočan [h], Kim Strom [i], María Jesús Úriz [j] and Mai Yamaguchi [k]

[a]Department of Sociology, Durham University, Durham, UK; [b]Department of Sociology and Social Research, University of Trento, Trento, Italy; [c]LUMSA, Libera Università Maria Ss. Assunta, Rome, Italy; [d]Faculty of Social Welfare and Health Sciences, School of Social Work, University of Haifa, Haifa, Israel; [e]Community Welfare & Social Work, Faculty of Health, Southern Cross University, Lismore, Australia; [f]Social Work Department, Tel-Hai College, Upper Galilee, Israel; [g]International Federation of Social Workers, Ethics Commission; [h]University of Ljubljana, Ljubljana, Slovenia; [i]University of North Carolina, Chapel Hill, NC, USA; [j]Public University of Navarra, Pamplona, Spain; [k]Department of Integrated Studies, Japan Lutheran College, Tokyo, Japan

ABSTRACT

This paper brings together a range of perspectives on the ethical implications for social work of the growing use of digital technologies, big data, artificial intelligence and other features of 'Industry 4.0' (the fourth industrial revolution). Drawing on contributions to a workshop co-organised by the *Ethics and Social Welfare* journal, contributors explore: the nature and importance 'slow ethics' in an age of fast technological developments; ethical challenges for social work with the ultra-Orthodox Jewish community, which outlaws digital communications; the empowering effect of online meetings for a young person in Italy; and the possibilities and limitations of using algorithms in mental capacity assessments and in ethical decision-making more broadly. Stimulated by these examples, the concluding discussion considers how to maintain a person-centred approach in social work, being pro-active in developing positive uses and resisting the de-humanising and exclusionary impacts of digital technologies.

ARTICLE HISTORY
Received 8 October 2024
Accepted 25 May 2025

KEYWORDS
Social work; slow ethics; Industry 4.0; digital technology; artificial intelligence (AI)

Introduction

Sarah Banks and Ana M. Sobočan

As we face rapid technological innovations worldwide, the digital transformation of social work and social care practice has been proceeding, although generally less quickly than in many other sectors (Berzin, Singer, and Chan 2015, 3; Reamer 2023). The Covid-19

CONTACT Sarah Banks s.j.banks@durham.ac.uk Department of Sociology, Durham University, 29 Old Elvet, Durham DH1 3HN, UK

pandemic increased use of digital technologies for basic communication and broadened awareness of the ethical implications of a trend that had already been happening patchily in different parts of the world and different fields of social work. This paved the way for heightened ethical and practical concerns about the use of digital technology more generally, beyond video-conferencing and use of social media, to the deployment of artificial intelligence (AI) in providing support and contributing to social work assessments (Diez 2023; James et al. 2023; Garkisch and Goldkind 2024; Lehtiniemi 2023).

This article draws on a workshop co-hosted by the Social Work Ethics Research Group (SWERG) of the European Social Work Research Association (ESWRA) and the *Ethics and Social Welfare* journal during the ESWRA conference in Vilnius, Lithuania in April 2024. The theme of the Conference was 'Envisioning Future: Social Work Research and Discourse in the Age of Industry 4.0'. We invited members of SWERG to offer short contributions on the ethical implications of digital technologies for social work in the current era of Industry 4.0 (the fourth industrial revolution). The contributions reflected the current research and concerns of the authors, and were not designed to offer a comprehensive overview of all aspects of the topic. For example, we did not cover generative AI, such as ChatGPT, which creates new content in response to a prompt, nor other systems for assisting with report writing or note-taking.

Twelve people attended the workshop, including the presenters. At the outset, the coordinator said the intention was to write a report or paper drawing on the workshop presentations and discussion, asking the permission of participants and inviting them to get involved if they wished. The sixth section of this paper is written by four people who joined the workshop as participants and expressed an interest in co-authoring. Notes were taken of three small group discussions at the workshop and some of the ideas are developed in the sixth section of the paper.

In this article, five short pieces drawn from different contributors at the workshop are presented. First, an overview of some of the key issues and a discussion of the meaning and importance of 'slow ethics' is provided. This is followed by an account of the ethical issues raised for social workers working during the Covid-19 pandemic with the ultra-Orthodox Jewish community in Israel, in which internet access is highly restricted for religious reasons. This second contribution raises questions about the role and usability of digital platforms and tools, as well as online service delivery and issues of social justice arising from the use/non-use of technology.

The third piece offers another perspective on the role of digital and remote communication through a case study from an online meeting with a young person in Italy. It prompts us to think about the effects of digital tools and communication beyond convenience, efficiency, communication equity, access and literacy, to deliberating whether and how digital technologies can contribute to (or hinder) empowerment of service users, encouraging us to rethink the power imbalance between service users, carers, social workers and beyond.

The fourth piece ventures into an area in which service users might have less autonomy to navigate the power landscape, namely a discussion on the implications of organizational use of data and the ethical implications of using big data and predictive analytics in mental capacity assessments in the UK. Finally, the fifth contribution engages with the possibilities and challenges of data-driven ethical decision-making in the health and social

care field. It presents the opportunities that algorithms hold, but also the politics and impact on individuals, as well as communities, that may be denied services, wrongfully targeted, profiled or coerced.

The five pieces demonstrate the importance of slow and careful ethical deliberation on the processes and promises of digital technologies and the need to examine the relationships between digitalisation, datafication and social work values, ethics and social justice.

The sixth section of the article comprises a discussion of the issues raised by the contributors, drawing on dialogue in the workshop and subsequent meetings of the SWERG group. The article concludes by drawing out key ethical issues, stressing the importance of taking a 'slow' approach to ethics, giving time to assess and evaluate the implications of technological developments specifically in the context of social work values.

I. Slow ethics in the era of Industry 4.0

Sarah Banks

Industry 4.0

The term 'Industry 4.0' is used to refer to the fourth industrial revolution. The first was based on mechanisation, the second on mass production and the third on computerisation and automation (Chute and French 2019). 'Industry 4.0' commonly refers to 'cyber physical systems', including the Internet of Things (connection of multiple devices to the internet), use of big data, Artificial Intelligence (AI), smart technologies and the blurring of the lines between humans and digital technologies. Characterising these developments as amounting to a 'revolution' highlights the impact of the shift in practices, living conditions and ways of thinking and being. Schwab (2016) refers to 'disruptive technologies' while Van den Berg (2017, 3; quoted in Safodien 2021, 257) speaks of a 'digital tsunami'.

