



Nordic Welfare
Centre

Scoping review: Digital solutions in individual and family services in the Nordics

A review of Nordic research on health and welfare technology in individual and family services



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About the publication

Scoping review: Digital solutions in individual and family services in the Nordics

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This report is the result of a collaboration between the Nordic Welfare Centre and the Nordic Health and Welfare Technology Research Network.

The Nordic Health and Welfare Technology Research Network aims to consolidate knowledge, research, higher education, and experiences in the field of health and welfare technology from a user perspective.

The authors of this report are Christine Gustafsson and Sylvia Olsson, both active members in the Nordic Health and Welfare Technology Research Network. Christine Gustafsson is a RN, a professor of healthcare science at Sophiahemmet University in Stockholm, Sweden and is an affiliated researcher to Mälardalen University in Eskilstuna, Sweden. Sylvia Olsson holds a PhD in social work and an MSc in psychology and is a senior lecturer at Mälardalen University in Eskilstuna, Sweden.

Foreword

The social services in sparsely populated municipalities today face special challenges, such as difficulties in recruiting and retaining staff and limited resources, while the requirements for equal and high quality throughout the country remain. The lack of qualified applicants and small staff groups makes it difficult to organise specialist functions, which means that social workers need broad skills and handle a wide variety of cases. High staff turnover also makes it difficult to maintain continuity and develop skills. Digital solutions can therefore provide important support in these contexts.

This report is an assignment from the Nordic Council of Ministers and was a priority area during the Swedish Presidency in 2024. The mission aims to fulfil the Co-operation Programme for Health and Social Affairs 2025–2030 Goal 1; Welfare provisions in the Nordic Region must be sustainable, high quality, safe for both patients and care recipients, and accessible to all. The report also contributes to target 1.2 that the welfare provisions in the Nordic Region must be sufficiently staffed and operated by professionally qualified health and social care personnel, as well as goals in the Nordic-Baltic co-operation programme for digitalisation, sub-goal 2.2 Digitally secure, efficient, and inclusive public sector services.

The Nordic Welfare Centre commissioned two researchers from the Nordic Health and Welfare Technology Research Network, Professor Christine Gustafsson, Sophiahemmet University and Ph.D. Sylvia Olsson, Mälardalen University, to carry out a survey in the form of a scoping review of published scientific articles and grey literature on digital solutions in intermunicipal collaborations within the social services to support social workers and citizens in sparsely populated municipalities.

Although the original assignment focused on digital solutions in intermunicipal collaborations within social services in sparsely populated municipalities, the initial literature search showed that there is a significant lack of scientific studies with an explicit rural perspective in this area. The limited availability of such research risked leading to an excessively narrow and empirically weak knowledge base.

To ensure a more robust and meaningful knowledge overview, the approach was therefore broadened to include Nordic social services in a broader perspective, with a particular focus on individual and family care (IFO/IFS). This area was chosen because it is a central part of the social services' activities in all the Nordic countries and where digitalisation and welfare technology (HWT) are increasingly affecting both practice, organisation and governance.

By also including studies and grey literature from this broader context with a particular focus on digital documentation, a more comprehensive mapping of how

this digital solution is used and developed within the social services was possible.

The revised focus thus strengthens the analytical value of the report and contributes to a more generalisable understanding of the role of digitalisation in Nordic social services, while indirectly highlighting implications for intermunicipal co-operation and sparsely populated contexts.

The limited and fragmented research can be understood based on several factors. Digitalisation in social services is a relatively new and rapidly growing field of research, which has not yet been consolidated into coherent areas of knowledge. The field is also characterised by a fragmentation between policy and practice levels, where digitalisation is often studied as a governance and efficiency issue rather than in relation to professional practice and relational aspects.

Furthermore, the research is dominated by organisational and system perspectives, while user perspectives, relational social work and sparsely populated contexts are underrepresented. Finally, a predominance of qualitative studies and a lack of comparative and longitudinal research contribute to a fragmented and difficult to generalise state of knowledge.

Overall, the lack of research on, for example, sparsely populated areas and intermunicipal collaborations can be understood as an effect of a research field that is still under development, where the focus has so far been on digitalisation as organisational and technological transformation rather than as a context-bound, relational practice.

We would like to express our thanks to the researchers Professor Christine Gustafsson, Sophiahemmet and Ph.D. Dr. Sylvia Olsson, who have carried out the work for their committed collaboration and thought-provoking insights. We hope that this report will contribute to increased knowledge and deeper understanding of the importance of digitalization in social services, as well as support the development of further research in the area to strengthen social sustainability throughout the Nordic region.



Photo: Skyfish

Executive summary

Background and purpose

Digitalisation is increasingly reshaping welfare services across the Nordic countries. Health and welfare technology (HWT) – including digitalisation (as an umbrella concept), digital communication platforms, case management systems, automation tools, and data infrastructures – is becoming an integral part of how social services are organised, delivered, and governed. Within individual and family services (IFS), digitalisation influences interactions between professionals and service users, administrative processes, and broader governance arrangements.

This report presents a scoping review of Nordic research and grey literature on digitalisation and HWT in social services, with a particular focus on IFS. The aim is to map existing knowledge, identify patterns and knowledge gaps, and provide an overview of how digital technologies are currently shaping practice, organisations, and governance in Nordic social services.

Methodology

The review combined two complementary analytical components:

Part I – Scientific literature review

This component consisted of a systematic mapping of 48 peer-reviewed empirical studies examining digital technologies in Nordic social services.

Part II – Grey literature review

This component consisted of a targeted analysis of 11 Nordic and European policy reports, evaluations, and strategic documents addressing digitalisation in welfare services, with particular attention to digital documentation and governance infrastructures.

Together, these two bodies of literature provide a multi-layered perspective on digitalisation in IFS, capturing both everyday professional practice and broader policy and governance dynamics.

Digitalisation as a multi-level transformation

The findings demonstrate that digitalisation in IFS is not a single reform initiative but a complex and ongoing socio-technical transformation. Digital technologies influence social services at multiple levels simultaneously:

- Service-user level: Digital communication tools, self-service platforms, and remote support services are changing how children, young people, and families access services.
- Professional level: Digital case management systems and documentation tools are reshaping professional work, decision-making processes, and documentation practices.
- Organisational level: Digital infrastructures and administrative systems are restructuring workflows, coordination, and accountability within social service organisations.
- Governance level: Policy-driven digital reforms emphasise interoperability, data sharing, and integrated information systems as mechanisms for improving welfare system efficiency and coordination.

While empirical research focuses primarily on how these technologies are implemented and experienced in everyday practice, policy documents frame

digitalisation as part of broader welfare governance reforms aimed at improving efficiency, resilience, and coordination across public services.

Types of health and welfare technology

The review identified six broad categories of HWT currently used in Nordic social services:

- Hybrid socio-technical digitalisation of practice: Digitalisation as embedded in practice / organisation (not a single tool), implementation, socio-technical change
- User-facing digital services and self-service: Apps, online services, self-service portals, e-applications, web-based services
- Case management, documentation, and administrative systems: Apps, online services, self-service portals, e-applications, web-based services
- Decision support, automation, algorithms, and AI: Robotic Process Automation (RPA), automated decision-making (ADM), algorithms/AI, decision support
- Digital communication and participation tools: Messaging/contact tools, digital communication shaping participation/voice
- Digital infrastructures, e-government, and interoperability: Infrastructures enabling cross-service coordination, e-government/interoperability

These categories demonstrate that digitalisation encompasses both visible user-facing services and less visible administrative and governance infrastructures.

Key findings

Digitalisation produces mixed and context-dependent effects

HWT can enhance accessibility and flexibility for some service users while simultaneously creating risks of digital exclusion. Differences in digital literacy, access to technology, and organisational capacity may lead to unequal access to digital services.

Professional practice is reshaped but not replaced

Digital case management systems and documentation platforms influence how professionals record information, structure assessments, and exercise professional judgement. However, relational work, trust, and professional discretion remain central elements of social service practice.

Governance and infrastructure matter

Much of the digital transformation in IFS occurs through administrative infrastructures such as documentation systems, interoperability platforms, and data-sharing arrangements. These systems influence organisational accountability, coordination across agencies, and the overall functioning of welfare services.

Automation raises new governance challenges

Automation and algorithmic decision-support tools can increase efficiency in rule-based tasks but raise important questions concerning transparency, accountability, and professional responsibility. The literature emphasises the importance of maintaining human oversight in high-stakes decision-making contexts.

Key knowledge gaps

Despite growing research activity since 2020, the Nordic knowledge base on HWT in IFS remains uneven in several respects.

- Research is concentrated in a few countries, particularly Denmark, Finland, Norway and Sweden.
- Preventive services, community-based services, and substance use services remain underrepresented.
- Few studies examine the lived experiences of children, young people, and families.
- The long-term impacts of HWT on service quality, equity, and organisational development remain insufficiently studied.
- Quantitative and mixed-method evaluations are limited.

These gaps highlight the need for additional systematic comparative research across Nordic countries and for greater attention to service-user perspectives.

Implications for policy and practice

The findings suggest that digitalisation in IFS should be approached primarily as a governance and organisational transformation, rather than a purely technical innovation.

Suggested key priorities for policymakers and practitioners include the following:

- Strengthening cross-Nordic collaboration and knowledge exchange
- Ensuring equitable digitalisation across municipalities and service sectors

- Safeguarding professional discretion and relational social work practice
- Developing governance frameworks for automation and AI
- Strengthening digital competence and organisational learning among professionals
- Promoting participatory and user-centred digital design

Conclusion

Digitalisation is becoming a defining feature of IFS across the Nordic countries. Its development is shaped not only by technological innovation but also by governance arrangements, organisational capacities, and professional norms. Ensuring that digital transformation strengthens rather than undermines the core values of Nordic welfare systems will require sustained attention to equity, participation levels, transparency, and professional integrity. Ultimately, the development of HWT should remain grounded in a commitment to the well-being, rights, and trust of children, young people, families, and communities.



