British Journal of Social Work (2025) **00**, 1–20
https://doi.org/10.1093/bjsw/bcaf087

Developing a user typology of adopting innovative technologies in social work

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Abstract

The integration of technology into social work has emerged as a crucial requirement in daily practice. Social workers have gradually acclimated to these technologies through continuous and routine use. This study conducted in Hong Kong proposed a unified approach to understanding the digital transformation of social work practice and concluded that social workers' use of innovative technologies spanned the entire Levels of Use range from Level 0 to Level VI, namely *Nonuse*, *Orientation*, *Preparation*, *Mechanical use*, *Routine, Refinement*, *Integration*, and *Renewal*. By adopting a qualitative approach, twenty-three participants were recruited for online, in-depth Zoom interviews during the pandemic. Findings in the study could help human service organizations to plan the development of their services strategically, with implications for better service development and organizational management to embrace digital transformation.

Keywords: digital transformation; innovation; technology; organizational change.

Accepted: April 2025

Introduction

Over a decade ago, a study on the acceptance of information technology in the social services sector revealed that social workers were skeptical about its benefits for clients and did not perceive its organizational value, despite acknowledging its positive impact on personal productivity (Zhang and Gutierrez 2007). There has been ample academic discussion on this topic in major social work journals in recent years (Cheung 2016; Jeyasingham 2020; Sinha and Larrison 2021; Pink, Ferguson and Kelly 2022). Nevertheless, dissension remains in viewing social work as essentially a relationship-based and face-to-face profession (Mishna, Fantus and McInroy 2017; Golightley and Holloway 2020) with "touch" (Green and Moran 2021), questions on whether "digital social work" (Mois and Fortuna 2020) is indeed "virtual" or not (Pink, Ferguson and Kelly 2022), and ethical considerations of using technologies in practice (Reamer 2013; Cooner et al., 2020).

Scholars (Mackrill and Ebsen 2018; McNutt et al., 2018) have already been discussing and debating on the use of technology in social work along the evolution process of agency-based services before the pandemic. Due to the unprecedented impact of coronavirus disease-2019 (COVID-19), the adoption of technology to direct social work practice has become a necessity (Aaslund 2021; Mishna et al., 2020; Cheung 2022), and any initial reluctance by social workers to embrace innovative technologies has become muted by their intensive, extensive, and routine exposure to them during the pandemic. However, the implementation of novel technologies also relies on crucial variables (Rad, Nilashi and Dahlan 2018), such as the degree to which the social worker believes that using a specific kind of technology would enhance their performance, that is perceived usefulness (Davis 1989), the extent to which the adoption of an innovation concurs with their prior experience or existing values, that is compatibility (Rogers 2003), the degree to which adopting an innovation could enhance their image or status, that is image (Luo, Gurung and Shim 2010), or whether using technology in practice is an enjoyable experience, that is perceived enjoyment (Venkatesh 2000).

Significance of the study

In Hong Kong, social workers were taken by surprise by the change to using technologies in practice due to the pandemic. They considered social work to be a relationship-based and face-to-face practice

(Ling et al., 2023). However, social distancing measures announced by the government included the closure of schools, public social services, and community activities aimed at limiting social contact and the risk of the pandemic spreading in the community (Cowling et al., 2020). For example, the government formally suspended services provided by day activity centers for older people (news.gov.hk 2020). The meal delivery service, escort, and nursing service had also been restricted (Auyeung et al., 2021). The suspension of many face-to-face social services created the need to develop online service delivery (Chan and Au-Yueng 2021), although it had not been easy for social workers to adjust to a new working system and a new service delivery method. Hung, Lee and Cheung (2021) reported that social workers experienced difficulty conducting online groups for children and young people because of the challenges of simultaneously handling technology, online interaction, and group content-related tasks.

There is value in studying social workers' tendencies to embrace or resist innovative technologies. It helps with optimizing service delivery, enhancing service efficiency, and improving intervention outcomes. It can also shed light on fostering a culture of innovation within the field and driving the profession to adapt to the changing environment. Indeed, the adoption of Information and Communication Technology (ICT) has a substantial positive influence on social workers' well-being (Khanchel-Lakhoua and Kadri 2024). However, little research has been undertaken to investigate social workers' acceptance of or resistance to using innovative technologies. There is also a dearth of research on whether social workers can flexibly accommodate a hybrid approach to service delivery or how social work organizations support and promote technologies.

Research questions

Given the research gaps, this study addressed the following research questions by reporting the experience of twenty-three individual social workers performing client-facing services: (1) What are social workers' actions and concerns in using innovative technologies in social work practice during the pandemic? and (2) To what extent do social workers accept or resist the integration of new information and computer technology into social work practice? Innovative technologies, as defined in this study, included but were not limited to state-of-the-art inventions. They also encompassed software (e.g. mobile Apps, social networking sites, video conferencing platforms, gamification for behavioral change, etc.) or hardware (e.g. robots, wearable technologies, assistive technologies, remote monitoring, etc.) applications newly adopted for particular social work services resulting from the change of service delivery mode during the lockdown and the suspension of regular services. There was

no single, predetermined definition of technology, and the participants were given the opportunity to define it based on their own understanding or perspective.