Ethical implications of Industry 4.0

Chute and French (2019, 3), in presenting their useful model of the application of Industry 4.0 to the care sector (Care 4.0), quote a plea made by Nesta (a UK charity promoting innovation for social good) to 'make the fourth industrial revolution good'. This entails citizens being able to influence developments so they can be more productive for society than in previous 'revolutions' – which displaced and disenfranchised millions and focused energy and resources on environmental consumption, profit, and war. This ideal is echoed in the concept of 'Society 5.0' proposed by the Japanese government as a development of Industry 4.0 to a 'human-centered society that balances economic advancement with the resolution of social problems by a system that highly integrates cyberspace and physical space' (Cabinet Office (Japan) 2023). This presages the emergence of what is now being referred to as 'Industry 5.0', looking to new forms of human-machine cooperation (see Breque, De Nul, and Petridis 2021, 22).

This concern with societal impact relates to macro-ethical issues about: what kind of society we want to live in; who should own, control and regulate the technologies; what regulatory policies are needed for public protection; and what value we place on human relationships. At the micro-level, Reamer (2023) outlines the implications of digital technology for traditional ethical issues in social work, such as confidentiality

and privacy online, but he also raises specific issues relating to the use of AI, such as 'client abandonment', surveillance and algorithmic bias.

Chute and French (2019, 20), in their arguments for 'humanising' Industry 4.0 for a person – centred care setting, stress the importance of helping people to use data to activate services on their own terms, 'at the right time and in the right place'. This is reminiscent of Aristotelian 'phronesis' or practical wisdom, a trait that is valuable in life generally and in professional life in particular (Banks 2018). In the context of Industry 4.0, the recently developed concept of 'cyber-wisdom' may be pertinent here: 'the ability to do the right thing at the right time, when using the internet' (Polizzi and Harrison 2022, 2). This is essentially a human trait and involves a high degree of ethical awareness and effort, indicative of a 'slow' approach to ethics.

'Slow ethics' (Gallagher 2020; Banks and Rutter 2022, 3474) entails being prepared to make an effort, listen carefully, see and understand from other perspectives, think about alternatives and take action to change things. The 'slow movement' is associated with taking time and letting go of end-gaining, as an antidote to the stress of fast-paced life, fragmentation of concentration, superficiality, lack of care and short termism. The idea draws on research in behavioural and moral psychology showing reliance on fast, intuitive thinking is often biased and inaccurate, at the expense of 'slow' logical reasoning (Kahneman 2011). It is particularly relevant in the context of public scandals showing crises of care and compassion in institutional health and social care settings, enabled by cultures of cruelty and unthinking conformity (see Gallagher 2020), along with reticence to challenge unjust cultures and practices and the dehumanising effects of aspects of Industry 4.0.

In one sense 'ethics' is necessarily about being slow: taking time to reflect, looking at issues from many perspectives and making considered judgements. This is essential for carefully considering the implications of new technologies. Hence it may seem unnecessary to talk about 'slow ethics' in this context. Yet there is also a sense of 'ethics' that is more regulatory than reflective, equating ethics with ticking boxes and following rules, characterised by Banks (2021) as 'managerial ethics'. Here 'ethical' responses could be generated rapidly by AI, which raises questions not only about how the AI is programmed, but also about diminishment of the time, opportunities and skills for the human ethical thought and reflection that is necessary to maintain and deliberate conceptions of the good life. It is particularly important for practitioners to engage in slow ethical deliberations in times of change, uncertainty and crisis, when there are pressures to think and act fast. This entails:

- Prioritising the use of professional judgement, based on the overarching virtue of professional wisdom, taking account of changed and changing contexts for practice. The concept of 'cyber-wisdom' (Polizzi and Harrison 2022) is particularly relevant in this case.
- Maintaining the inter-personal virtues of care, respectfulness and trustworthiness. The concept of 'digital intimacy' (affective and emotional relationships developed through digital connection) may be helpful here (see Pink, Ferguson, and Kelly 2022).
- Practising justice, entailing practitioners noticing inequities and knowing how to tackle injustice and unfairness.
- Practising courage in making and implementing judgements in times of fast-moving crisis.
- Cultivating professional integrity to hold true to social work values and virtues, balancing the public good with individual rights and needs and challenging institutional norms and structures perceived as damaging.

II. Ethical issues in the utilisation of digital communication in social work with the ultra-Orthodox Jewish community

Netanel Gemara

The ultra-Orthodox Jewish (Haredi) community in Israel comprises over a million members, representing about 12% of Israel's total population and exhibiting the highest growth rate in the country, with an average of 6.4 children per family (Cahaner and Malach 2023). This community, diverse in its streams and sub-streams, shares common attributes that forge a collective identity.

Members are deeply religious, believing in God and His constant divine intervention. They strictly adhere to Halacha, a comprehensive set of laws that govern nearly every aspect of life. They foster a communal culture with solid interpersonal connections and various mutual aid organizations. The community's collectivistic nature tends to prioritise communal welfare over individual needs. Approximately 50% of men focus exclusively on Torah study and do not engage in secular employment, contributing to the community's financial struggles. In contrast, the same percentage of women as in general society (around 82%) are employed, including in high-tech sectors.

The ultra-Orthodox community endeavours to preserve its distinct values and lifestyle through segregation, maintaining its own educational systems, media outlets, distinct clothing, with some maintaining the Yiddish language. Despite their insular approach, the community interacts frequently with the secular world for essential services like medical and technical support, which they lack the internal education to provide. Social services are approached with caution due to perceived intrusiveness, yet the community's high poverty levels necessitate these services. Trust has improved with more social workers coming from within the community.

The ultra-Orthodox community, in its endeavour to preserve its distinct values and lifestyle, has seen the introduction of the Internet as a significant threat to its segregation strategy. When there is a particular necessity for internet access, for example, in work settings, rabbinical permission is required, and the connection needs to be strictly regulated. The exposure concern after the development of the smartphone, led to the creation of the 'Kosher phone', which allows only voice calls and is approved by a rabbinical committee.

In an empirical study I conducted during the Covid-19 pandemic (Gemara 2024) various ethical dilemmas were raised regarding social workers' utilisation of digital interactions with the ultra-Orthodox community. The six key ethical issues that I would like to present are listed below. I use the term 'clients' to refer to people who use social work services as this is the term used by the social workers in the reported study.

1) ***Service improvement at the expense of community inclusion.*** Enhancing services for the general society could sideline the ultra-Orthodox community. Is developing a separate, potentially expensive, and complex digital system tailored for them justifiable? As one social worker in the research commented:

> I had a client who had to get her child to an afternoon kindergarten programme (given by the social services). The registration was done via the government website. The client called me and explained the complexity. She called them [social services], and they asked her for an e-mail address. So she said that she did not have an e-mail. They then

said, OK, so give us your neighbour's e-mail. So she said my neighbours also do not have e-mail. At the end of the day, she missed the registration date.