Photo: Skyfish

Sammanfattning

Bakgrund och syfte

Digitaliseringen omformar i allt högre grad välfärdstjänsterna i de nordiska länderna. Hälso- och välfärdsteknik (HWT) – inklusive digitalisering (som ett paraplybegrepp), digitala kommunikationsplattformar, ärendehanteringssystem, automationsverktyg och datainfrastrukturer – blir en integrerad del av hur sociala tjänster organiseras, levereras och styrs. Inom individ- och familjeomsorgen (IFO) påverkar digitalisering kontakter mellan yrkesverksamma och användare, administrativa processer och vidare styrningsstrukturer.

Denna rapport presenterar en översikt av nordisk forskning och grå litteratur om digitalisering och HWT inom sociala tjänster, med särskilt fokus på IFO. Syftet är att kartlägga befintlig kunskap, identifiera mönster och kunskapsluckor samt ge en översikt över hur digital teknologi för närvarande formar praxis, organisering och styrning inom socialtjänster i Norden.

Metodik

I översikten kombinerades två kompletterande analytiska komponenter:

Del I – Vetenskaplig litteraturöversikt

Denna del bestod av en systematisk kartläggning av 48 peer-reviewade empiriska studier som undersökte digitala verktyg inom socialtjänst i Norden.

Del II – Grå litteraturöversikt

Denna del bestod av en riktad analys av 11 nordiska och europeiska policyrapporter, utvärderingar och strategiska dokument som behandlar digitalisering inom välfärdstjänster, med särskild inriktning på digital dokumentation och styrningsinfrastruktur.

Tillsammans ger dessa två olika grupper av litteratur ett mångfacetterat perspektiv på digitalisering inom IFO, och fångar både vardaglig yrkespraxis och bredare policy- och styrningsdynamik.

Digitalisering som en flerdimensionell transformation

Resultaten visar att digitaliseringen inom IFS inte är ett enskilt reforminitiativ utan en komplex och pågående samhällsteknisk omvandling. Digitala verktyg påverkar sociala tjänster på flera nivåer samtidigt:

- Användarnivå: Digitala kommunikationsverktyg, självbetjäningsplattformar och fjärrstödstjänster förändrar hur barn, unga och familjer får tillgång till tjänster.
- Professionell nivå: Digitala ärendehanteringssystem och dokumentationsverktyg omformar professionellt arbete, beslutsprocesser och dokumentationspraxis.
- Organisationsnivå: Digitala infrastrukturer och administrativa system strukturerar om arbetsflöden, samordning och ansvarstagande inom socialtjänsten.
- Styrningsnivå: Policydrivna digitala reformer betonar interoperabilitet, datadelning och integrerade informationssystem som mekanismer för att förbättra välfärdssystemets effektivitet och samordning.

Medan empirisk forskning främst fokuserar på hur dessa digitala verktyg implementeras och upplevs i vardagen, beskriver policydokument digitalisering som en del av bredare reformer av välfärdsstyrning med syfte att

förbättra effektivitet, motståndskraft och samordning mellan offentliga tjänster.

Typer av hälso- och välfärdsteknik

I översikten identifierades sex breda kategorier av HWT som för närvarande används inom socialtjänsten i Norden:

- Hybrid socioteknisk digitalisering av praktik: Digitalisering som integrerad del i praktik / organisation (inte ett enskilt verktyg), implementering, socioteknisk förändring
- Användarriktade digitala tjänster och självbetjäning: Appar, onlinetjänster, självbetjäningsportaler, e-applikationer, webbaserade tjänster
- Case management, dokumentation och administrativa system: Appar, onlinetjänster, självbetjäningsportaler, e-applikationer, webbaserade tjänster
- Beslutsstöd, automation, algoritmer och AI: Robotic Process Automation (RPA), automatiserat beslutsfattande (ADM), algoritmer/AI, beslutsstöd
- Verktyg för digital kommunikation och deltagande: Meddelande-/kontaktverktyg, digital kommunikation som formar deltagande/inflytande
- Digitala infrastrukturer, e-förvaltning och interoperabilitet: Infrastrukturer som möjliggör samordning mellan tjänster, e-förvaltning/interoperabilitet

Dessa kategorier visar att digitalisering omfattar både synliga tjänster riktade mot användarna och mindre synliga administrativa och styrande infrastrukturer.

Viktiga slutsatser

Digitalisering ger upphov till blandade och kontextberoende effekter

HWT kan öka tillgängligheten och flexibiliteten för vissa användare, samtidigt som det skapar risker för digital exkludering. Skillnader i digital kompetens, tillgång till teknik och organisatorisk kapacitet kan leda till ojämlik tillgång till digitala tjänster.

Den yrkesmässiga verksamheten omformas, men ersätts inte

Digitala ärendehanteringssystem och dokumentationsplattformar påverkar hur yrkesverksamma registrerar information, strukturerar bedömningar och utövar professionellt omdöme. Relationellt arbete, förtroende och professionell diskretion förblir dock centrala delar av socialtjänstpraktiken.

Styrning och infrastruktur är viktigt

Mycket av den digitala omvandlingen inom IFO sker genom administrativa infrastrukturer såsom dokumentationssystem, interoperabilitetsplattformar och datadelningsarrangemang. Dessa system påverkar organisatoriskt ansvarstagande, samordning mellan myndigheter och den övergripande funktionen av välfärdstjänster.

Automatisering medför nya styrningsutmaningar

Automatisering och algoritmiska verktyg för beslutsstöd kan öka effektiviteten i regelbaserade uppgifter men väcker viktiga frågor om transparens, ansvarstagande och professionellt ansvar. I litteraturen betonas vikten av att behålla mänsklig kontroll i beslutssituationer där mycket står på spel.

Viktiga kunskapsluckor

Trots en ökande forskningsaktivitet sedan 2020 är den nordiska kunskapsbasen om HWT inom IFO fortfarande ojämn på många sätt.

- Forskningen är koncentrerad till några få länder, särskilt Danmark, Finland, Norge och Sverige.
- Digitala verktyg som innebär förebyggande tjänster, lokala tjänster och tjänster rörande substansbruk är fortfarande underrepresenterade.
- Få studier undersöker barns, ungdomars och familjers upplevelser.
- De långsiktiga effekterna av HWT på tjänstekvalitet, jämlikhet och organisationsutveckling har ännu inte undersökts tillräckligt.
- Kvantitativa och mixed-methods-utvärderingar är begränsade.

Dessa luckor belyser behovet av ytterligare systematisk jämförande forskning i de nordiska länderna och större fokus på användarperspektivet.

Konsekvenser för policy och praktik

Resultaten pekar på att digitaliseringen inom IFO i första hand bör betraktas som en förändring av styrning och organisation, mer än en rent teknisk innovation.

Rekommenderade prioriteringar för beslutsfattare och praktiker omfattar följande:

- Att stärka det nordiska samarbetet och kunskapsutbytet
- Att säkerställa en likvärdig digitalisering i alla kommuner och inom alla tjänstesektorer
- Att värna om yrkesmässig diskretion och relationsbaserat socialt arbete
- Utveckling av ramverk för styrning för automation och AI
- Att stärka den digitala kompetensen och det organisatoriska lärandet bland yrkesverksamma
- Främja deltagarbaserad och användarcentrerad digital design

Slutsats

Digitaliseringen håller på att bli ett utmärkande drag för IFO i de nordiska länderna. Utvecklingen präglas inte bara av teknisk innovation utan också av styrningsformer, organisatorisk kapacitet och yrkesnormer. För att säkerställa att den digitala omvandlingen stärker snarare än undergräver de nordiska välfärdssystemens kärnvärden krävs ett kontinuerligt fokus på jämlikhet, delaktighet, transparens och yrkesetik. I slutändan bör utvecklingen av HWT även fortsättningsvis vara grundad i ett engagemang för välbefinnande, rättigheter och förtroende hos barn, ungdomar, familjer och samhällen.



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1. Introduction

The Nordic Welfare Centre commissioned the Nordic Health and Welfare Technology Research Network to conduct a mapping and scoping review of Nordic research on digitalisation within social services and a brief overview of grey literature on the same subject, with a particular focus on individual and family services (IFS). The assignment is part of ongoing Nordic co-operation aimed at strengthening knowledge development, policy learning, and evidence-informed practice in welfare and social services.

The work was carried out by two members of [the Nordic Health and Welfare Technology Research Network](#): Professor Christine Gustafsson (Sophiahemmet University) and fil. Dr. Sylvia Olsson (Mälardalen University). The network brings together Nordic researchers with expertise in health and welfare technology (HWT), digitalisation, and social services, with the aim of consolidating and synthesising research-based knowledge regarding HWT across national contexts.



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2. Background

Health and welfare technology (HWT) as a result of digitalisation has become an increasingly prominent feature of social services across the Nordic countries. This includes individual and family services (IFS), in which digital tools and systems are used in areas such as assessment, documentation, communication with service users, service delivery, and inter-organisational collaboration (Ministry of Health and Social Affairs & Swedish Association of Local Authorities and Regions, 2016; Nordic Council of Ministers, 2020a).

At both the Nordic and national levels, digitalisation is promoted as a key strategy for improving accessibility, quality, coordination, and efficiency in welfare services and strengthening user participation and transparency (Nordic Council of Ministers, 2024; Norwegian Ministry of Local Government and Regional Development, 2023).