Theoretical framework

This study applied the Levels of Use (LoU) dimensions (Hall, Dirksen and George 2013; Hall and Hord 2020) to understand social workers' tendency to embrace or resist the adoption of innovative technologies in practice. The LoU describes various states of innovation usage behavior based on the Concerns-Based Adoption Model. Users typically experience a continuum of seven concerns: (1) Awareness—"I am not concerned about it"; (2) Informational—"I would like to know more about it"; (3) Personal—"How will using it affect me?" (4) Management—"I seem to be spending all my time getting materials ready"; (5) Consequence—"How is my use affecting learners? How can I refine it to have more impact?" (6) Collaboration—"How can I relate what I am doing to what others are doing?," and (7) Refocusing—"I have some ideas about something that would work even better." (Hall, Wallace and Dossett 1973, Hall et al., 1975). Over recent years, alternative forms of the LoU framework have been developed, including the Levels of Technology Implementation (LoTi), identifying seven discrete implementation levels teachers can demonstrate, ranging from Nonuse to Refinement (Moersch 1995), and the Levels of Adoption (LoA) comprising a ten-level matrix that also helps divide teachers into nonusers (i.e. individuals who are not currently using the innovation) and users (i.e. individuals who have begun to use the innovation) of a particular technology (Orr and Mrazek 2010). To our knowledge, none of LoU, LoTi, nor LoA, has been applied to the use and adoption of innovative technologies in social work practice.

In this study, we discarded a dichotomous differentiation of "user" and "nonuser." Instead, we adopted Hall and Hord's (2020) view that individuals can engage with innovative technologies in social work practice with varying degrees of usage and non-usage over a specific period, exhibiting different behavioral patterns. In this regard, "non-using" is divided into "Level 0: Nonuse," "Level I: Orientation," "Level II: Preparation," and "Level III: Mechanical use." "Using" is divided into "Level IVA: Routine," "Level IVB: Refinement," "Level V: Integration," and "Level VI: Renewal" (Hall, Dirksen and George 2013). The original framework was proposed for use as a focused interview protocol in the "LoU Interview" to help measure teachers' actions in eight behavioral profiles along a continuum of use of innovation in classroom teaching. Nevertheless, Hall, Dirksen and George (2013) emphasize that LoU is a generic construct and can be applied to different

innovations and initiatives, provided that definitions of different usage levels remain unchanged. Hence, we aimed to extend this framework to assess social workers' LoU of innovative technologies in direct practice. Hall, Dirksen and George (2013) added that LoU can be applied to groups, teams, and entire organizations. Subsequently, after stocktaking practitioners' LoU through appropriate assessment, organizational change in social service agencies could be facilitated to embrace a future-ready perspective (Nissen 2020). We tried to identify representative examples of each usage level during the COVID-19 pandemic that could potentially assist academics, service administrators, and practitioners in engaging in assessment or research on applying LoU to social work in the future.

Method

This study adopted a qualitative approach, and participants were recruited via purposive sampling using the authors' personal networks to participate in online in-depth Zoom interviews. We initially relied on personal networks for recruitment due to the challenges posed by the pandemic, which made it difficult to connect with unfamiliar social workers or supervisors. The use of technology in social services varied significantly during this time, so we opted to first reach out to social workers and supervisors we already knew, as we had a better understanding of their circumstances. Following this initial recruitment phase, we expanded our efforts to include social media groups and referral methods to engage a more diverse range of participants. To reduce bias in recruiting participants through personal networks, we adopt the following methods: (1) establish clear criteria for recruitment based on specific qualifications rather than personal preferences or relationships; (2) expand outreach to various social networks beyond researchers' immediate connections by posting recruitment notices in diverse social media groups and requesting participant referrals; (3) build a diverse recruitment team to bring different perspectives that can help identify potential participants and minimize biases in the selection process.

The maximum variation sampling strategy (Rapley, 2014) that helps expand the range of differences was particularly used to examine shared patterns across heterogeneous cases. Dambha-Miller et al. (2021) employed this strategy to sample participants ($n = 37$) from primary care, adult social services, secondary care, third-sector providers, the care home sector, public health, housing, health and wellbeing board, patients, and carers, to capture the maximum variation of participant's views. Simon, Snow and Wakeman (2020) also made use of this approach to select a range of patients ($n = 15$) who displayed diversity across gender, age, race/ethnicity, and type of substance use disorders.

To implement the maximum variation sampling strategy in this study, we identified key participant characteristics, including gender, service area, position, and working experience. We created a sampling framework based on these criteria and utilized various social media groups for recruitment. When we noticed that the diversity of our participant pool did not meet our expectations, we adapted our strategies by seeking participant referrals. Throughout the data collection process, we continued to refine our sampling approach based on emerging data. For instance, upon discovering insufficient information about supervisors' experiences, we intentionally recruited participants who held supervisory positions.

In our study, twenty-three frontline social workers or supervisors in Hong Kong agreed to take part. We had ensured that they were not working in the same service unit, nor were they recruited by the same author of this study. Their service users spanned from children and young people to families and older persons. User groups and service settings were differentiated according to the definition of social work in the Social Welfare Department of Hong Kong. We had also intentionally included both novice and seasoned practitioners. Their experience in social work practice ranged from three to thirteen years. To our knowledge, most of the participants did not have prior contact with each other before the study. All interviews were conducted independently.