2) ***How assertively should clients be encouraged to use technology?*** Many find the mere usage of internet devices against their values. For example, a social worker recounted playing a memory game online with a child when an unexpected and inappropriate image of a woman popped up. For ultra-Orthodox children, who have a very restricted attitude towards sexuality and any interaction with the opposite gender is hardly present aside from immediate family, that was a severe issue. This incident highlights the risks of uncontrolled content exposure. On the other hand, some social workers raised the concern that some families' opposition may be unnecessary or even used as an excuse for lack of cooperation.
3) ***Quality versus quantity.*** The many difficulties ultra-Orthodox clients show in their utilisation of digital communication raise the question of whether social workers should opt for more frequent, but possibly lower-quality, online interactions or insist on higher-quality, face-to-face sessions that might be less accessible.
4) ***Power dynamics.*** Digital communication shifts the power balance, often amplifying the authority of social workers who already call the shots in traditional settings. This power imbalance is further intensified by social workers' typically greater digital proficiency compared to their clients. For instance, one social worker recounted an experience during an online meeting where another social worker was eating an apple and conversing with a colleague. This behaviour demonstrated how some social workers remain unaware of how their actions in digital spaces can further marginalise clients, who already struggle with technology, highlighting an unconscious abuse of power that exacerbates the challenges of remote communication.
5) ***Community diversity.*** There is variation within the community regarding access to and acceptance of digital tools. Should services be standardised across the community, or should they be adapted to those willing to engage digitally? For example, during Covid-19, a centre for families operated by a private NGO sought to provide ultra-Orthodox families with tablets to continue their therapies. The staff believed that, although some families opposed use of digital tools, those individuals who wished to utilise them should be provided with the means to do so. However, this initiative faced opposition from state-provided formal services, which argued for a unified approach within the community, without accommodating individual preferences. The rationale behind this view was that allowing exceptions could lead to greater mistrust in social services.
6) ***Ultra-Orthodox social workers.*** Ultra-Orthodox social workers face dilemmas about whether to use non-kosher phones to enhance communication with clients, potentially compromising their cultural values. Additionally, a non-ultra-Orthodox service administrator shared concerns about demanding that ultra-Orthodox social workers adopt culturally sensitive communication technologies.

These dilemmas highlight the complexities of integrating modern digital communication tools within a traditional religious community, stressing the importance of ethically sensitive approaches that respect cultural values, while striving to provide comprehensive social services. As we advance toward a more digital world, it is crucial to consider the needs of communities and individuals who may not align with these advancements.

III Digital communication and the impact on professional relationships with service users

Teresa Bertotti

In this section, I share a story collected during a wider empirical study in which I was involved with others exploring the impact and effectiveness of remote care during the Covid-19 pandemic and the impact of digital communication on the social worker-service user relationships in child and family services. This study explored people's use of digital media (video calls, emails and electronic messages) and how this use influenced relationships, particularly positions of power, between practitioners and service users. To grasp the relational dynamics, the study adopted the Multiple Perspective Interview approach, interviewing the social worker and client (parent, child) involved in the same situation (Vogl, Schmidt, and Zartler 2019). Data were analysed within the theoretical framework of cultural studies and discourse analysis. First results indicate that the novelty of the media used in practitioner-service user relationships presents signs of change in the asymmetry of relations and requires new spaces for reflection.

In collecting the data we came across a story, based on interviews with a boy, his foster mother and a social worker, that opened up some challenging ethical issues. The situation described relates to a boy whom we named 'Silvio'. The research team constructed the account based on Silvio's interview and some of the recollections shared in the interviews with the social worker and the foster mother.

> Silvio was a 14-year old boy, who had been in foster care since he was six, because of his mother's mental health problems. He regularly visited his mother, with variable outcomes. During the pandemic, he stayed longer with his foster parents, and realised he liked to have a 'normal' family. To address some difficulties related to Silvio's annoyance with his birth mother's insistent requests to meet and spend time with him, the social worker agreed with Silvio to organise an online meeting with him, his birth mother and foster mother. The meeting was carefully organized by the social worker, who met everybody first individually. The social worker also wanted to show Silvio's mother that the foster family was not against her. Everyone agreed to meet and share the common purpose of finding good solutions for all.
>
> The online meeting, however, did not go as hoped. Shortly after the beginning, Silvio took the floor and unexpectedly said he was fed up with his mother's continuous requests to see him and be involved in his life. He also said he wanted to be adopted by the foster parents. Afterwards he immediately walked away from the screen, leaving everybody in great confusion. But Silvio felt that something unusual had happened, as he commented in his interview:
>
> I told my mum straight to her face that I wanted to be adopted … I don't know with what courage I said this … she started crying and … I started crying too. I stepped out, saying I had to do my homework which wasn't true … I just didn't want to stay any more …
>
> In his interview, Silvio repeatedly affirmed that 'in person I would never have had the courage to say something like that to my mother'. Referring to the experience of distance learning classes during lockdowns, he said: 'as I said before about the school, everything that took place online is not real.. doesn't last'. He elaborated:
>
> > It's because of the screen, as there's not the real person in front of you. As I was saying, [during the lockdown] it was impossible to learn, because you couldn't really think that you were in the classroom … It was the same stuff there … I couldn't really think that I

> had my mum and the social worker in front of me. So, I said 'All right she's as in "distant learning" … we're not really in touch so I'll tell her … '
>
> This incident was similarly reported by the social worker and the foster mother (the birth mother refused contact). The social worker also said she was profoundly amazed and shocked by Silvio's words. Immediately, her first concern was for Silvio's birth mother, whom she joined just afterwards, in a long phone call. She wanted to try to keep a relationship with her and convince her that her son 'didn't mean what he said'. In the medium term, Silvio said that after that meeting nothing had changed, except that his mother was a little more respectful of his wishes.

The researchers (of which I was one) discussed this story, focusing on three main questions.

1. In this case, a different medium of communication (online) was adopted. How did this challenge traditional asymmetries and power relations? Silvio deliberately chose to use the online meeting to communicate something important for him, without previous agreement with his social worker. This raises the question of whether digital media can give people different capacities to stay in relation with professionals, in a new, maybe more 'equal' position. In this case, it was easier for Silvio to communicate and control his presence, having the possibility to exit the meeting more easily than in person. How does this challenge traditional asymmetries in power relations? Is this a true difference in power relations?
2. What weight and credit can we give to communication that happens online? Silvio himself said that online was not 'real', showing a need to gain a deeper understanding about the degree of reality attributed to communication occurring through digital media (see Henze-Pedersen and Kirkegaard 2024; MacDonald et al. 2023).
3. How should we interpret communications that take place online? In Silvio's story, the social worker (and other adults) interpreted his words, apparently diluting their meaning. Is this a 'decoding' process that implies a risk of paternalism and being patronising or is it the right way to deal with complexity? In digital working, it is important to be aware that the lack of whole body communication may encourage simplification and missing of nuances.