At the same time, however, research has shown that digitalisation in social services raises important questions concerning professional practice and discretion, user

participation, ethical considerations, legal frameworks, and organisational conditions (Frennert & Östlund, 2018; Kamp et al., 2019). These issues are particularly salient in services targeting children, young people, and families, in which digital tools may influence decision-making processes, relationships between professionals and service users, and the safeguarding of rights (Ahmadinia & Eriksson-Backa, 2020; Gustafsson, 2020). In Nordic welfare contexts, including social services for children, young people, and families, digital systems and welfare technologies are increasingly promoted and implemented as reform instruments intended to enhance documentation, standardisation, efficiency, and coordination across services and administrative levels. In both policy discourse and practice, these developments are frequently framed as necessary responses to resource constraints, demographic and organisational pressures, and rising expectations of improved service quality and coherence (Jørgensen, 2023; Kamp et al., 2019). In this context, there is a growing need for an overview of existing Nordic research that examines how digitalisation is implemented, used, and experienced within IFS across different national contexts.

Within IFS, digitalisation influences how children, young people, and families come into contact with social services, how support is accessed, and how interactions between the users are maintained over time (Jørgensen, 2023; Nordic Council of Ministers, 2020b). As digital tools become integrated into assessment, communication, documentation, and follow-up processes, they increasingly structure everyday encounters between service users and professionals, thereby reshaping professional practices and modes of interaction (Frennert & Östlund, 2018; Kamp et al., 2019). In this way, digitalisation affects opportunities for participation and voice, influences how service users' perspectives are heard, and impacts trust, relationships, and the experience of social services in everyday life (Ahmadinia & Eriksson-Backa, 2020; Gustafsson, 2020).

The findings of the review are presented in an English-language report intended for a Nordic audience of policymakers, practitioners, researchers, and other stakeholders. The review prioritises the perspectives of service users (citizens) while also including perspectives from professionals, managers, and organisations within social services. The report does not constitute an exhaustive systematic review or narrative review. Rather, it can be described as a scoping review that provides a compilation of recent Nordic research and grey literature. A scoping review offers an overview of a potentially large and diverse body of literature on a broad topic, making such reviews particularly suitable for fields characterised by conceptual diversity and emerging research (Arksey & O'Malley, 2005; Munn et al., 2018). In contrast, a systematic review typically focuses on a narrower research question and a more limited set of studies, with the aim of synthesising evidence to answer specific questions (Peters et al., 2020).

This report provides a structured overview of existing Nordic research on digitalisation within IFS and a brief overview of grey literature on this subject. By

compiling and synthesising knowledge from different Nordic contexts, the report supports comparison across countries and highlights both shared trends and contextual differences. In addition to summarising reported findings, the report identifies gaps in the current knowledge base and areas in which further research is needed, thereby supporting future policy development, practice, and research.



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3. Aim and scope of the report

The overall purpose of this report is to contribute to an improved understanding of how health and welfare technology (HWT), digital tools, and digitalisation are used within Nordic social services, with a particular focus on individual and family services (IFS). The aim of the scoping review is to map, compile, and synthesise existing Nordic research on HWT and provide a brief overview of grey literature on the same subject, with a specific emphasis on digitalisation within social services and IFS in particular.

Conceptualising individual and family services (IFS)

Because the organisation and scope of social services vary across countries, it is important to clarify how IFS is defined in this report. Here, IFS is used as an analytical umbrella term for municipally organised social services targeting children, young people, adults, and families in situations of vulnerability, including child

protection and family support within locally administered welfare systems.

While the precise organisational structures and legal frameworks for IFS differ across the Nordic countries, these structures and frameworks share a common foundation in locally organised, tax-financed welfare provision and a strong emphasis on professional discretion, relational work, and citizens' rights.

In Denmark, municipal social services are primarily regulated through the Social Services Act (Serviceloven; Danish Ministry of Social Affairs and the Interior, 2015). Danish municipalities typically organise support through functionally differentiated units for child and family services, adult social services, and employment-related social assistance, often in close coordination with the municipal Jobcenter system. This structure reflects a comparatively strong integration between social services and labour market policy within the Danish welfare system (European Social Network, 2024).

In Sweden, IFS are typically organised as a distinct municipal administrative unit within all offered social services, encompassing child protection, family support, and social assistance. The Social Services Act (Socialtjänstlagen, SFS 2025:400) provides a framework that combines legally defined responsibilities with considerable professional discretion at the municipal level, emphasising voluntary support, relational work, and the individual's right to self-determination in social service interventions (Höjer & Forkby, 2011).

In Norway, services corresponding to IFS are primarily governed by the Child Welfare Act (Barnevernsloven), which entered into force in its revised form on 1 January 2023. The act places a strong statutory emphasis on prevention, early intervention, and the best interests of the child as a fundamental guiding principle in all child welfare decisions (Melinder et al., 2021; Norwegian Government, 2023; Sandberg, 2019). While this national legal framework sets clear standards and obligations, the practical delivery of child welfare and family services is largely the responsibility of municipalities, which are tasked with organising and providing services to children, young people, and families in need of support (Bufdir, n.d.; Olsvik & Saus, 2020).

In Finland, services corresponding to IFS are primarily regulated by the Social Welfare Act (Sosiaalihuoltolaki, 1301/2014), which emphasises holistic support, accessibility, and the coordination of services across municipalities and counties (Finnish Government, 2014; Hetemaa et al., 2021; UNECE, n.d.). A distinctive feature of the Finnish system is its strong emphasis on interprofessional collaboration between social services, the healthcare sector, and the education sector. Research highlights how co-operation across professional boundaries is essential for identifying needs early and providing coordinated support to children, young people, and families (Pedersen, 2019; Timperi et al., 2024). The Finnish system's collaborative orientation shapes both organisational arrangements and everyday professional practices within social services.

In Iceland, services comparable to IFS are governed by the Municipalities' Social Services Act (No. 40/1991), which assigns primary responsibility for social services, family support, and child protection to municipalities. The act establishes a framework in which local authorities are expected to provide assistance to vulnerable individuals and families, promote social well-being, and ensure access to necessary support services. As in other Nordic countries, national legislation sets the overarching principles, while municipalities retain considerable discretion in how services are organised and delivered in practice. Municipal child protection and family services in Iceland include preventive support, counselling, and interventions aimed at safeguarding children's rights and well-being, as well as assistance to parents and caregivers (Government of Iceland, n.d.; Iceland.is, n.d.). In line with broader Nordic patterns, Icelandic family and social policy emphasises shared care, parental responsibility, and publicly supported family services, while placing municipalities at the centre of policy implementation (Hakovirta & Eydal, 2020).

In this report, individual and family services (IFS) is used as an analytical umbrella term for municipally organised social services targeting children, young people, adults, and families in situations of vulnerability, including child protection and family support within locally administered welfare systems.

Taken together, these Nordic structures illustrate that while there is no single organisational equivalent to Sweden's IFS across the region, Denmark, Finland, Iceland and Norway, all rely on municipally organised, tax-financed social services that broadly correspond to the functions encompassed by IFS as it is defined in this report. Despite differences in legal frameworks, institutional configurations, and policy emphases, such as Denmark's functionally differentiated system, Norway's strong preventive child welfare orientation, Finland's emphasis on holistic and interprofessional collaboration, and Iceland's municipally anchored family and child protection services, the Nordic countries share core principles of local autonomy, professional discretion, relational social work, and rights-based welfare provision. These commonalities provide an important backdrop for understanding both national variations and shared challenges in the organisation, delivery, and ongoing digitalisation of IFS across the Nordic region.

Conceptualising health and welfare technology (HWT) and digitalisation in individual and family services (IFS)

In this report, HWT and digitalisation are understood as broad and multi-faceted concepts encompassing a wide range of digital tools, systems, and digitally mediated practices used within social services (Frennert & Östlund, 2018; Kamp et al., 2019). Rather than referring to a single type of technology or intervention, digitalisation in IFS includes diverse technological solutions that support, structure, or transform social work practices, organisational processes, and interactions with

service users (Gustafsson, 2020).

Consistent with the scope of the literature searches, HWT is conceptualised as including digital documentation and case management systems; decision-support tools; e-services and e-government solutions; communication technologies; platform-based services; and emerging technologies such as automation, algorithms, and AI (Jørgensen, 2023; Nordic Council of Ministers, 2020b). These technologies may be used in various stages of IFS work, including assessment, decision-making, service delivery, follow-up, documentation, and coordination across services and administrative levels (Kamp et al., 2019).

Here, digitalisation is understood as a socio-technical process that involves not only the introduction of technical systems but also changes in organisational arrangements and professional practices, roles, and relationships (Berg, 1999; Orlikowski, 2007). From this perspective, digital tools are seen as embedded in broader institutional, legal, and ethical contexts, and their use may shape how professional judgement is exercised, how work is organised, and how children, young people, and families experience contact with social services (Ahmadinia & Eriksson-Backa, 2020; Frennert & Östlund, 2018).

In this report, health and welfare technology (HWT) and digitalisation are understood as umbrella concepts encompassing a wide range of digital tools, technological infrastructures, information systems, and digitally mediated practices that shape professional work and service provision within social services.

The conceptual breadth adopted in this report reflects the diversity of terms and approaches found in Nordic research and grey literature on digitalisation within social services (Gustafsson, 2020). As illustrated by the search strategy, studies and reports employ a wide range of concepts related to digitalisation, technology, and welfare services, and these concepts often overlap or are used interchangeably (Nordic Council of Ministers, 2020b). By applying an inclusive conceptualisation of HWT and digitalisation, the report aims to capture this diversity and provide a comprehensive overview of how digital tools and practices are used and studied within IFS across the Nordic countries.



Photo: Mostphotos

4. Methods

This section outlines the methodological approach used to map and synthesise existing Nordic research on health and welfare technology (HWT) and digitalisation in individual and family services (IFS). It describes the type of review conducted, the search strategy applied, and the procedures for screening, selecting, and analysing the material. The aim is to provide a transparent account of how the evidence base for the report was identified and synthesised.