Table 1 provides participants' profiles. Nine were male and fourteen were female. They worked in services for older people ($n = 9$), school social work ($n = 5$), youth community service ($n = 5$), or family service ($n = 4$). They were informed of the objectives of the study, the questions to be covered in the interview, and the data protection procedures. The interview protocol was devised and tested by the authors in this article based on the "LoU Interview" framework (Hall, Dirksen and George 2013) that helps measure informants' actions in different behavioral profiles along a continuum of use of innovation. Participants were fully informed about the study's purpose and procedures. At the start of the interview, research assistants explained the study's objectives and inquired whether participants were willing to make an informed decision regarding their involvement. Additionally, the procedures for maintaining confidentiality were outlined, including data anonymization and restricted access to sensitive information. Participants' consent was given to audio and video record the interviews. Ethical approval for the study was granted by the Research Ethics Committee of the Hong Kong Shue Yan University.

The framework method (Gale et al. 2013) was used for managing and analyzing qualitative data. A stepwise procedure involves familiarization, coding, applying a thematic framework, charting, and interpreting. The generation of a matrix summarizing and charting data into a spreadsheet is a vital aspect of the framework analysis. Four experienced social workers-cum-educators helped develop the framework matrix for further

Table 1. Profile of participants.

#	Gender	Service area	Position	Work experience, years
SW1	F	Service for older people	Social worker	4
SW2	F	School social work service	Social worker	3
SW3	F	School social work service	Social worker	5
SW4	M	Family service	Social worker	3
SW5	M	Service for older people	Social worker	6
SW6	M	Service for older people	Supervisor	10
SW7	F	Service for older people	Social worker	8
SW8	F	School social work service	Social worker	4
SW9	F	Youth community service	Social worker	5
SW10	M	School social work service	Social worker	4
SW11	M	Youth community service	Social worker	8
SW12	F	Service for older people	Social worker	9
SW13	M	Youth community service	Social worker	3
SW14	F	Family service	Social worker	10
SW15	M	Service for older people	Supervisor	12
SW16	M	Youth community service	Social worker	10
SW17	F	Service for older people	Supervisor	14
SW18	F	Service for older people	Social worker	3
SW19	F	Youth community service	Supervisor	12
SW20	F	School social work service	Supervisor	13
SW21	F	Service for older people	Social worker	5
SW22	F	Family service	Social worker	7
SW23	M	Family service	Social worker	7

interpretation. Consensus was reached after rounds of discussion and debate among the team. New ideas and possibilities about adopting the LoU framework to social work were also developed during the interactive process. This also served the purpose of triangulation, thus increasing the richness, clarity, and credibility of the findings. Theoretical saturation was reached, and no additional insights could be derived from the data.

Results

The LoU framework (Hall and Hord 2020) was adopted to guide the generation of the matrix in the data analysis process. Findings are presented along with the definition of each usage level and its designated "decision point" descriptor (Table 2), which identifies a key behavior distinguishing that level from the others (Hall, Dirksen and George 2013). The level definitions and decision points help distinguish each behavioral profile or categorical pattern of use. We identified several representative examples of each level to enable readers to grasp the bigger picture of participants' adoption of technology for direct social work practice on the one hand and provide a reference to these differentiations in future LoU-related assessment and/or research on the other.

Table 2. Employing LoU framework (Hall and Hord 2020) as a user typology of adopting innovative technologies in social work.

Levels of use	User type	Description of level	Definition	Decision point descriptor of entering the next level
Level 0	Nonuser	Nonuse	Social workers have little or no knowledge of the innovative technology or any current or expected near future involvement with the technology.	Social workers initiate actions to acquire more comprehensive information about the innovation.
Level I	Nonuser	Orientation	Social workers have acquired or begun to acquire information about innovative technology.	Social workers decide to implement the innovation by setting a specific start time.
Level II	Nonuser	Preparation	Social workers are preparing to use the innovation for the first time.	Social workers commence their initial utilization of the innovation.
Level III	Nonuser	Mechanical use	Social workers focus most effort on the short-term, day-to-day use of the innovative technology but with little time for reflection.	A consistent pattern of utilizing the innovation is established.
Level IVA	User	Routine	Social workers have a stable pattern of adoption; however, no or only very few changes will be made in its ongoing use.	Social workers modify the utilization of the innovation through formal or informal evaluation processes to enhance client outcomes.
Level IVB	User	Refinement	Social workers vary usage to increase the impact on clients based on their knowledge of both short- and long-term consequences for them.	Social workers initiate changes in the utilization of innovation by incorporating input from their colleagues and coordinating their efforts accordingly.
Level V	User	Integration	Social workers need to reach beyond their own use of the innovation and work with others to enhance intervention outcomes.	Social workers initiate the exploration of alternatives to the current innovation or consider significant modifications to it.
Level VI	User	Renewal	Social workers begin to explore new alternatives or major modifications to the current innovative technology.	Social workers have achieved the highest level of use.

Level 0 (nonuser): nonuse

Nonuse refers to the lowest level of usage. Social workers have little or no knowledge of the innovative technology or any current or expected near-future involvement with the technology. Participant SW14 mentioned that

no online activities had ever been undertaken at the family service center before the pandemic, other than using WhatsApp to contact clients. Participant SW10 was reluctant to use video communication software such as Zoom to replace face-to-face casework interviews because he did not have a sense of control over using the software in counselling. Despite the challenges posed by the pandemic, some social workers preferred to investigate more opportunities to work with clients in person instead of going online (SW11), emphasizing that they did not want to change simply because they had to. During the first two to three months of the pandemic, in particular, social workers in services for older adults were more likely to be reluctant to use information and communications technology (ICT) (SW6).