This short but powerful story highlights the complex issues raised simply by using an increasingly popular means of communication in everyday professional life, the video call, highlighting the need to prepare and support people during and after the calls. It also illustrates the need to take into consideration incidents that happen in practice, especially those that deviate from routines, as they can unveil new expectations and demand a different, more equal, relation between service users and professionals.

IV. Deprivation of Liberty Safeguards in England and Wales: are algorithms the way forward?

Jane Shears and Kim Strom

The International Federation of Social Workers' Global Social Work Statement of Ethical Principles (IFSW 2018) refers to potential threats from digital technology on ethical

social work practice. In the UK, Health Education England (2022) reports that AI-driven technologies are distributed across the care pathway, including triaging referrals, diagnostics, clinical interventions and patient outcomes. Bejarano (2023), in his personal reflections on AI for social workers, suggests AI interventions 'can enhance their efficiency, decision-making and service delivery' in better meeting the needs of people who access services (p.21). However, this needs to be balanced with the ethics and values that are fundamental to relationship-based practice.

The Mental Capacity Act (2005) (MCA) in England and Wales is underpinned by five principles, of which the first is that a person must be assumed to have capacity unless it is established otherwise. However, whilst social work is fundamentally concerned with advancing and protecting human rights, there are situations in which social workers are ethically and statutorily required to intervene when service users lack the capacity to make decisions regarding their care and treatment. The Mental Capacity Act (2005) provides for a person to be legally deprived of their liberty if they do not have capacity to agree to their care and treatment plan, to be under continuous supervision and control; and to be prohibited to leave their place of residence. A Best Interest Assessor (BIA) makes an assessment as to whether the Deprivation of Liberty Safeguards (DoLS) are met and if the conditions of the deprivations are least restrictive. The BIA writes a comprehensive report of their assessment on a template created by the Department of Health and the Association of Directors of Adult Social Services, usually shortened to the title of 'Form 3'.

Four members of the UK Social Work Practitioner Research group who are all BIAs and based in four different local authorities in England (including the first author of this section) carried out a documentary audit of ten Form 3's each, selected randomly in January 2024. There were four aims. The first was to review the quality of the assessment reports against an audit tool using a red (poor), amber (satisfactory), green (good) rating against each of the criteria. The second was to consider how the assessments were carried out and if any communication tools or aids were used, for example, photographs or visual communication frameworks (such as talking mats) to enable the service user to have more active participation in the assessment. The third aim was to identify if any consistent themes were identified in the nature of the restrictions contributing to the deprivation of liberty and the fourth was to explore whether AI-generated assessment and decision-making could be a feasible or desirable alternative to the BIA's assessment.

The BIA reports we audited represented assessments with people aged 30–97 years, who were considered to lack capacity either because they had a diagnosis of learning disabilities, Korsakoff's (alcohol induced) dementia, or other forms of dementia, typically associated with older age groups. The majority of assessments were rated amber or green indicating that the quality of the reports overall was satisfactory or good. Only one of the 40 assessments made reference to any supporting communication aids. Four themes were identified in the nature of the restrictions: environmental, for example, locked doors, keypads out of reach; physical, for example wheelchair belts, personal care requiring hands-on support by staff; chemical, to induce sedation or reduce agitation; and mechanical, for example using a hoist to transfer between chair and bed. However, whilst all the assessments in the sample were authorised as DoLS meeting the legal criteria, only 20% of the assessments were completed within the timescales set in law (21 days from referral to assessment). This raises ethical concerns about the detention of vulnerable adults outside of any legal framework.

These findings suggest AI could be advantageous for improved efficiency and predictability. Elements of the assessment could be a natural fit for the application of algorithms as they are binary choices about the presence and severity of symptoms associated with particular mental health diagnoses and forms of restraint. The failure of 80% of the sample to adhere to the time requirement for reporting demonstrates that measures are needed to accelerate the process. AI could also be an asset in the automated tracking of report status, notifying social workers and supervisory or regulatory personnel about the current completed, late, and upcoming expiration of DoLS decisions. AI may thus be of great help when diagnoses are definitive, their trajectories are predictable, and restrictions are measurable in terms of presence or absence. Digital decision-making could determine if someone is under constant supervision and not free to leave the placement, hence determining the person is deprived of their liberty.

However, the application of AI to capacity assessments is not without cautions. The scope of AI's role and the decision being made is crucial, as is the quality of the data on which the data-driven decision is made. People creating and using algorithms must determine whether they are indicative of the constructs being measured or whether they reflect personal, institutional, or structural biases. Brett and Severn (2023) refer to an AI tool for detecting pain in people living with dementia through facial analysis. However, they identify limitations in terms of evidence base, 'race' and diagnosis, together with the need for a manual administration of the assessment and recording the outcome. The peril of predictive text is a familiar example of unintended messaging. The BIA needs to make a judgement about whether the restrictions in a person's care plan are least restrictive. Such nuances introduce more complexity than binary decision-making. Human determinations seem warranted in assessments where the findings about the person's capacity are ambiguous or the DoLS involves potential harms (such as covert medication without medical oversight), risk of trauma, or abuse.

Therefore, whilst AI generated capacity assessments and determination of DOLS is certainly feasible, desirability rests on ethically informed practice in the safety, safeguarding and self-determination of vulnerable adults.

V. Possibilities and challenges of using algorithms for ethical decision-making: from bioethics to social work

María Jesús Úriz Pemán

In the field of bioethics, an algorithmic tool has been developed that can be used in clinical ethical decision-making (Meier et al. 2022). Here I will outline the nature of the tool and the implications of usage of similar tools for ethical decision-making in social work.

An algorithm is a sequence of ordered and well-defined logical steps that is useful for solving a problem. Algorithms can be applied to multiple situations, from organizing simple tasks in our daily lives to performing calculations or automating reasoning to solve a problem. It is undeniable that algorithms are already having a significant impact on our lives. In fact, being accepted or rejected for a job or granted medical insurance can be decisions conditioned by the use of algorithms. In medicine, algorithms are useful for interpreting medical images or relating certain diseases to the probability of experiencing certain side effects. Algorithms also are increasingly used in social

interventions, as they can be used for diagnosis, deciding whether to grant social welfare benefits, identifying risk factors for child abuse (Keddell 2019; Lanier et al. 2020) and may be useful in undertaking mental capacity assessments as outlined in the previous section.