Methodological approach

The methodological approach adopted in this report is a scoping review. Such reviews aim to map and synthesise existing knowledge on a broad topic and offer an overview of a potentially large and diverse body of literature. This approach is particularly suitable for fields characterised by conceptual diversity, heterogeneous study designs, and emerging research areas (Arksey & O'Malley, 2005; Munn et al., 2018).

Given the breadth of digitalisation within social services and the variation in how related concepts, technologies, and practices are defined and studied across Nordic countries, a scoping review was considered an appropriate methodological choice. The review's objective was to identify, map, and synthesise existing Nordic research and grey literature on HWT, with a particular focus on digital tools and digitalisation within IFS, rather than to assess the effectiveness of specific digital interventions.

The review was conducted in two main steps. In the first step (Part I), searches were carried out in scientific databases to identify peer-reviewed research literature relevant to digitalisation in Nordic social services and IFS. The identified publications were screened and analysed thematically to map key areas of focus, types of digital tools and systems, and reported perspectives and outcomes. The searches were limited to publications published from 2010 to August 2025. Publications were included if they addressed digital tools, systems, or digital practices within social services (with a particular focus on IFS) and were situated in a Nordic context (Denmark, Finland, Iceland, Norway or Sweden). For reasons of scope and comparability, Greenland and the Faroe Islands were not included, partly due to the limited availability of relevant literature regarding these contexts as well as language constraints, as publications representing these contexts are rarely available in English. Publications written in English and selected Nordic languages (Swedish, Norwegian, and Danish) were included. Publications in other Nordic languages were excluded due to limitations in the authors' language competence. For detailed information regarding the search strategy (Part I) and included databases for this step, see [Appendix A](#).

In the second step (Part II), and informed by the findings from the first step, targeted searches for grey literature were conducted. The purpose of this step was to identify relevant Nordic reports, policy documents, evaluations, and other non-peer-reviewed publications that concern digital documentation in the context of IFS but that may not be represented in the scientific literature. The focus in digital documentation was a recommendation by Nordic Welfare Centre). The searches were limited to publications published from 2010 to 28 February 2026. Publications were included if they addressed digital tools, systems, or digital practices within social services (with a focus on IFS) and were situated in a Nordic context (Denmark, Finland, Iceland, Norway or Sweden). Publications written in English and selected Nordic languages (Danish, Norwegian, and Swedish) were included. Publications in other Nordic languages were excluded due to limitations in language competence, in line with the first step. For detailed information regarding the search strategy and included databases for this step, see [Appendix B](#). Together, these two steps provided a broader and more comprehensive overview of existing Nordic knowledge in the field.

In line with the mapping and exploratory purpose of the review, no formal quality assessments or critical appraisals of individual studies were conducted. The

literature search was conducted in collaboration with research librarians at Mälardalen University and comprised two complementary parts, as noted above. The search strategy was designed to capture a broad and heterogeneous body of literature, reflecting the conceptual diversity of the field.

Part I: Search for scientific literature

In the first part, systematic searches were carried out in bibliographic databases to identify peer-reviewed research literature. The following databases were searched: Scopus, Web of Science Core Collection, SocINDEX, Applied Social Sciences Index and Abstracts (ASSIA), Social Services Abstracts, and PubMed. These databases were selected to ensure coverage of research on social work and social services, welfare studies, and interdisciplinary research on digital technologies (Figure 1).

The search strings combined three main groups of terms:

- Terms related to social services and social work, including child protection, child welfare, and casework
- Terms related to digitalisation, technology, and HWT, including digital tools, information systems, e-services, automation, AI, and communication technologies
- Terms indicating the Nordic context, including Scandinavia and the individual Nordic countries Denmark, Greenland, Faroe Islands, Finland, Iceland, Norway, and Sweden.

These term groups were combined using Boolean operators, and database-specific subject headings (e.g. MeSH terms and thesaurus terms) were applied where relevant in to increase precision and sensitivity. No initial restrictions were applied regarding publication year or study design.

Searches were conducted in August 2025. The results from all databases were exported to reference management software (EndNote), and duplicates were removed. The deduplicated dataset was subsequently imported into Covidence, in which the screening and selection of publications were carried out (Appendix A).

The literature search of research studies yielded a total of 4,165 records from electronic databases, including Scopus (n = 1,315), Web of Science (n = 1,060), Social Services Abstracts (n = 845), PubMed (n = 431), SocINDEX (n = 343), and ASSIA (n = 171). After the removal of duplicates (n = 1,553), 2,612 records remained for title and abstract screening. Of these, 2,023 records were excluded following the screening stage. A total of 589 publications were sought for full-text retrieval, and all were successfully retrieved.

Full-text assessment was conducted for 589 publications to determine their eligibility. 541 studies were excluded for reasons that include the following: not being primary empirical studies; insufficient methodological detail; focus outside

the Nordic region; non-digital or non-integrated interventions; lack of relevance to social services; absence of original data; and focus on populations or outcomes not directly related to IFS. In total, 48 studies met the inclusion criteria and were included in the review (Figure 1).

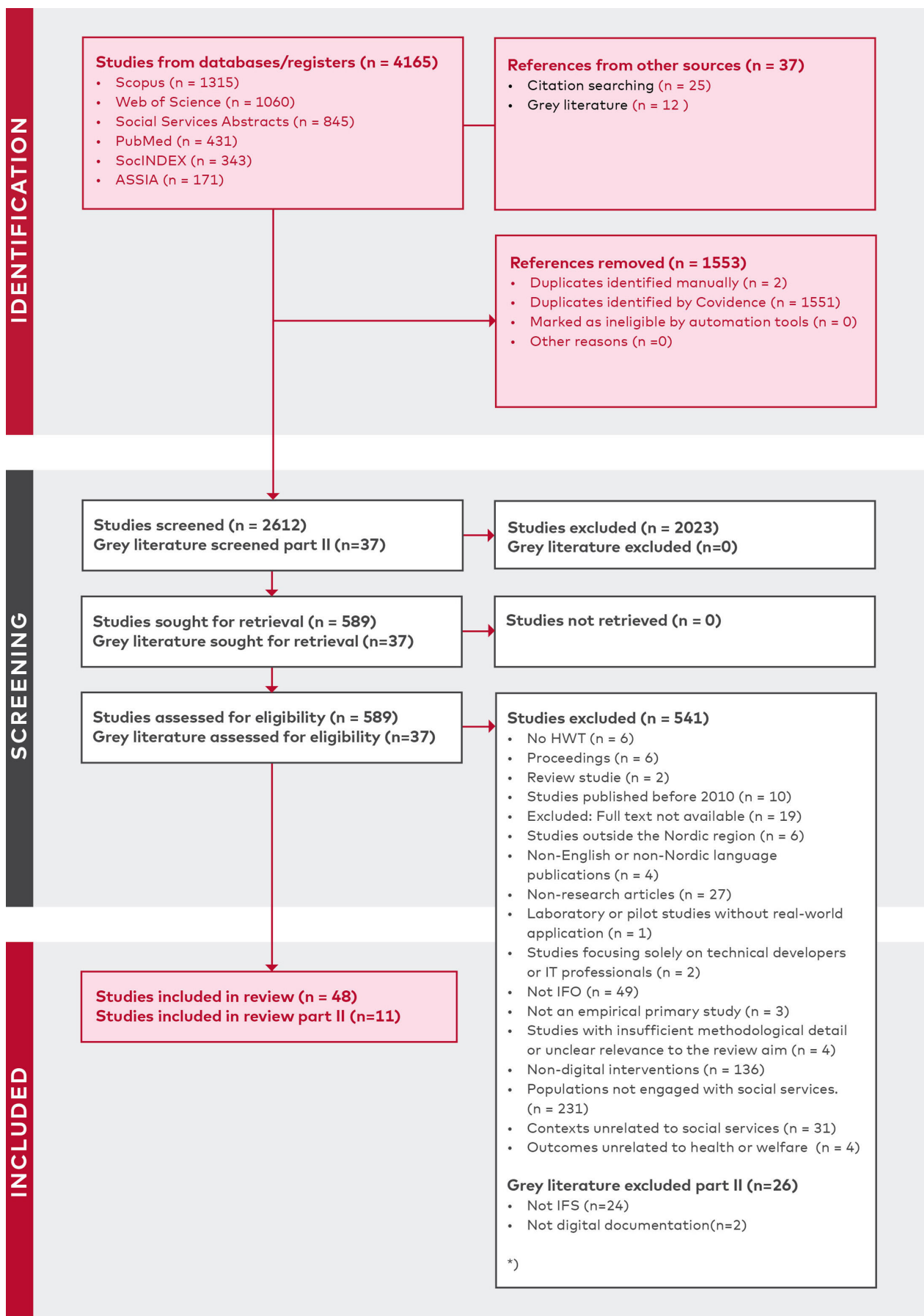


Figure 1. PRISMA flow chart of the inclusion process

Figure 1. PRISMA flow chart.

Part II: Search for grey literature

In the second part, the preliminary findings from the scientific literature informed targeted searches for grey literature focusing on digital documentation within IFS. The purpose of this part was to follow a specific 'track' (namely, digital documentation) to identify relevant Nordic reports, policy documents, evaluations, and other non-peer-reviewed publications addressing digitalised documentation within social services and IFS that may not be represented in the scientific literature.

The grey literature search followed the same overall thematic focus as the database searches in Part I (and was similarly limited to a Nordic context) but was adapted to the characteristics of non-academic sources. The Overton database was used in combination with Google Search. The intention of the two parts was to provide a more comprehensive overview of existing Nordic knowledge on digitalisation within IFS.

Detailed search strings and database-specific search matrices are provided in the search documentation (Appendix B). The grey literature consisted primarily of research institute reports, EU policy reports, and national governmental publications.