> I mainly retain a face-to-face approach for casework interviews. The main reason I do not want to use Zoom is that it would be out of my control. This is something that I insist on. (SW10)

> Colleagues do not like to change merely because they have to. They just feel that they might try their very best to meet with clients to get to know their situation. (SW11)

Level I (nonuser): orientation

At this beginning level, social workers have acquired or begun to acquire information about innovative technology. The COVID-19 pandemic challenged some social workers' conventional thoughts that direct practice should be conducted face-to-face (SW17). Participant SW9 welcomed the change but considered working with clients in person preferable. A participant in youth work (SW16) shared that he used to carry out all the program activities offline, although he had organized an "e-sports" youth group. While he did not consider that an online program, he began to combine elements of video gaming with social work practice. A social worker in a community work setting (SW23) mentioned that colleagues were more conscious of the need to provide up-to-date information to clients via electronic means. However, practitioners who did not acknowledge the benefits of adopting innovative technologies to their work, regarding it merely as a task to be completed, were categorized as "nonusers" at this LoU (SW10).

> Though I welcome the change of using technology in practice, I still think that using face-to-face in groupwork is more appropriate. (SW9)

> Frankly speaking, we need to use technology because of the pressure from our senior management. Some colleagues did not have enough service output, therefore they had to change because of the comparison. (SW10)

Level II (nonuser): preparation

Social workers are preparing to use the innovation for the first time. Participant SW7 said the critical starting point for using online services for older adults was when they found clients feeling very bored at home during the pandemic. At the same time, they also identified potentially useful video-editing software available on the App Store. A school social worker (SW10) added that he and his colleagues started preparing to use online communications with students as soon as the government suspended face-to-face classes and school activities. In February/March 2020, participant SW11 became aware of the need to do something because many conventional services had been suspended. Participant SW23 started to consider using Google Forms to collect information about clients' needs in April/May 2020.

> In February and March 2020, I felt like there was a pause. At that time, the organization did not require us to do anything. But I saw that some units had started to make films. So I proposed trying something new and found a colleague to run Facebook Live together. When other colleagues saw the accumulating number of views and that new clients were reached, they found it interesting and started exploring with us. (SW11)

> At the beginning of the outbreak, in April and May 2020, I wondered how to better allocate useful supplies to the right people. Colleagues suggested that Google Forms could be used. Some clients expressed their needs through Google Form, and then they were allocated the right supplies. (SW23)

Level III (nonuser): mechanical use

Although social workers are still considered "nonusers" at this level, they now focus most effort on the short-term, day-to-day use of innovative technology, with little time for reflection. Long-term and detailed planning is absent. Social workers engage step-by-step in mastering the skills required to use the innovative technology; however, this usually results in only disjointed and superficial application.

Changes in using the innovation are made more to meet the needs of users (i.e. social workers) than clients (i.e. service beneficiaries). Participant SW23 noted that he and his colleagues had been using Zoom daily initially. However, they changed to Google Meet because some colleagues did not like Zoom for personal reasons. Although participant SW9 had a positive experience using Zoom to deliver a public talk for the first time, she was uncertain whether she would use it again after the pandemic. Participant SW8 echoed that she had encountered difficulties the first time she had used Zoom to provide social work services. It was

such a "painful" experience for her, and it took several attempts before she got used to the system. Similarly, participant SW1 working at a home for older people mentioned that she was worried about her workload increasing after using ICT to communicate with clients' family members. In some service units, social workers had already adopted technologies before the pandemic. For example, participant SW17 said they had been using Facebook before but only managed to use YouTube after the pandemic. It is important to note that, at the "mechanical use" level, practitioners were still concerned with their own needs and difficulties rather than clients' well-being.

> It was more interesting than I expected when delivering a public talk for the first time using Zoom. We discussed it with colleagues afterwards. This model of service delivery was even better than in the physical setting. Yet, it was difficult to change to this new model after the pandemic. (SW9)

> We did an online group for children. That was the first time we used the cyber format to connect with clients. However, the major problem with Zoom is that parents have to be very cooperative with us. (SW8)

Level IVA (user): routine

Social workers are considered "users" at this level. However, they have not prepared to change the use of this innovative technology. Participants SW13 and SW17 had put considerable effort into applying new methods to communicate and work with clients regularly, despite lockdown, class suspension, and other social distancing measures. However, participant SW17 mentioned that she would have no hesitation in using the new technology even though she might question its effectiveness from time to time. Another school social worker (SW10) echoed that using the technology might not be cost-effective, but it was better than doing nothing. A problem that practitioners frequently encountered while conducting online groups was clients' unwillingness to switch on their web cameras. Participant SW9 had become used to that already and considered it a "new normal."

> At first, we wondered whether it would be feasible to use technology in services for older adults. We doubted whether they would bother to watch our video online. Would it be only something that we were excited about because we are social workers? (SW17)

> After having some initial experiences, you will not easily get into a panic about the uncertainty. You can imagine how to build relationships with young people via Zoom. You begin to realize that maybe they really do not like to open their camera, and then you do not force them. (SW9)

Level IVB (user): refinement

The main difference between routine and refinement is the change in the use of innovation. Social workers vary their usage to increase the impact on clients based on their knowledge of both short- and long-term consequences for them. Some service units had adopted innovative technologies before the pandemic. As noted by participant SW21, who worked in a home for older people, a robot had already been used daily to entertain residents. During the pandemic, its functions were further refined to allow family members to "visit" their loved ones online. Social workers were aware of the effectiveness of intervention and ethical and privacy concerns while adopting technology in practice. For instance, as there might be limitations and security matters in using Zoom to deliver a public talk, participant SW8 changed to using the YouTube Live function for the same purpose and found it much more suitable. At this level of use, the adoption process involved constant reflections and evaluations among users (i.e. social workers) and clients. Some focused on technical aspects (SW17), while others focused on the service delivery mode and the ideology behind it (SW16).