Can the use of algorithms extend even further to the realm of ethical decision-making? What challenges and implications would this have for professional ethics? To reflect briefly on these questions, I will explore the algorithm proposed by Meier et al. (2022) for ethical decision-making in clinical practice in health care. In this case, it is not just a decision-making model, rather the algorithm is specifically designed to handle a wide variety of *ethical* problems. The tool created by these authors is called METHAD (Medical Ethics Advisor). As its name suggests, its purpose is to provide recommendations for ethical decision-making in medicine. Therefore, it is not about replacing human reasoning, but rather advising and providing guidance to solve various ethical problems.

The moral framework in which this tool operates is based on three of the four 'prima facie' principles formulated by Beauchamp and Childress (2013), which form the basis of an influential framework in the field of bioethics: autonomy (respecting the decisions and preferences of service users), non-maleficence (considering potential harm and anticipating risks of making one decision or another to avoid harming people), and beneficence (seeking the well-being and quality of life of service users). The fourth 'prima facie' principle is justice, but it was not included in METHAD by its creators because there are many theories of distributive justice (including liberarian, communitarian, egalitarian, utilitarian and so on) (Meier et al. 2022, 11). There is no consensus on the nature of justice or what should be a fair distribution of resources. METHAD is applied only at the individual level, and cannot consider questions relating to intersubjective justice or the politics of the health care system. If the principle of justice was used it would have to reference political assumptions about health.

Technically, METHAD is constructed using learning based on an approach utilising cognitive maps containing 21 nodes, such as respecting the preferences that service users have expressed in writing, gaining greater quality or expected length of life, applying existing guidelines, etc. These nodes are linked to the three ethical principles and are related to each other through positive, negative, or neutral connections with the ultimate goal of recommending or not recommending a particular intervention. The recommendation is expressed through a numerical value between 0 (completely opposed to the intervention) and 1 (completely in favour of the intervention). To build and train the algorithm, 69 cases with various themes were used, including: consent in minors, refusal of treatment by an adult with decision-making capacity, pregnancy and abortion, withdrawal or continuation of treatment, mental health, etc. Once the algorithm was applied to these cases, its recommendations were compared with the deliberations made by ethics experts and ethics committees, resulting in a match in 92% of the cases.

The publication of tools like METHAD sparks debate about the convenience and usefulness of algorithms in ethical decision-making, including whether algorithms can replace human reasoning and analysis. It seems evident that, based on various examples and cases, algorithms perform a systematic process that can be helpful. However, ethical decision-making is a much more complex process involving other factors (emotional, relational, contextual) that algorithms struggle to encompass. Therefore, I suggest that algorithm recommendations should be considered as support, but not an alternative to human deliberation.

The creators of METHAD recognised some advantages of these tools, such as transparency in explaining the reasons behind one decision or another. There is also the possibility of adding and modifying nodes and their relationships to encompass more factors and issues. However, many authors offer critiques of METHAD and other algorithms. For example, METHAD is useful in some specific cases, but what if we analyze much more complex cases where the hierarchy between principles is not so evident (Sauerbrei, Hallowell, and Kerasidou 2022)? It is worth noting that establishing one hierarchy or another between ethical principles is the most complex aspect of using principled methodologies to solve ethical problems. In fact, nowadays, in the field of social intervention, we have few methodological proposals that dare to propose specific hierarchies that are useful in many scenarios.

Furthermore, this algorithm relies on some of the basic ethical principles in bioethics as its moral reference, since it was developed for use in health care. Therefore, it opts for a principle-based ethical theory, leaving aside many other ethical theories such as virtue ethics or care ethics, the focus of which is less on ethical principles but on the virtues that professionals should have or the importance of individualised care for each service user. Additionally, as noted, METHAD omits the principle of justice (Rahimzadeh et al. 2022). This means that a significant number of very complex situations linked to this principle are not considered, such as who can (or cannot) access certain services or benefits and, therefore, who may be discriminated against by certain decisions.

We are witnessing an unstoppable development of AI that raises major new ethical challenges for professional practice and, more specifically, for ethical decision-making. Although algorithms can be useful for making some diagnoses, streamlining certain bureaucratic tasks, or making some predictions, I would argue that, in the specific field of ethical decision-making, algorithms should remain purely consultative tools that do not replace the specific professional perspective. Ethical professional deliberation includes rational aspects, but also other factors such as prudence, emotions or professional discretion.

It is also worth noting that using an algorithm does not guarantee either that the decision recommended is the best possible (Pilkington and Binkley 2022) or that this decision aligns with the most relevant values of each case (Demaree-Cotton, Earp, and Savulescu 2022). In addition to the need to reflect on what type of decisions can be automated, we run the risk of decontextualising and depersonalising each specific case, thus losing 'ethical sensitivity' (Gundersen 2022). When considering the use of algorithms in ethical decision-making in social work, we must remember the importance of a person-centered intervention model, according to which each service user has the right to be treated in a unique and contextualised manner, not as just another element within a group of predetermined categories. Furthermore, it is important that algorithms are used ethically, with transparency and honesty regarding what they are capable of and what they are not, and those affected by the decisions should be given a voice. It is our ethical responsibility regularly to verify that algorithms do not harm vulnerable groups.

VI. Discussion and reflections

Elizabeth Reimer, Michal Segal, Daria Forlenza, and Mai Yamaguchi

The fourth industrial revolution, characterised by new digital technologies, is significantly transforming professional practice in social work. The contributions in Sections I-V

illustrate that change is current and rapid, raising concerns for practice, particularly regarding increasing dehumanisation and inequality among many of the people who use social work services. In the light of these contributions, workshop participants in Vilnius considered three questions:

1. What features of Industry 4.0 have the most serious ethical implications for social work?
2. Are social work's current ethical statements, codes and norms adequate for us to critique, challenge, negotiate and implement Care 4.0? If they need amending or rethinking – in what way?
3. What role can social work research have in examining and evaluating the ethical aspects of Care 4.0?

In this section of the paper, we highlight key points that emerged in the workshop discussion groups, which we analyze in light of current literature and our perspectives on the role of social workers and social work researchers regarding ethical implications in the use of digital technologies. We argue that social workers are uniquely placed to provide moral and practical leadership to influence the extent to which emergent technologies are ethical, and to prepare people for engagement with technological change. We also propose ideas on how the social work profession globally can be a positive force for change.

Concerns in professional practice

Workshop discussions elaborated an idea that while there are myriad valuable use cases for many of the new and emergent technologies from a professional practice perspective, there are valid concerns that impact social workers and need to be critiqued, challenged, and addressed. Discussions included ways in which new and emergent technologies are dehumanising, will increase power imbalances and inequality, and the extent to which the social work profession is ready to influence and adapt to the advancements. Workshop participants noted that how users of services should be nudged towards technology remains contentious, and argued that it is imperative to mitigate inequalities arising from such technological change to ensure social justice. Some participants discussed concerns that the development of these technologies often excludes significant groups, such as members of the social work profession, which may lead to a lack of diverse perspectives in their creation. Discussion on the formidable influence of technology interest groups with policymakers resulted in agreement there is a need for robust regulatory policies to ensure public protection.