The grey literature search focused particularly on publications related to digital documentation and digital infrastructures within IFS, as these themes emerged during the preliminary analysis of the scientific literature. Focusing on the Nordic region, targeted searches for grey literature addressing the use of HWT in social services were conducted to identify policy reports, evaluations, and other non-peer-reviewed publications, complementing the review of scientific literature. Two search platforms were used: the Overton database, a global database of policy documents and grey literature, and Google Search. The searches were conducted in February 2026.

Overton was used to identify relevant policy documents, governmental reports, and organisational publications addressing digitalisation in IFS in Nordic contexts. The search was limited to documents classified as publications and to the publication period 2022–2026. The geographical focus was restricted to the Nordic countries. The following search string was applied: 'digitalisation of social services' AND (Sweden OR Norway OR Denmark OR Finland OR Iceland).

To complement the Overton search and identify additional reports that might not be indexed in policy databases, a supplementary search was conducted using Google Search. The same search string was applied: 'digitalisation of social services' AND (Sweden OR Norway OR Denmark OR Finland OR Iceland). The first several pages of search results were screened to identify relevant governmental reports, policy briefs, institutional reports, and publications produced by research

institutes. Priority was given to publications issued by governmental agencies, Nordic research institutes, European organisations, and welfare policy organisations.

The identified documents were subsequently screened according to predefined inclusion and exclusion criteria. Publications were included if they addressed digitalisation, digital technologies, or digital infrastructures in IFS, focused on Nordic countries, and were relevant to welfare governance, service delivery, or documentation practices. Publications were excluded if they were unrelated to social services, consisted of commercial or promotional materials, or lacked substantive analytical content.

The final set of grey literature sources was analysed thematically and integrated into the review as Part II: Grey Literature Analysis.

Analysis Approach

The analysis of the included material (for both parts) was primarily qualitative and interpretative in nature. It was inspired by the methodological principles of qualitative description (Sandelowski, 2000, 2010) and informed by the procedures of thematic analysis as outlined by Braun and Clarke (2006, 2019).

Consistent with a qualitative descriptive approach, the aim of the analysis was to provide a comprehensive and practice-oriented summary of how digitalisation within IFS is described and conceptualised in the included literature. The intention was not to reinterpret findings through a specific theoretical lens, nor to generate new theory, but to organise the reported results of the original studies into analytically meaningful patterns. This approach was considered appropriate given the mapping purpose of the review and the heterogeneity of study designs, contexts, and conceptual frameworks represented in the material.

The analysis proceeded over the course of several steps:

- First, relevant data were extracted from each included publication, including descriptions of the types of HWT examined, the reported results, and contextual information.
- Second, the extracted material was read iteratively to identify recurring patterns, similarities, and differences across studies.
- Third, the identified patterns were organised into preliminary themes reflecting key groups of reported effects and practices.

The thematic development was conducted in an inductive manner, allowing themes to emerge from the data rather than being predefined.

The thematic analysis followed a reflexive and iterative process inspired by Braun and Clarke (2006), including familiarisation with the data, the generation of initial

codes, the identification of candidate themes, and the refinement of thematic categories in relation to the overall aim of the review. Particular attention was paid to how reported findings related to different categories of HWT (Table 6) and to how digitalisation was described as influencing accessibility, professional practice, user participation, organisational structures, and governance.

Throughout the analytic process, the focus remained on mapping and synthesising reported knowledge rather than assessing study quality or determining effectiveness. The resulting themes represent a structured synthesis of the included literature and provide an overview of how digitalisation and HWT in Nordic IFS is understood and experienced across different technological contexts.



Photo: Mostphotos

5. Results

This section presents the results of the scoping review and outlines how the included material was analysed and synthesised. The findings are presented in a structured manner, moving from descriptive mapping to thematic compilation and, finally, to higher-level synthesis.

The results are organised into two parts. Part I presents the primary findings from the 48 included empirical research articles, providing a detailed mapping of digitalisation and HWT within IFS across the Nordic context, while Part II presents the findings from the included grey literature ($n = 11$) focusing on digital documentation in IFS, consisting of policy reports, governmental strategies, and evidence reviews. While Part I focuses primarily on practice-level and research-based evidence, Part II captures macro-level policy frameworks, governance structures, and strategic approaches regarding digital documentation in IFS.

Although the two bodies of literature differ in methodological orientation and level of analysis, they were analysed using the same overarching thematic framework.

Together, they offer a multi-layered understanding of digitalisation in Nordic IFS, spanning frontline practice, organisational processes, and policy-level reform agendas.

For Part I (empirical studies), the presented results are structured according to several analysis phases. First, a descriptive mapping of the included research articles was developed. This mapping provides contextual insight into the scope and distribution of the empirical evidence and is presented through analyses of the following:

- Geographical distribution of the included publications
- Primary target users of the digital interventions
- Distribution of studies by IFS practice area
- Temporal distribution of studies
- Methodological characteristics of the included studies

Second, the extracted data were analysed thematically to map and compile the types of HWT and digital interventions identified in the material. This is followed by a structured compilation of the reported results across the presented categories of HWT and digital interventions, culminating in a synthesis of the reported effects of digitalisation in IFS.

Finally, Part I presents two integrative syntheses. The first is a cross-category synthesis of HWT in Nordic IFS, highlighting overarching patterns and interconnections across technological categories. The second is a policy-oriented synthesis that discusses the broader implications of the findings for Nordic welfare policy and the future development of digitalisation in social services.

For Part II (grey literature), the material was synthesised thematically rather than descriptively mapped in the same manner as the material in Part I, in accordance with its different nature. The analysis of these sources focused on identifying overarching policy narratives, governance frameworks, infrastructural developments, and strategic patterns of digital transformation, with particular attention to digital documentation in IFS.

Part I – Characteristics of the included empirical studies

To provide a comprehensive overview of how digitalisation unfolds in IFS, this section presents a structured mapping of the included studies across several key dimensions. Specifically, we present the geographical distribution of research within the Nordic context, the primary target users of digital interventions, and the distribution of studies across different IFS practice areas, alongside the studies'

temporal distribution and methodological characteristics. This information offers a multi-dimensional understanding of where, for whom, in which areas, and through which forms of evidence digitalisation within IFS is most prominently studied.

Geographical distribution of the included literature

Table 1 presents the geographical distribution of the included studies by country. This mapping illustrates which Nordic countries are most represented in the existing research on HWT and digitalisation within IFS. The distribution reflects both national research activity and the current evidence base within this field, highlighting where empirical knowledge is most concentrated as well as where it remains more limited.

Country	Number of articles
Sweden	15
Norway	12
Finland	12
Denmark	9
Total	48

Note: One included study is comparative (Estonia, Sweden, and Germany). In the table above, this study has been counted once for Sweden. While Iceland is part of the Nordic region, no Icelandic studies met the inclusion criteria or were identified in the final sample.

Table 1. Number of research studies per country (48 studies)

Analytical reflection

The geographical distribution of studies indicates a clear concentration of research in the four Nordic welfare states – Denmark, Finland, Norway and Sweden – suggesting that digitalisation in IFS is primarily studied within established Nordic welfare governance traditions. Sweden’s relatively higher representation may reflect both a strong national policy emphasis on digital transformation in social services and a comparatively active research environment in this area. On the other hand, the more even distribution across Norway and Finland points to a broader regional engagement with digital welfare innovations rather than the dominance of a single country. The lower number of Danish studies may indicate either different national priorities regarding the digitalisation of IFS or a stronger focus on other welfare sectors. The presence of one comparative study including Estonia and Germany signals emerging interest in cross-national perspectives beyond the Nordic region, but such work remains limited, highlighting a need for additional comparative research to better understand how different welfare systems shape digitalisation in social services.

Primary target users of digital interventions

To characterise who digital interventions are primarily designed for, each study was mapped according to its primary target users regarding HWT and digitalisation within IFS (Table 2).

Primary target users	Number of studies
Both professionals and clients	20
System level (governance, policy, organisation)	20
Social workers / frontline professionals	5
Clients / service users	3
Total	48

Table 2. Primary target users of digital interventions (48 studies)

Note: Each study was coded according to its primary target users based on its description of its participants, purpose, and digital intervention. If studies addressed both professional practice

and service users, they were categorised as 'Both professionals and clients'. Studies primarily concerned with organisational, policy, or governance issues were coded as 'System level'.

Analytical reflection

The distribution of primary target users suggests that digitalisation in IFS is predominantly oriented towards both professional practice and organisational governance rather than towards direct service delivery to clients. The equal number of studies targeting both professionals and clients and studies focusing on the system level indicates that digital interventions are largely framed as tools for reshaping work processes, organisational structures, and decision-making infrastructures rather than just means of empowering or supporting service users. This pattern reflects a view of digitalisation as a socio-technical transformation of social services in which changes in technology are closely intertwined with changes in professional roles, managerial control, and governance arrangements. The comparatively small number of studies that focus exclusively on clients or frontline social workers suggests that user-centred or practitioner-centred perspectives are less dominant in the current literature, highlighting a potential gap in research on how digital interventions are experienced and negotiated in everyday practice by those most directly affected.

Distribution of studies by individual and family services (IFS) practice area

To further characterise the empirical focus of the included studies, each article was mapped according to its primary IFS practice area. This mapping illustrates which IFS areas have been most studied in relation to HWT and digitalisation and where research remains more limited (Table 3).

IFS practice area	Number of studies
Child and family services	19
Cross-cutting / multiple IFS areas	18
Case management (general)	6
Financial assistance / social benefits	3

Preventive / outpatient / community-based services	1
Substance use / addiction services	1
Total	48

Table 3. Distribution of studies by IFS practice area (48 studies)

Note: Studies were assigned a single primary IFS practice area based on their main empirical focus. In broad terms, the following principles guided the classification: Studies with a clear focus on children, youth, or families were coded as 'child and family services'; studies addressing multiple IFS domains or overarching digital infrastructures were coded as 'cross-cutting / multiple IFS areas'; studies primarily concerning case handling systems were coded as 'case management (general)'; studies focusing on economic social assistance or RPA were coded as 'financial assistance / social benefits'; studies clearly addressing preventive or outpatient services were coded as 'preventive / outpatient / community-based services'; and studies explicitly concerned with substance use were coded as 'substance use / addiction services'.