> We began to be aware of what the best period to do it would be, and how to attract others to watch, how to make the picture clearer. We also changed the brand of the microphone two or three times. (SW17)

> In fact, social workers learn more from this new change than the clients. (SW16)

Level V (user): integration

At this advanced level, social workers need to reach beyond their use of innovation and work with others to enhance intervention outcomes. The crucial decision point is that a plan integrating their and others' use of the innovative technology has been initiated or executed. Indeed, all changes at this stage are geared towards promoting clients' benefit. Participants SW9, SW12, and SW16 found it meaningful and fruitful to initiate sharing and collaboration among users who adopted the same kind of innovative technology in their practice. Hall, Dirksen and George (2013) emphasize that all collaborators must be concerned about their clients within a common sphere of influence. Therefore, any changes made to the innovation should address the needs and benefits of all collaborators' clients. Since the entire profession was working together to combat COVID-19, collaboration opportunities had increased considerably during the pandemic.

> It is important for colleagues to try to share their own efforts because we all need to find ways to deal with the outbreak. The agency is trying to find resources for us to learn too. (SW9)
>
> Our agency has nine homes for older people. We exchange ideas and discuss good practices of technology adoption via our WhatsApp group. (SW12)
>
> Practitioners in the entire industry are talking about broadcasting. As I am in charge of e-sports intervention, I know some people. Therefore, I invited some of our e-sports partners to provide training for us, including how to do live broadcasts and make short films at a low cost. Not everyone has the relevant knowledge for live broadcasting. (SW16)

Level VI (user): renewal

Progression to the final usage level, renewal, occurs when the user begins to explore new alternatives or major modifications to the current innovative technology. All major changes aim to increase the impact on clients, examine new developments in the field, and/or explore new goals for individuals and the profession. They are, however, not simply unrealistic dreams or hopes. Although the pandemic had already lasted for one year when this study was conducted, some participants had already reached this LoU in their practice. For instance, participant SW16, working in youth services, reported that his service unit was developing a new online community or even a "cyber life space" via Discord (a VoIP and digital distribution platform to create communities) for teenagers who were keen to stay active virtually. In rehabilitation work, participant SW6's service unit was developing an App with a German tech company to help older adults exercise appropriately at home. In a home for older people, social workers built a device incorporating a stationary bike and Google Maps that allowed residents to experience cycling around the city as if they were getting out, notwithstanding the imposition of stringent social distancing measures (SW12). Some practitioners also started researching new services, such as developing an App to help social workers upload older adults' blood pressure, pulse, and body temperature to the "cloud" during home visits (SW6).

Discussion and applications to practice

A user typology of adopting innovative technologies in social work

This study revealed social workers' wide-ranging use of innovative technologies from Level 0 "Nonuse" to Level VI "Renewal". Findings

reflected extensive variation in different service settings' and units' adoption of innovative technologies. The pandemic provided opportune conditions for a "natural experiment" (Thomson 2020) that allowed the examination and comparison of innovation adoption in social work practice. It refers to a situation in which researchers can compare phenomena without directly controlling variables through an experimental design. As noted by Brandtzæg (2010), a user typology helps categorize users into distinct types that describe different ways in which individuals perform and react. It provides us with a much clearer view of a group of diverse members. This user typology sheds light on the organizational and service transformation (Steiber and Alänge 2015) of agency-based services during COVID-19.

Digital transformation of social work in Hong Kong and across the globe

The Hong Kong Special Administrative Region government has published four strategy documents on information technology (IT) from 2001 to 2021. In addition, there was also a territory-wide IT blueprint to promote digital inclusion among disadvantaged groups. Since 2018, an Innovation and Technology Fund for Application in Elderly and Rehabilitation Care (I&T Fund) was set up by the government for enabling NGOs to procure, rent, or try out technology products for service users (Wong and Mok 2023). The unprecedented pandemic presented opportunities for social work services in Hong Kong to transition to digital platforms, bolstering social workers' enthusiasm for integrating new technologies even as situations return to normal (Mo et al. 2025). A similar trend has been observed across the globe in recent years. Digitalization has already been an integral element of social welfare organizations in supporting communication between professionals, as well as between professionals and clients (Döring 2019; Cheung, Ho and Yau 2025). However, as Schiffhauer and Seelmeyer (2021) warn, digitalization poses multiple social and ethical challenges that must be carefully observed and evaluated. In addition, there is yet a clear blueprint on how the social work profession could go through the digital transformation process. Therefore, discussions about this critical change should involve theoretical considerations.

Findings of this study revealed social workers' behaviors and concerns using innovative technologies in social work practice. The LoU framework (Hall and Hord 2020) helped differentiate social workers' levels of usage. Different social workers behaved differently towards innovative technologies in their practice, reflecting their behaviors and concerns, the organizational culture, traditional practice in a particular social service setting, social workers' digital competence and the relevant digital

training they had received. LoU could be applied to capture individual behavior and changes in groups, teams, and organizations (Hall, Dirksen and George 2013).