The advent of new technologies has sparked debate on their dehumanising effects, particularly as they blur the lines between humans and digital entities (James and Whelan 2021; Lehtiniemi 2023). There is growing concern over the negative impact these technologies may have on the quality of relationships between social workers and people using social work services, potentially eroding the trust and personal connection that form the foundation of effective service (Reamer 2019). This convergence is seen to undermine person-centred practices, where the push for technological adoption may be a form of overreach that misaligns with the wants and needs of people who use social

work services. Moreover, when we use digital technologies we often assume a clear and unambiguous order of priorities can be established, and that the system will be able to identify the 'best' or 'most ethical' solution. However, in reality, particularly in social work practice, there are often no unambiguous solutions that can be defined in advance. Ethical dilemmas arise when there is a conflict between different values, meaning that no matter what decision we make, some important value will be compromised. Often, every decision we make requires us to act against another value, making it impossible to resolve such dilemmas through simple prioritisation (James et al. 2023; Reamer 2019). This situation underscores the challenges of using ditigal technologies for ethical decision-making.

Furthermore, while rapid deployment of technology can offer an opportunity for more equal relationships in some use cases, it poses significant risks of exacerbating inequalities and power imbalances in others (Asakura et al. 2020; James and Whelan 2021). Social workers are committed to advancing social justice and equality (IFSW 2018). Yet, the advent of digital technologies challenges this commitment, potentially disadvantaging those with limited access and digital literacy. For example, as raised in the workshop, countries facing demographic challenges, such as Japan and the ultra-Orthodox communities in Israel, are witnessing a government-led digital transformation (Klein 2020; Petružytė et al. 2023; Yamaguchi 2024), often without adequate preparation or training. These examples highlight the importance of reflexivity and taking time to consider the meaning of incidents that happen in daily practice which can unveil possible routes to fairer and more equal relations.

Moving from the micro to meso and macro level analysis, the implementation of digital technologies has emerged as a tool to support risk assessment and decision management to improve services (Garkisch and Goldkind 2024; Hodgson et al. 2022). Overall, the opportunity to evaluate the form of advocacy and institutional path, including slow ethics, could be measured a priori in the sphere of street level bureaucracy (Rossi, Tuurnas, and Stenvall 2025; Munford and Sanders 2020; Nothdurfter and Hermans 2018). It is worth considering that the political agency and commitment of those professionals in social services, moving from the direct needs of service users, can create a new form of performative social work with the aim of promoting slow ethical deliberation, also to address the conflicting demands of multiple stakeholders.

Furthermore, the social work profession is grappling with the rapid pace of technological advancement, which has led to concerns about its relevance and adaptability (Asakura et al. 2020; Singer, Báez, and Rios 2023). Questions arise about whether the IFSW global statement of ethical principles, national codes of ethics, and practice standards require modification or a complete overhaul to remain relevant and effective in critiquing, challenging, negotiating, and implementing technological advancements in social care. The concept of 'cyber-wisdom' mentioned in Section I (Polizzi and Harrison 2022), underscores the need to integrate traditional professional wisdom with the understanding of digital contexts.

A way forward for the social work profession

When discussing how the social work profession should respond to such concerns, workshop participants were resolute that social workers should not stand aside and allow

other disciplines to determine how AI will impact social work. Discussions centred around arguing that those involved in the social welfare sector must critically assess and shape the emerging paradigms that are being touted as progress. Participants argued this requires an approach based on moral qualities of integrity, courage and leadership, such as adopting a 'slow' ethical approach to analysing the implications of change.

We, the authors, understand that, within social work, integrity and courage are not just desirable traits, but essential ones. Upholding professional integrity involves a commitment to fostering a society where every individual strives for a meaningful life, underpinned by an ethical foundation rooted in care and virtue ethics (Polizzi and Harrison 2022). This approach prioritises human relationships and the intrinsic value of individuals over a rigid, rules-based system. Moreover, it is imperative to emphasise the fundamental principles of social work: maintaining the privacy and confidentiality of clients, demonstrating cultural sensitivity, and staunchly defending the rights of vulnerable groups (Reamer 2023).

In the landscape of Industry 4.0, social workers can lead by integrating their person-centered expertise with emerging technologies. Social workers' values and practical wisdom position them to guide the creation of AI that enhances human-AI collaboration. Through closer relationships with tech professionals, social workers can maintain a critical voice in technological advancements, ensuring that these tools serve the best interests of the communities they support (Petružytė et al. 2023).

Concluding comments

The workshop presentations and discussion during the ESWRA conference in Vilnius revealed a tension between the potential benefits of new digital technologies in improving services and concerns about the loss of personal interaction. Participants raised concerns about the potential of AI to perpetuate existing inequalities, as well as the importance of conducting thorough assessments of its impact on autonomy, decision-making, and emotional connections in social work. Participants emphasised the need for a balanced approach, recognising technological benefits while maintaining core social work values and integrating the principles of slow ethics into their practice. To achieve this the workshop participants suggested the need for multi-level training for social workers and the establishment of digital ethics committees to discuss and exchange ideas on complex issues. Workshop participants also emphasised the significance of considering the 'epistemic gradient' within the service user-social worker relationship, while recognising different levels of knowledge involved in digital communication. From our perspective, the 'slow ethics' approach, as advocated by Gallagher (2020) and Banks and Rutter (2022), offers a thoughtful pathway forward for social work, emphasising a need for deliberate and measured integration of technology in care settings. We also believe that these discussions highlighted the need for a comprehensive understanding of how digital technologies are changing the boundaries of relationships in social work, as well as the necessity to maintain a person-centered approach in an increasingly digital environment.

Acknowledgments

We are grateful to the additional participants in the workshop at Vilnius for their reflections on the issues raised.

Declaration of conflicting interests

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Notes on contributors

Sarah Banks is Professor of Applied Social Sciences in the Department of Sociology and Co-founder of the Centre for Social Justice and Community Action, Durham University, UK.

Teresa Bertotti is Associate Professor at the University of Trento, Department of Sociology and Social Research, Italy.

Daria Forlenza is Adjunct Professor of General Sociology and Social Work at LUMSA, Libera Università Maria Ss. Assunta, Department of Law and Economy, Rome, Italy.

Netanel Gemara, is in the Faculty of Social Welfare and Health Sciences, School of Social Work, University of Haifa, Israel.