Analytical reflection

The distribution of IFS practice areas reveals a strong concentration of digitalisation research in the area of child and family services and across system-wide domains, indicating that digital transformation in IFS is primarily explored either in contexts involving children and families or at a more general organisational and infrastructural level. This suggests that digitalisation is often framed less as a specialised intervention within distinct service domains and more as a broader reconfiguration of social service systems and professional practices. The comparatively small number of studies focused on case management (general) and financial assistance points to a narrower but still significant interest in administrative and decision-making processes, particularly in relation to automation and digital workflows. In contrast, the very limited representation of preventive/community-based services and substance use services highlights notable gaps in the existing evidence base, suggesting that digitalisation in these areas remains under-researched despite their centrality to many welfare systems. Overall, the pattern indicates that current knowledge about digitalisation in IFS is unevenly distributed across practice areas, with a strong emphasis on child and family contexts and system-level infrastructures and less attention to specialised or preventive service domains.

Temporal distribution of included studies

To map how research on digitalisation and HWT in IFS has developed over time, the included studies were grouped by year of publication (Table 4). This temporal mapping provides an overview of the growth and maturation of the field.

Year	Number of studies
2024	13
2023	7
2022	8
2021	5
2025	5
2020	3
2019	3
2015	2
2016	1
2018	1
Total	48

Note: Publication year was extracted directly from the included articles.

Table 4. Temporal distribution of included studies (48 studies)

Analytical reflection

The temporal distribution demonstrates a clear increase in publications from 2020 onwards, with a pronounced peak in 2024. This pattern suggests that research on digitalisation in IFS has gained substantial momentum in recent years, likely reflecting both broader digital transformation agendas in public administration and the acceleration of digital practices during and after the COVID-19 pandemic. The relatively modest number of studies published prior to 2020 indicates that digitalisation in IFS was a more emergent and fragmented field during this earlier period, with limited systematic research attention. The concentration of studies in the most recent years points to a rapidly evolving research landscape but also implies that much of the existing evidence base is still relatively new and may be shaped by ongoing technological and organisational changes rather than long-term evaluations. Overall, the distribution trend highlights a growing scholarly interest in digitalisation within social services while also underscoring the need for continued and longitudinal research to assess its longer-term implications.

Methodological characteristics of included research studies

To characterise the methodological profile of the included research, each study was categorised according to its primary research design (Table 5). This mapping provides insight into the types of approaches that currently dominate the field.

Year	Number of studies
Qualitative	26
Quantitative	7
Mixed methods	4
Case study	1
Other / not clearly specified	8
Total	48

Table 5. Methodological characteristics of included studies (48 studies)

Note: Methodological classification was based on the description of the design and the data collection method (e.g. interviews, surveys, document analysis, or mixed approaches) in each article.

Analytical reflection

The methodological profile of the included studies shows a clear predominance of qualitative research, indicating that current knowledge on digitalisation in IFS is largely grounded in in-depth explorations of professional practices, organisational change, and stakeholder experiences rather than in large-scale quantitative evaluation. This suggests that the field is still in a formative stage in which understanding processes, meanings, and implementation dynamics has been prioritised over measuring outcomes or causal effects. The comparatively small number of quantitative and mixed-methods studies points to a limited availability of standardised data or established metrics for assessing digital interventions in IFS. The presence of several studies classified as 'other / not clearly specified' further reflects variability in methodological reporting and underscores the need for greater methodological clarity and rigour in future research. Overall, the distribution highlights a research landscape that is rich in contextual and interpretive insights but would benefit from additional systematic, comparative, and evaluative studies to strengthen the evidence base.

Synthesis of key patterns

Taken together, the mapping of geographical distribution, target users, practice areas, temporal trends, and methodological characteristics reveals several overarching patterns in Nordic research on digitalisation and HWT within IFS. The evidence base is clearly anchored in the Nordic welfare context, with the settings of Denmark, Finland, Norway and Sweden dominating the literature. This points to a strong regional orientation while also suggesting that national institutional arrangements and policy priorities likely shape how digitalisation is conceptualised and enacted in social services.

The distribution of primary target users indicates that digitalisation in IFS is predominantly framed as both an organisational and professional transformation rather than as a means of direct service delivery to clients. The equal number of studies on system-level governance and interventions addressing both professionals and service users underscores the socio-technical nature of digital change, in which technological innovation is closely intertwined with shifts in organisational structures, professional roles, and governance arrangements.

Regarding practice areas, research is concentrated in child and family services and in cross-cutting or system-wide digital infrastructures. This suggests that digitalisation is most extensively explored in contexts involving children and families and in relation to broader case management and administrative systems, while specialised domains such as preventive services and substance use remain comparatively under-researched.

Temporally, the field has expanded markedly since 2020, with a notable peak in recent years. This reflects both a broader acceleration of digital transformation in public services and the catalytic effects of the COVID-19 pandemic on digital practices in social work.

Methodologically, the field is dominated by qualitative studies, indicating that current knowledge is primarily grounded in comprehensive explorations of professional practices, organisational change, and stakeholder experiences. While this provides rich contextual insights, there is also a need for more systematic, comparative, and evaluative research to strengthen the evidence base on the effects and implications of digitalisation in IFS.

Synthesis of the findings regarding health and welfare technology (HWT) in Nordic individual and family services (IFS): Categories, patterns, and policy implications

This section presents the core findings of the scoping review, structured as a progressive mapping and synthesis of findings regarding HWT in Nordic IFS. The section first descriptively categorises technologies and then moves to a thematic compilation of the reported findings and, finally, to an analytical and policy-oriented synthesis.

The section begins by mapping the types of HWT identified in the included studies and organising these types into six interrelated categories (Table 6). It then compiles the reported results across these categories, highlighting how different forms of digitalisation are described in relation to professional practice, service delivery, and governance.

Building on this mapping, this section synthesises the reported effects of digitalisation in IFS across key thematic areas. A cross-category synthesis subsequently identifies overarching patterns and interconnections between technological forms, organisational contexts, and professional practices. The section concludes with a policy-oriented synthesis that discusses the broader implications of the findings for Nordic welfare development and digital transformation in social services.

Types of health and welfare technology (HWT) in the included studies

This section presents a structured mapping of the types of HWT identified in the included studies. Based on the extracted descriptions of digital tools, systems, and practices, the material was organised into six overarching categories reflecting distinct, yet interrelated, forms of digitalisation within IFS.

The categorisation aims to provide an analytical overview of how HWT is conceptualised and operationalised across the Nordic literature. The categories range from user-facing digital services and administrative case management systems to automation, communication tools, infrastructural solutions, and broader socio-technical transformations of practice.

Several studies are represented in more than one category (see note Table 6). This overlap reflects the multi-functional and interconnected nature of HWT in IFS, in which individual technologies often span user interactions, administrative systems, and organisational change.

Below is a summary table of the identified categories and their distribution across the included studies (Table 6). This is followed by detailed descriptions of each category, including their defining characteristics and associated study citations.

The category descriptions are followed by a section presenting the various study results compiled thematically across categories, rather than on a study-by-study basis, reflecting the mapping and synthesis aims of the scoping review.

HWT category / theme	Number of studies	What it covers (based on HWT descriptions)
Hybrid socio-technical digitalisation of practice	26	Digitalisation as embedded in practice / organisation (not a single tool), implementation, socio-technical change
User-facing digital services and self-service	19	Apps, online services, self-service portals, e-applications, web-based services
Case management, documentation, and administrative systems	18	Casework / administrative IT systems, documentation/records, information systems supporting IFS work

Decision support, automation, algorithms, and AI	9	RPA, automated decision-making (ADM), algorithms / AI, decision support
Digital communication and participation tools	6	Messaging / contact tools, digital communication shaping participation/voice
Digital infrastructures, e-government, and interoperability	2	Infrastructures enabling cross-service coordination, e-government / interoperability

Table 6. Identified categories and their distribution across included studies (48 studies)

Note: Studies can appear in multiple categories, which is appropriate for a scoping review because many technologies span user-facing services, administrative systems, and organisational change.

The mapping of the extracted HWT categories shows that Nordic research on HWT in IFS spans both specific digital tools and broader socio-technical changes in service delivery. The most common category is hybrid socio-technical digitalisation of practice, which concerns digitalisation as embedded in everyday work processes, organisational routines, and implementation contexts rather than as a single technology. In addition, a substantial share of studies focuses on user-facing digital services and self-service, including online services and app-based solutions that shape how children, young people, and families access support and maintain contact with social services.

A similarly large group of studies addresses case management, documentation, and administrative systems, indicating that digitalisation in IFS is strongly linked to documentation demands, information processing, and system-supported casework. A smaller but still important cluster focuses on decision support, automation, algorithms, and AI, highlighting the growing role of automated processes (including ADM and RPA) and raising questions regarding discretion, transparency, and accountability. Finally, a limited number of studies explicitly address digital infrastructures, e-government, and interoperability, suggesting that cross-service coordination and integrated infrastructures are present in IFS but less frequently studied as a primary HWT focus.

Overall, the mapping indicates that digitalisation in IFS is multi-layered: It includes front-end services for citizens, back-end administrative and casework systems, and organisational infrastructures and transformations that jointly shape professional practice and service users' experiences.