The LoU framework is recommended to identify social workers' acceptance of and readiness to use innovative technology in their practice. Identification of social workers' level of acceptance can be useful for human service organizations to plan the development of services strategically to meet the ever-changing social needs during the pandemic (Megele and Buzzi 2020). Technological competency has been identified as one of the important factors affecting organizational functioning, and therefore management staff can make use of the LoU framework to enhance staff's competency in using technology in services (Kettner 2013). If social workers express their readiness to use technologies and adapt the services to the changes, social work organizations could be proactive in service design, development, and implementation, paving the way for social workers to move from being mechanical users to innovative renewal users (Hall, Dirksen and George 2013). In addition, initiatives built on partnerships and collaboration among team members and an open innovative organizational culture could accelerate change towards sustainable digital services. Last but not least, human service organizations can enhance their partnership with different technology companies to build the infrastructure to facilitate social workers to embrace technological-oriented practice.

Limitations

This study had several limitations. First, the study sample was limited to social workers currently working in three types of services, and it is difficult to generalize the findings to other service areas. Secondly, the study focused on the Hong Kong social work context, thus limiting the findings to the behaviors of social workers in Chinese culture and organizational settings. Thirdly, the sample was drawn based on personal contacts, and distortions of the results are therefore possible. Fourthly, this study was conducted during the pandemic, and there might be discrepancies between the analysis of findings during and after the pandemic. Therefore, future research should include social workers in different types of services and in different geographical and cultural locations.

Conclusion

The pandemic, which is a modern crisis, had indeed provided some opportune conditions that allowed the examination and comparison of innovation adoption in social work practice. As technology adoption is often related to digital transformation, problem-solving, adaptation to changing needs, and

resilience, it is relevant both in global emergencies and during regular business activities. This study thus provided a foundation for an evidence-informed user typology of adopting innovative technologies in social work to be developed in the post-pandemic era. The framework of LoU could help with assessing practitioners or examining pan-organizational capacity. It is critical for organizations to achieve sustainable success by navigating complex environments and responding proactively to challenges. The building of pan-organizational capacity involves strategic investments in human resources and technological development. Yet, readers should note that the LoU model is decidedly subjectivist and does not include a theoretical model of how organizations function. It would be helpful if some evidence-informed models for catalyzing organizational development and change (Steiber and Alänge 2015) were considered alongside this user typology.

Billions of users have embraced the innovative Generative Artificial Intelligence (GenAI) chatbot, ChatGPT, since its launch in November 2022. This versatile application finds utility across various domains, including education, industry, commerce, and government. There have been numerous experiential applications in social work education and practice, but it has yet to be a predominant trend for our profession, which prioritizes emotional connections, ethics, confidentiality, and relationship building to embrace this cutting-edge technology. Academic discussion remains on how AI might disrupt social work practice as social workers are reminded by academics to undertake a realistic census of the core functions of our practice and ethically consider which actions of human practitioners should not be replaced by the machine (Goldkind et al., 2023; Reamer 2023). All these situations revealed that social workers and social work organizations still had a long way to go before reaching the expectations suggested by Nissen (2020) and Pink, Ferguson and Kelly (2022) to be future-ready, foresightful, and anticipatory.

To conclude, there are four suggestions for agencies and service administrators to embrace digital transformation (Korkmaz 2021) and its resistance (Scholkmann 2021) in social work: (1) to identify social workers' acceptance of innovative technology and their readiness to use technology in their practice; (2) to adopt a proactive approach in service design, development and implementation to ensure that social workers are ready to use technology in their practice; (3) to facilitate social workers' initiatives by building partnerships and enhancing collaboration among team members, and (4) to cultivate an open, innovative organizational culture that can help accelerate change towards sustainable digital services.

Funding

This study was supported by the Research Grants Council Competitive Research Funding Schemes for the Local Self-Financing Degree Sector

(UGC/FDS11/H04/18). Ethical approval for the study was granted by the Research Ethics Committee of the Hong Kong Shue Yan University.

Conflict of interest. None declared.

References

Aaslund, H. (2021) 'Global Experiences of Social Work Practice during the Pandemic: Digital Mediums, Mutual Aid, and Professional Self-care', *Qualitative Social Work*, 20: 375–7. https://doi.org/10.1177/1473325020986017

Auyeung, T. W., et al. (2021) 'COVID-19 and Older Adults: Experience in Hong Kong', *Asian Journal of Gerontology and Geriatrics*, 15: 54–59. https://doi.org/10.12809/ajgg-2020-424-oa

Chan, C., and Au-Yueng, H. (2021) 'When Narrative Practice Suddenly Goes Online due to COVID-19', *Qualitative Social Work*, 20: 390–98. https://doi.org/10.1177/1473325020981086

Cheung, J. C. S. (2016) 'Confronting the Challenges in Using Social Network Sites for Cyber Youth Work', *Social Work*, 61: 171–73. https://doi.org/10.1093/sw/sww012

Cheung, J. C. S. (2022) 'Responses to COVID-19 in Major Social Work Journals: A Systematic Review of Empirical Studies, Comments, and Editorials', *Research on Social Work Practice*, 32: 168–85. https://doi.org/10.1177/10497315211046846

Cheung, J. C. S., Ho, S. C. Y. and Yau, C. Y. (2025) 'Social Work in the Era of WEB 3.0', *Journal of Social Work*, 25: 418–23. https://doi.org/10.1177/14680173251318825

Cooner, T. S., et al. (2020) 'The Use of Facebook in Social Work Practice with Children and Families: Exploring Complexity in an Emerging Practice', *Journal of Technology in Human Services*, 38: 137–58. https://doi.org/10.1080/15228835.2019.1680335