Elizabeth Reimer is Senior Lecturer, Community Welfare & Social Work, Faculty of Health, Southern Cross University, Australia.

Michal Segal is in the Social Work Department, Tel-Hai College. Upper Galilee, Israel

Jane Shears is Head of Professional Development with the British Association of Social Workers, and Ethics Commissioner for the International Federation of Social Workers.

Ana M. Sobočan is Assistant Professor and researcher at Faculty for Social Work, University of Ljubljana, Slovenia.

Kim Strom is the Theimann Professor of Ethics and Professional Practice at the School of Social Work University of North Carolina at Chapel Hill, USA.

María Jesús Úriz is Professor in the Department of Sociology and Social Work, Public University of Navarra, Spain.

Mai Yamaguchi is Professor in the Department of Integrated Studies, Japan Lutheran College, Tokyo, Japan.

ORCID

Sarah Banks http://orcid.org/0000-0002-2529-6413
Teresa Bertotti http://orcid.org/0000-0002-3670-0709
Daria Forlenza http://orcid.org/0000-0003-0332-6789
Netanel Gemara http://orcid.org/0000-0003-3237-2928
Elizabeth Reimer http://orcid.org/0000-0003-3578-3466
Michal Segal http://orcid.org/0000-0001-8234-1439
Jane Shears http://orcid.org/0000-0002-7618-1456
Ana M. Sobočan http://orcid.org/0000-0001-9468-5108
Kim Strom http://orcid.org/0000-0003-3258-3362
María Jesús Úriz http://orcid.org/0000-0001-6695-9140
Mai Yamaguchi http://orcid.org/0000-0002-3400-0813

References

Asakura, K., K. Occhiuto, S. Todd, C. Leithead, and R. Clapperton. 2020. "A Call to Action on Artificial Intelligence and Social Work Education: Lessons Learned from a Simulation Project Using Natural Language Processing." *Journal of Teaching in Social Work* 40 (5): 501–518. https://doi.org/10.1080/08841233.2020.1813234.

Banks, S. 2018. "Practising Professional Ethical Wisdom: The Role of 'Ethics Work' in the Social Welfare Field." In *Cultivating Character and Virtue in Professional Practice*, edited by D. Carr, 55–69. Abingdon: Routledge.

Banks, S.. 2021. *Ethics and Values in Social Work*. London: Bloomsbury.

Banks, S., and N. Rutter. 2022. "Pandemic Ethics: Rethinking Rights, Responsibilities and Roles in Social Work." *British Journal of Social Work* 52 (6): 3460–3479. Abingdon: https://doi.org/10.1093/bjsw/bcab253.

Beauchamp, T. L., and J. F. Childress. 2013. *Principles of Biomedical Ethics*. 7th ed. New York: Oxford University Press.

Bejarano, E. 2023. *Artificial Intelligence (AI) for Social Workers: Social Work AI - Everything You Need to Know to Get Started*. San Jose, CA: Independently published.

Berzin, S., J. Singer, and C. Chan. 2015. Practice Innovation through Technology in the Digital Age: A Grand Challenge for Social Work, Grand Challenges for Social Work (Working Paper 12), *American Academy of Social Work and Social Welfare*. Retrieved from: https://grandchallengesforsocialwork.org/wp-content/uploads/2015/12/WP12-with-cover.pdf.

Breque, M., L. De Nul, A. Petridis, and European Commission, Directorate-General for Research and Innovation. 2021. *Industry 5.0: Towards a Sustainable, Human-Centric and Resilient European Industry*. Publications Office of the European Union. https://doi.org/10.2777/308407.

Brett, K., and M. Severn. 2023. "Facial Analysis Technology for Pain Detection: A Potentially Useful Tool for People Living with Dementia." *Canadian Journal of Health Technology* 3 (7). https://doi.org/10.51731/cjht.2023.682.

Cabinet Office (Japan). 2023. *Integrated Innovation Strategy 2023*. https://www8.cao.go.jp/cstp/tougosenryaku/togo2023_honbun_eiyaku.pdf.

Cahaner, L., and G. Malach. 2023. *The Yearbook of Ultra-Orthodox Society in Israel*, 2023. The Israel Democracy Institute and the Jerusalem Institute for Israel Studies. https://www.idi.org.il/haredi/2022/?chapter=46893.

Chute, C., and T. French. 2019. "Introducing Care 4.0: An Integrated Care Paradigm Built on Industry 4.0 Capabilities." *International Journal of Environmental Research & Public Health* 16 (12): 1–17. https://doi.org/10.3390/ijerph16122247.

Demaree-Cotton, J., B. D. Earp, and J. Savulescu. 2022. "How to Use AI Ethically for Ethical Decision-Making." *The American Journal of Bioethics* 22 (7): 1–3. https://doi.org/10.1080/15265161.2022.2075968.

Diez, E. 2023. "Artificial Intelligence and Social Work: Contribution to an Ethical Artificial Intelligence at the Service of People." In *The Routledge International Handbook of Digital Social Work*, edited by A. Lopez, and G. Kirwan, 368–381. Abingdon: Routledge.

Gallagher, A. 2020. *Slow Ethics and the Art of Care*. Bingley: Emerald Publishing.

Garkisch, M., and L. Goldkind. 2024. "Considering a Unified Model of Artificial Intelligence Enhanced Social Work: A Systematic Review." *Journal of Human Rights Social. Work*, https://doi.org/10.1007/s41134-024-0326-y.

Gemara, N. 2024. *Virtual Communication in Social Service Provision with the Ultra-Orthodox Jewish Community. [Manuscript in Preparation]*. Haifa: School of Social Work, University of Haifa.

Gundersen, T. 2022. "Ethical Algorithm Advice: Some Reasons to Pause and Think Twice." *The American Journal of Bioethics* 22 (7): 26–28. https://doi.org/10.180/15265161.2022.2075053.

Health Education England & Unity Insights. 2022. AI Roadmap: Methodology and Findings Report. https://digital-transformation.hee.nhs.uk/binaries/content/assets/digital-transformation/dart-ed/ai-roadmap-march-2022-edit.pdf.

Henze-Pedersen, S., and S. Kirkegaard. 2024. "Digital Communication and Child Participation in Child Welfare Services: A Scoping Review of Potentials and Challenges." *European Journal of Social Work* 28: 1–13. https://doi.org/10.1080/13691457.2024.2353854.

Hodgson, D., S. Goldingay, J. Boddy, S. Nipperess, and L. Watts. 2022. "Problematising Artificial Intelligence in Social Work Education: Challenges, Issues and Possibilities." *The British Journal of Social Work* 52 (6): 1878–1895. https://doi.org/10.1093/bjsw/bcab168.