The descriptions of each category (below) are compiled thematically for deeper insights. The compilation of extracted results shows that Nordic research on HWT in IFS reports a wide range of outcomes related to service users, professional practice, organisational processes, and governance. Rather than focusing on measurable effects, the studies predominantly describe experiences, practices, and implications of digitalisation in everyday social service contexts.

1. Hybrid socio-technical digitalisation of practice (26 studies)

Category description

HWT as part of broader digitalisation of practice / organisation (implementation, work practices, socio-technical change) rather than a single bounded tool.

This category was assigned for studies in which HWT is described not as a single, clearly bounded tool but as part of a broader socio-technical transformation of social services. In studies belonging to this category, digitalisation is described as embedded in professional practices, organisational cultures, implementation processes, and everyday work routines.

The studies emphasise that digital technologies cannot be understood in isolation from their social, organisational, and institutional contexts. Instead, digitalisation is portrayed as an ongoing process that reshapes roles, responsibilities, relationships, and meanings within IFS.

Study results thematically matching this category

Across a large proportion of the studies, the results emphasise that digitalisation is best understood as a socio-technical process in which technologies interact with organisational cultures, professional norms, and institutional conditions (Bakkeli & Grønningsæter, 2020; Hansen et al., 2018; Stranz et al., 2024). These studies report that outcomes of digitalisation depend less on the technology itself and more on how digital tools are implemented, interpreted, and integrated into everyday practice (Höglund & Flinkfeldt, 2024; Mackrill & Svendsen, 2021; Östlund et al., 2024). Professionals describe ongoing adaptation, negotiation, and learning as central features of digital transformation in IFS (Andersson et al., 2022; Sorbring et al., 2015; Svensson & Ranerup, 2024).

Studies: Aasback, 2022; Aasback & Røkkum, 2021; Andersson et al., 2022; Antczak et al., 2019; Bakkeli & Grønningsæter, 2020; Cuesta et al., 2020; Hansen et al., 2018; Höglund & Flinkfeldt, 2024; Kirjavainen & Jalonen, 2023; Løberg, 2021; Løberg & Egeland, 2023; Kaun, 2022; Kaun et al., 2025; Mackrill & Ørnbøll, 2019; Mackrill & Svendsen, 2021; Mesiäislehto et al., 2024; Nordesjö et al., 2024; Oestergaard & Dinesen, 2019; Petersen et al., 2020; Scaramuzzino et al., 2024; Sorbring et al., 2015; Stranz et al., 2024; Svensson & Ranerup, 2024; Tynkkynen et al., 2025; Östlund et al., 2024.

2. User-facing digital services and self-service (19 studies)

Category description

Apps, online interventions, e-services, portals / self-service solutions and other user-facing digital services that shape access to support and service contact.

This category comprises HWT that is directly accessed and used by children, young people, parents, or families. Such HWT includes smartphone applications, online interventions, web-based platforms, and self-service solutions that mediate contact between service users and social services. These technologies are often introduced to improve the accessibility, flexibility, and availability of support, enabling service users to access information, submit applications, engage in interventions, or maintain contact with services independent of time and place.

Across the included studies, user-facing digital services are described as reshaping how individuals and families encounter social services, shifting certain interactions from face-to-face settings to digital environments. The research highlights that such digital services offer both opportunities for increased reach and participation as well as challenges related to digital literacy, inclusion, and the nature of professional–user relationships when contact is mediated through technology.

Study results thematically matching this category

Across studies focusing on user-facing digital services, results indicate that digital tools such as apps, online interventions, and web-based services can increase the accessibility, flexibility, and reach of social services, particularly by enabling contact independent of time and place (Hansen et al., 2017; Mackrill et al., 2015; Mackrill & Ørnbøll, 2019; Scaramuzzino et al., 2024; Sorbring et al., 2015). Several studies report that digital services may lower thresholds for engagement and offer new ways for children, young people, and parents to seek support (Aasback & Røkkum, 2021; Kirjavainen & Jalonen, 2023; Løberg, 2021).

At the same time, the results highlight unequal conditions for digital participation, with variations in digital literacy, access to technology, and user preferences influencing who benefits from digital services (Aasback, 2022; Antczak et al., 2019; Mesiäislehto et al., 2024; Oestergaard & Dinesen, 2019). Some studies note that digital tools complement rather than replace face-to-face support and that trust and relationship-building remain central to effective service delivery (Nordesjö et al., 2024; Östlund et al., 2024; Tynkkynen et al., 2025).

Studies: Aasback & Røkkum, 2021; Aasback, 2022; Andersson et al., 2022; Antczak et al., 2019; Hansen et al., 2017; Juvonen et al., 2022; Kirjavainen & Jalonen, 2023; Løberg, 2021; Løberg & Egeland, 2023; Mackrill et al., 2015; Mackrill & Ørnbøll, 2019; Mesiäislehto et al., 2024; Nordesjö et al., 2024;

Oestergaard & Dinesen, 2019; Petersen et al., 2020; Scaramuzzino et al., 2024; Sorbring et al., 2015; Tynkkynen et al., 2025; Östlund et al., 2024.

3. Case management, documentation and administrative systems (18 studies)

Category description

Documentation / case management tools, administrative systems, and information systems supporting everyday IFS work (case processing, records, reporting, etc.).

This category includes digital systems that support core administrative and professional tasks in IFS, such as case management, documentation, registration, reporting, and information handling. These technologies are typically used by professionals and embedded in everyday organisational routines and workflows.

The studies in this category show how digital documentation and case management systems structure social work practice by shaping what is recorded, how cases are processed, and how information is shared within and across organisations. While these systems are often framed as tools for efficiency, standardisation, and accountability, the research also points to their influence on professional discretion, workload, and the organisation of care and support.

Study results thematically matching this category

Results from studies addressing digital case management and documentation systems demonstrate that such technologies play a structuring role in everyday professional practice. Digital systems shape workflows, define documentation requirements, and influence how cases are processed and prioritised (Cuesta et al., 2020; Mackrill & Ørnbøll, 2019; Mackrill & Svendsen, 2021; Stranz et al., 2024).

Several studies report increased demands for documentation and standardisation, which may support transparency and consistency but also contribute to administrative workload and reduced professional discretion (Aasback & Røkkum, 2021; Hansen & Gerdtz-Andresen, 2022; Svensson & Ranerup, 2024). Professionals describe adapting their practice to system logics, sometimes prioritising what can be documented digitally over relational or contextual aspects of work (Kirjavainen & Jalonen, 2023; Løberg & Egeland, 2023; Scaramuzzino et al., 2024).

Studies: Aasback & Røkkum, 2021; Aasback, 2022; Antczak et al., 2019; Cuesta et al., 2020; Hansen & Gerdtz-Andresen, 2022; Juvonen et al., 2022; Kirjavainen & Jalonen, 2023; Løberg & Egeland, 2023; Mackrill & Ørnbøll, 2019; Mackrill & Svendsen, 2021; Mesiäislehto et al., 2024; Nordesjö et al., 2024; Oestergaard & Dinesen, 2019; Petersen et al., 2020; Scaramuzzino et al., 2024; Stranz et al., 2024; Svensson & Ranerup, 2024; Tynkkynen et al., 2025.

4. Decision support, automation, algorithms and AI (9 studies)

Category description

ADM, RPA, algorithmic tools, decision-support systems, and AI-related infrastructures in social services.

This category captures technologies that automate tasks or provide decision support within social services, including ADM, RPA, algorithmic systems, and AI-related infrastructures. These technologies are often introduced as part of broader digitalisation strategies aimed at improving efficiency, consistency, and coordination in service delivery.

The studies in this category highlight that such systems may influence how decisions are prepared, justified, or executed, thus raising questions about transparency, accountability, professional judgement, and the balance between automation and human discretion. Research in this category frequently situates these technologies within wider governance and organisational contexts rather than focusing on technical performance alone.

Study results thematically matching this category

Studies examining automation and algorithm-based systems report that technologies such as RPA and ADM are primarily implemented in areas perceived as rule-based and administratively suitable for automation, such as financial assistance (Petersen et al., 2020; Svensson & Ranerup, 2024).

Results indicate potential gains in efficiency and processing speed but also highlight concerns regarding transparency, accountability, and the redistribution of responsibility between professionals and automated systems (Andersson et al., 2022; Kaun, 2022; Nordesjö et al., 2024). Several studies emphasise that professionals continue to play a crucial role in interpreting and overseeing automated outputs, particularly in complex cases (Kaun et al., 2025; Mesiäislehto et al., 2024; Tynkkynen et al., 2025).

Studies: Andersson et al., 2022; Kaun, 2022; Kaun et al., 2025; Mesiäislehto et al., 2024; Nordesjö et al., 2024; Petersen et al., 2020; Svensson & Ranerup, 2024; Stranz et al., 2024; Tynkkynen et al., 2025.

5. Digital communication and participation tools (6 studies)

Category description

Digital communication technologies used for interaction and contact (e.g. messaging/communication modes), with implications for participation and voice.

This category includes digital technologies primarily used to support communication and interaction between professionals and service users, such as messaging functions, digital meetings, or other communication-oriented tools. These technologies often overlap with user-facing services but are distinguished by their specific focus on interaction, dialogue, and participation.

The studies in this category address how digital communication tools may enable new forms of contact and participation, potentially lowering thresholds for engagement. They also point to changes in how voice, presence, and relationships are enacted when communication is mediated through digital channels.

Study results thematically matching this category

Results related to digital communication tools show that technologies enabling messaging, digital meetings, or asynchronous contact can facilitate ongoing interaction and responsiveness between professionals and service users (Aasback & Røkkum, 2021; Oestergaard & Dinesen, 2019). At the same time, studies note that digital communication alters the conditions for participation and voice, requiring new professional competencies and negotiated boundaries regarding availability and responsibility (Aasback, 2022; Kirjavainen & Jalonen, 2023; Løberg, 2021). Some findings suggest that digital communication may enhance participation for some users while excluding others (Antczak et al., 2019).