Cowling, B. J., et al. (2020) 'Impact Assessment of Non-pharmaceutical Interventions against Coronavirus Disease 2019 and Influenza in Hong Kong: An Observational Study', *Lancet Public Health*, 5: e279–e288. https://doi.org/10.1016/S2468-2667(20)30090-6

Dambha-Miller, H., et al. (2021) 'Integrating Primary Care and Social Services for Older Adults with Multimorbidity: A Qualitative Study', *British Journal of General Practice*, 71: e753–e761. https://doi.org/10.3399/BJGP.2020.1100

Davis, F. D. (1989) 'Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology', *MIS Quarterly*, 13: 319–40. https://doi.org/10.2307/249008

Döring, N. (2019) 'Sozialkontakte Online: Identitäten, Beziehungen, Gemeinschaften', in W. Schweiger & K. Beck (eds) *Handbuch Online-Kommunikation* (2. Auflage, S. 167–94). Heidelberg: Springer.

Gale, N. K., et al. (2013) 'Using the Framework Method for the Analysis of Qualitative Data in Multi-disciplinary Health Research', *BMC Medical Research Methodology*, 13: 117. https://doi.org/10.1186/1471-2288-13-117

Golightley, M., and Holloway, M. (2020) 'Editorial: Unprecedented Times? Social Work and Society Post-COVID-19', *British Journal of Social Work*, 50: 1297–303. https://doi.org/10.1093/bjsw/bcaa110

Goldkind, L., et al. (2023) 'The End of the World as We Know It? ChatGPT and Social Work', *Social Work*, 69: 103–05. https://doi.org/10.1093/sw/swad044

Green, L., and Moran, L. (2021) 'Covid-19, Social Distancing and the 'Scientisation' of Touch: Exploring the Changing Social and Emotional Contexts of Touch and Their Implications for Social Work', *Qualitative Social Work*, 20: 171–78. https://doi.org/10.1177/1473325020973321

Hall, G. E., and Hord, S. M. (2020) *Implementing Change: Patterns, Principles, and Potholes*, 5th edn. Hoboken, NJ: Pearson Education, Inc.

Hall, G. E., Dirksen, D. J., and George, A. A. (2013) *Measuring Implementation in Schools: Levels of Use*, 3rd edn. Austin, TX: SEDL.

Hall, G. E., et al. (1975) 'Levels of Use of the Innovation: A Framework for Analyzing Innovation Adoption', *Journal of Teacher Education*, 26: 52–56.

Hall, G. E., Wallace, R. C., and Dossett, W. A. (1973) *A Developmental Conceptualization of the Adoption Process within Educational Institutions*. Austin, TX: Research and Development Center for Teacher Education, University of Texas at Austin.

Hung, E. N., Lee, T. T. T., and Cheung, J. C. S. (2021) 'Practicing Social Work Groups Online: Practitioners' Reflections at COVID-19 Outbreak', *International Social Work*, 64: 756–60. https://doi.org/10.1177/0020872821989796

Jeyasingham, D. (2020) 'Entanglements with Offices, Information Systems, Laptops and Phones: How Agile Working is Influencing Social Workers' Interactions with Each Other and with Families', *Qualitative Social Work*, 19: 337–58. https://doi.org/10.1177/1473325020911697

Kettner, P. M. (2013) *Excellence in Human Service Organization Management*. Boston: Pearson.

Khanchel-Lakhoua, H., and Kadri, M. (2024) 'The Impact of ICT on Social Workers' Well-being: A Mixed Methods Research', *Journal of Management Development*, 43: 461–90. https://doi.org/10.1108/JMD-02-2023-0055

Korkmaz, F. (2021) 'The Importance of Innovation in Social Work Institutions during Digital Transformation Processes', in F. Özsungur (ed), *Handbook of Research on Policies, Protocols, and Practices for Social Work in the Digital World*, pp. 39–54. Hershey, Pennsylvania: IGI Global. https://doi.org/10.4018/978-1-7998-7772-1

Ling, H. W. H., et al. (2023) 'Social Workers' Adaptation in Times of Pandemic Crisis: A Hong Kong Case', *International Social Work*, 66: 181–92. https://doi.org/10.1177/00208728211064581

Luo, X., Gurung, A., and Shim, J. P. (2010) 'Understanding the Determinants of User Acceptance of Enterprise Instant Messaging: An Empirical Study', *Journal of Organizational Computing and Electronic Commerce*, 20: 155–81. https://doi.org/10.1080/10919391003709179

Mackrill, T., and Ebsen, F. (2018) 'Key Misconceptions When Assessing Digital Technology for Municipal Youth Social Work', *European Journal of Social Work*, 21: 942–53. https://doi.org/10.1080/13691457.2017.1326878

McNutt, J., et al. (2018) *Technology in Nonprofit Organizations and Voluntary Action*. Boston: BRILL.

Megele, C., and Buzzi, P. (2020) *Social Media and Social Work: Implications and Opportunities for Practice*. Bristol: Policy Press.