International Federation of Social Workers. 2018. *Global Social Work Statement of Ethical Principles*. https://www.ifsw.org/global-social-work-statement-of-ethical-principles/.

James, A., and A. Whelan. 2021. "Ethical' Artificial Intelligence in the Welfare State: Discourse and Discrepancy in Australian Social Services." *Critical Social Policy* 42 (1): 22–42.
James, P., J. Lal, A. Liao, L. Magee, and K. Soldatic. 2023. "Algorithmic Decision-Making in Social Work Practice and Pedagogy: Confronting the Competency/Critique Dilemma." *Social Work Education* 43: 1–18. https://doi.org/10.1080/02615479.2023.2195425.
Kahneman, D. 2011. *Thinking, Fast and Slow*. London: Allen Lane/Penguin.
Keddell, E. 2019. "Algorithmic Justice in Child Protection: Statistical Fairness, Social Justice and the Implications for Practice." *Social Sciences* 8 (10): 281. https://doi.org/10.3390/socsci8100281.
Klein, N. 2020. Digital Communities Initiative in the Ultra-Orthodox Sector. In *The Joint*. Accessed October 1, 2024, from https://Did.li/nrix5 [Hebrew].
Lanier, P., M. Rodriguez, S. Verbiest, K. Bryant, T. Guan, and A. Zolotor. 2020. "Preventing Infant Maltreatment with Predictive Analytics: Applying Ethical Principles to Evidence-Based Child Welfare Policy." *Journal of Family Violence* 35 (1): 1–13. https://doi.org/10.1007/s10896-019-00074-y.
Lehtiniemi, T. 2023. "Contextual Social Valences for Artificial Intelligence: Anticipation That Matters in Social Work." *Information, Communication & Society* 27 (6): 1110–1125. https://doi.org/10.1080/1369118X.2023.2234987.
MacDonald, M., A. C. Wright, A. Taylor-Beswick, K. Gillespie, and S. Collings. 2023. "Digital Relationality, Rights, Resilience: Conceptualising a Digital Social Ecology for Children's Birth Family Relationships When in Care or Adopted." *The British Journal of Social Work* 53 (1): 216–235.
Meier, L. J., A. Hein, K. Diepold, and A. Buyx. 2022. "Algorithms for Ethical Decision-Making in the Clinic: A Proof of Concept." *The American Journal of Bioethics* 22 (7): 4–20. https://doi.org/10.1080/15265161.2022.2040647.
Mental Capacity Act. 2005. UK. https://www.legislation.gov.uk/ukpga/2005/9/contents/enacted.
Munford, R., and J. Sanders. 2020. "Transformative Practice: Social Work Practice with Vulnerable Young People." *European Journal of Social Work* 24 (4): 720–731. https://doi.org/10.1080/13691457.2020.1819205.
Nothdurfter, U., and K. Hermans. 2018. "Meeting (or Not) at the Street Level? A Literature Review on Street-Level Research in Public Management." *International Journal of Social Welfare* 27 (3): 294–304. https://doi.org/10.1111/ijsw.12308.
Petružytė, D., V. Gevorgianienė, M. Seniutis, M. Yamaguchi, E. Šumskienė, and L. Žalimienė. 2022. "Envisioning the Future of (Techno) Social Work Education: Perspectives of Japanese and Lithuanian Social Work Educators." *Social Work Education* 42 (8): 1227–1247. https://doi.org/10.1080/02615479.2021.2023492.
Pilkington, B., and C. Binkley. 2022. "Disproof of Concept: Resolving Ethical Dilemmas Using Algorithms." *The American Journal of Bioethics* 22 (7): 81–83. https://doi.org/10.1080/15265161.2022.2087789.
Pink, S., H. Ferguson, and L. Kelly. 2022. "Digital Social Work: Conceptualising a Hybrid Anticipatory Practice." *Qualitative Social Work* 21 (2): 413–430. https://doi.org/10.1177/14733250211003647.
Polizzi, G., and T. Harrison. 2022. "Wisdom in the Digital age: A Conceptual and Practical Framework for Understanding and Cultivating Cyber-Wisdom." *Ethics and Information Technology* 24 (16): 1–16. https://doi.org/10.1007/s10676-022-09640-3.
Rahimzadeh, V., J. Lawson, J. Baek, and E. S. Dove. 2022. "Automating Justice: An Ethical Responsibility of Computational Bioethics." *The American Journal of Bioethics: AJOB* 22 (7): 30–33. https://doi.org/10.1080/15265161.2022.2075051.
Reamer, F. G. 2023. "Artificial Intelligence in Social Work: Emerging Ethical Issues." *International Journal of Social Work Values and Ethics* 20 (2): 52–71. https://doi.org/10.55521/10-020-205.
Reamer, F. G. 2019. "Social Work Education in a Digital World: Technology Standards for Education and Practice." *Journal of Social Work Education* 55 (3): 420–432.
Rossi, P., S. Tuurnas, and J. Stenvall. 2025. "Street-level Bureaucrats as Policymakers in the Implementation of Information System in Social Services." *Public Management Review* 27 (3): 702–721. https://doi.org/10.1080/14719037.2024.2362247.
Safodien, M. 2021. "Social Work 4.0? The Fourth Industrial Revolution and Social Work Education: A South African Perspective." *Social Work* 57 (3): 257–271. https://doi.org/10.15270/15252-15272-15946.

Sauerbrei, A., N. Hallowell, and A. Kerasidou. 2022. "Algorithmic Ethics: A Technically Sweet Solution to a Non-problem." *The American Journal of Bioethics: AJOB* 22 (7): 28–30. https://doi.org/10.1080/15265161.2022.2075050.

Schwab, K. 2016. The Fourth Industrial Revolution: What It means, How to respond. *World Economic Forum*. https://www.weforum.org/stories/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/.

Singer, J. B., J. C. Báez, and J. A. Rios. 2023. "AI Creates the Message: Integrating AI Language Learning Models into Social Work Education and Practice." *Journal of Social Work Education* 59 (2): 294–302. https://doi.org/10.1080/10437797.2023.2189878.

Van den Berg, C. 2017. "*A Framework for Teaching Digital Business Innovation Skills to South African Information Systems Students*" PhD diss., University of the Western Cape, South Africa.

Vogl, S., E. M. Schmidt, and U. Zartler. 2019. "Triangulating Perspectives: Ontology and Epistemology in the Analysis of Qualitative Multiple Perspective Interviews." *International Journal of Social Research Methodology* 22 (6): 611–624.

Yamaguchi, M. 2024. "Impact of Digitalization on Social Care and Social Work: Practical and Ethical Issues Found from Japanese Experience." *European Conference for Social Work Research*, Vilnius, April 2024. https://www.ecswr2024.eu/speakers/mai-yamaguchi/.