Mishna, F., Fantus, S., and McInroy, L. B. (2017) 'Informal Use of Information and Communication Technology: Adjunct to Traditional Face-to-face Social Work

Practice', *Clinical Social Work Journal*, 45: 49–55. https://doi.org/10.1007/s10615-016-0576-3

Mishna, F., et al. (2020) 'Responding to COVID-19: New Trends in Social Workers' Use of Information and Communication Technology', *Clinical Social Work Journal*, 49: 484–94. https://doi.org/10.1007/s10615-020-00780-x

Mo, K. Y. H., et al. (2025) 'Self-efficacy and Technology Usage among Social Service Practitioners—A Structural Equation Modelling', *British Journal of Social Work*. https://doi.org/10.1093/bjsw/bcaf018

Moersch, C. (1995) 'Levels of Technology Implementation (LoTi): A Framework for Measuring Classroom Technology Use', *Learning and Leading with Technology*, 23: 40–41.

Mois, G., and Fortuna, K. L. (2020) 'Visioning the Future of Gerontological Digital Social Work', *Journal of Gerontological Social Work*, 63: 412–27. https://doi.org/10.1080/01634372.2020.1772436

News.gov.hk. (2020) 'Welfare Service Arrangements Set', https://www.news.gov.hk/eng/2020/02/20200213/20200213_160010_168.html, accessed 30 Sept. 2024.

Nissen, L. (2020) 'Social Work and the Future in a Post-Covid 19 World: A Foresight Lens and a Call to Action for the Profession', *Journal of Technology in Human Services*, 38: 309–30. https://doi.org/10.1080/15228835.2020.1796892

Orr, D., and Mrazek, R. (2010) 'Developing the Level of Adoption Survey to Inform Collaborative Discussion Regarding Educational Innovation', *Canadian Journal of Learning and Technology*, 35: 1–19. https://doi.org/10.21432/T2588B

Pink, S., Ferguson, H., and Kelly, L. (2022) 'Digital Social Work: Conceptualising a Hybrid Anticipatory Practice', *Qualitative Social Work*, 21: 413–30. https://doi.org/10.1177/14733250211003647

Rad, S. M., Nilashi, M., and Dahlan, H. M. (2018) 'Information Technology Adoption: A Review of the Literature and Classification', *Universal Access in the Information Society*, 17: 361–90. https://doi.org/10.1007/s10209-017-0534-z

Rapley, T. (2014) 'Sampling Strategies in Qualitative Research', in *The SAGE Handbook of Qualitative Data Analysis*, pp. 49–63. Los Angeles: SAGE Publications, Inc. https://doi.org/10.4135/9781446282243

Reamer, F. G. (2013) 'Social Work in a Digital Age: Ethical and Risk Management Challenges', *Social Work*, 58: 163–72. https://doi.org/10.1093/sw/swt003

Reamer, F. G. (2023) 'Artificial Intelligence in Social Work: Emerging Ethical Issues', *International Journal of Social Work Values and Ethics*, 20: 52–71. https://doi.org/10.55521/10-020-205

Rogers, E. M. (2003) *Diffusion of Innovations*, 5th edn. New York: Free Press.

Schiffhauer, B., and Seelmeyer, U. (2021) 'Responsible Digital Transformation of Social Welfare Organizations', in D. Ifenthaler, S. Hofhues, M. Egloffstein and C. Helbig (eds), *Digital Transformation of Learning Organizations*, pp. 131–44. Cham: Springer. https://doi.org/10.1007/978-3-030-55878-9

Scholkmann, A. B. (2021) 'Resistance to (Digital) Change—Individual, Systemic and Learning-Related Perspectives', in D. Ifenthaler, S. Hofhues, M. Egloffstein and C. Helbig (eds.) *Digital Transformation of Learning Organizations*, pp. 219–36. Cham: Springer. https://doi.org/10.1007/978-3-030-55878-9

Simon, R., Snow, R., and Wakeman, S. (2020) 'Understanding Why Patients with Substance Use Disorders Leave the Hospital against Medical Advice: A Qualitative Study', *Substance Abuse*, 41: 519–25. https://doi.org/10.1080/08897077.2019.1671942

Sinha, G. R., and Larrison, C. R. (2021) 'Social Work and Technology: Text Mining Three Decades of Scholarly Literature (1985–2018)', *Journal of Social Work*, 21: 891–912. https://doi.org/10.1177/1468017320948333

Steiber, A., and Alänge, S. (2015) 'Organizational Innovation: A Comprehensive Model for Catalyzing Organizational Development and Change in a Rapidly Changing World', *Triple Helix (Helix)*, 2: 1–25. https://doi.org/10.1186/s40604-015-0021-6

Thomson, B. (2020) 'The COVID-19 Pandemic: A Global Natural Experiment', *Circulation*, 142: 14–16. https://doi.org/10.1161/CIRCULATIONAHA.120.047538

Venkatesh, V. (2000) 'Determinants of Perceived Ease of Use: Integrating Control, Intrinsic Motivation, and Emotion into the Technology Acceptance Model', *Information Systems Research*, 11: 342–65. https://doi.org/10.1287/isre.11.4.342.11872

Wong, Y. C., and Mok, S. S. (2023) 'The Leap Forward in ICT Development in the Social Welfare Sector of Hong Kong: Opportunities and Impacts', in A. López Peláez, S. M. Sŏ and S. B. Zelenev (eds), *Digital Transformation and Social Well-Being: promoting an Inclusive Society*, pp. 147–59. London: Routledge. https://doi.org/10.4324/9781003312208-14

Zhang, W., and Gutierrez, O. (2007) 'Information Technology Acceptance in the Social Services Sector Context: An Exploration', *Social Work*, 52: 221–31. https://doi.org/10.1093/sw/52.3.221

British Journal of Social Work, 2025, 00, 1–20
https://doi.org/10.1093/bjsw/bcaf087
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