Studies: Andersson et al., 2022; Kaun, 2022; Kaun et al., 2025; Mesiäislehto et al., 2024; Nordesjö et al., 2024; Petersen et al., 2020; Svensson & Ranerup, 2024; Stranz et al., 2024; Tynkkynen et al., 2025.

6. Digital infrastructures, e-government, and interoperability (2 studies)

Category description

Broader infrastructures enabling coordination across services/levels, e-government functions, and interoperability/integration of systems.

This category covers broader digital infrastructures that enable coordination, data exchange, and integration across services, organisations, and administrative levels. These technologies are often part of e-government initiatives and focus on interoperability rather than direct service delivery.

Although represented by a smaller number of studies, this category highlights the infrastructural conditions underpinning digitalisation in IFS. The research illustrates how shared systems and integrated infrastructures shape information flows, inter-organisational collaboration, and the boundaries between different welfare services.

Study results thematically matching this category

The limited number of studies focusing on digital infrastructures report that shared systems and interoperable platforms are central to coordination across services and administrative levels (Juvonen et al., 2022; Svensson & Ranerup, 2024). Results also highlight both technical and organisational challenges related to data sharing, responsibility allocation, and governance.

Studies: Juvonen et al., 2022; Svensson & Ranerup, 2024.

Synthesised effects of health and welfare technology/digitalisation in individual and family services

This section synthesises the reported effects of digitalisation in Nordic IFS as identified in the included literature. The synthesis is organised into five thematic effect areas and explicitly linked to the categories of HWT identified. Effects are primarily described in qualitative and practice-oriented terms, reflecting the methodological approaches of the included studies.

Service accessibility and availability

Across studies addressing user-facing digital services and self-service solutions and digital communication tools, digitalisation is frequently reported to influence the accessibility and availability of social services. Digital tools such as apps, online interventions, and web-based services are described as enabling contact independent of time and place, potentially lowering thresholds for initial engagement and ongoing support (Aasback & Røkkum, 2021; Hansen et al., 2017; Kirjavainen & Jalonen, 2023; Løberg, 2021; Mackrill et al., 2015; Mackrill & Ørnbøll, 2019; Scaramuzzino et al., 2024; Sorbring et al., 2015).

Several studies indicate that digital services can complement existing service provision by offering additional points of access, particularly for families who may otherwise find it difficult to attend in-person meetings (Aasback, 2022; Mesiäislehto et al., 2024; Oestergaard & Dinesen, 2019). However, the literature also highlights uneven conditions for digital access, with differences in digital literacy, access to devices, and user preferences shaping who benefits from digital services (Antczak et al., 2019; Nordesjö et al., 2024; Östlund et al., 2024; Tynkkynen et al., 2025). These findings suggest that while digitalisation may expand availability, it does not automatically ensure equitable access.

Studies: Aasback & Røkkum, 2021; Aasback, 2022; Andersson et al., 2022; Antczak et al., 2019; Hansen et al., 2017; Juvonen et al., 2022; Mackrill et al., 2015; Mackrill & Ørnbøll, 2019; Mesiäislehto et al., 2024; Nordesjö et al., 2024; Kirjavainen & Jalonen, 2023; Løberg, 2021; Løberg & Egeland, 2023; Oestergaard & Dinesen, 2019; Petersen et al., 2020; Scaramuzzino et al., 2024;

Sorbring et al., 2015; Tynkkynen et al., 2025; Östlund et al., 2024.

Quality of assessments and interventions

Effects related to the quality of assessments and interventions are primarily discussed in studies focusing on case management and documentation systems and the hybrid socio-technical digitalisation of practice. Rather than measuring quality outcomes, the studies describe how digital tools shape assessment processes, professional reasoning, and the structuring of client information (Cuesta et al., 2020; Mackrill & Svendsen, 2021; Stranz et al., 2024).

Digital documentation systems are reported to improve structure and consistency in assessments, policy-oriented but also to prioritise what can be captured within predefined digital formats (Aasback & Røkkum, 2021; Hansen & Gerdtts-Andresen, 2023; Kirjavainen & Jalonen, 2023). Several studies raise concerns that complex family situations and contextual knowledge may be difficult to translate into standardised digital categories, potentially affecting holistic assessments and intervention planning (Løberg & Egeland, 2023; Nordesjö et al., 2024; Scaramuzzino et al., 2024).

Overall, the literature suggests that digital tools influence assessment quality indirectly by shaping professional practices and organisational conditions rather than by directly improving or reducing the quality of interventions.

Studies: Aasback & Røkkum, 2021; Aasback, 2022; Andersson et al., 2022; Antczak et al., 2019; Hansen et al., 2017; Juvonen et al., 2022; Mackrill et al., 2015; Mackrill & Ørnbøll, 2019; Mesiäislehto et al., 2024; Nordesjö et al., 2024; Kirjavainen & Jalonen, 2023; Løberg, 2021; Løberg & Egeland, 2023; Oestergaard & Dinesen, 2019; Petersen et al., 2020; Scaramuzzino et al., 2024; Sorbring et al., 2015; Tynkkynen et al., 2025; Östlund et al., 2024.

Professional roles, discretion, and working conditions

Changes in professional roles, discretion, and working conditions constitute one of the most prominent effect areas across the included studies. These issues are discussed across several categories, including hybrid socio-technical digitalisation of practice; case management; documentation and administrative systems; and decision support, automation, algorithms and AI. Such issues also appear in studies focusing on user-facing technologies.

Digital systems are reported to restructure professional work by increasing documentation demands, introducing new forms of accountability, and shaping how discretion is exercised (Aasback & Røkkum, 2021; Bakkeli & Grønningsæter,

2020; Mackrill & Ørnbøll, 2019; Svensson & Ranerup, 2024). Professionals describe adapting their practices to system requirements, sometimes experiencing tensions between professional judgement and digital system logics (Andersson et al., 2022; Hansen et al., 2018; Stranz et al., 2024).

Studies addressing automation and decision-support systems further highlight concerns related to responsibility and oversight, particularly in cases in which algorithmic outputs influence decisions about eligibility or service provision (Kaun, 2022; Nordesjö et al., 2024; Petersen et al., 2020; Tynkkynen et al., 2025). At the same time, professionals are described as remaining central actors who interpret, contextualise, and sometimes override automated processes (Kaun et al., 2025; Mesiäislehto et al., 2024).

Studies: Aasback & Røkkum, 2021; Aasback, 2022; Andersson et al., 2022; Antczak et al., 2019; Hansen et al., 2017; Juvonen et al., 2022; Mackrill et al., 2015; Mackrill & Ørnbøll, 2019; Mesiäislehto et al., 2024; Nordesjö et al., 2024; Kirjavainen & Jalonen, 2023; Løberg, 2021; Løberg & Egeland, 2023; Oestergaard & Dinesen, 2019; Petersen et al., 2020; Scaramuzzino et al., 2024; Sorbring et al., 2015; Tynkkynen et al., 2025; Östlund et al., 2024.

User experiences, participation, and trust

User experiences and participation are most prominently discussed in studies focusing on user-facing digital services and digital communication tools. The results suggest that digital tools may offer new opportunities for participation and engagement, particularly by enabling flexible forms of contact and communication (Kirjavainen & Jalonen, 2023; Løberg, 2021; Mackrill et al., 2015; Sorbring et al., 2015).

At the same time, several studies report ambivalent user experiences: Digital contact is appreciated in some situations, but it is perceived as insufficient or inappropriate in others, particularly when trust-building and relational work are central (Antczak et al., 2019; Oestergaard & Dinesen, 2019; Östlund et al., 2024). Trust is described as closely linked to continuity, clarity of communication, and the perceived responsiveness of professionals, rather than to the technology itself (Nordesjö et al., 2024; Tynkkynen et al., 2025). Overall, the literature suggests that digitalisation reshapes conditions for participation and trust but does not replace the relational dimensions of social work.

Studies: Aasback & Røkkum, 2021; Aasback, 2022; Antczak et al., 2019; Hansen et al., 2017; Kirjavainen & Jalonen, 2023; Løberg, 2021; Mackrill et al., 2015; Mackrill & Ørnbøll, 2019; Nordesjö et al., 2024; Oestergaard & Dinesen, 2019;

Scaramuzzino et al., 2024; Sorbring et al., 2015; Tynkkynen et al., 2025; Östlund et al., 2024.

Efficiency, standardisation, and administrative workload

Reported effects related to efficiency and administrative workload are central in studies focusing on administrative systems and studies centring on automation and algorithmic technologies. Digitalisation is often introduced with the expectation of increased efficiency, faster processing times, and improved standardisation (Petersen et al., 2020; Svensson & Ranerup, 2024).

The results show that while automation and digital systems may streamline certain tasks, they also contribute to increased documentation requirements and administrative responsibilities for professionals (Aasback & Røkkum, 2021; Hansen & Gerdtz-Andresen, 2022; Mackrill & Svendsen, 2021). Several studies describe efficiency gains as uneven and context-dependent, sometimes accompanied by new forms of work rather than reduced workload (Cuesta et al., 2020; Nordesjö et al., 2024; Stranz et al., 2024).

Studies: Andersson et al., 2022; Kaun, 2022; Kaun et al., 2025; Mesiäislehto et al., 2024; Nordesjö et al., 2024; Petersen et al., 2020; Stranz et al., 2024; Svensson & Ranerup, 2024; Tynkkynen et al., 2025.

Summary of effects of digitalisation in individual and family services (IFS)

Across the five effect areas, the synthesis demonstrates that digitalisation in Nordic IFS produces interconnected and context-dependent effects. Rather than generating uniform outcomes, HWT reshapes accessibility, professional practice, organisational routines, and governance arrangements in ways that vary across technologies and contexts. The results underline the importance of understanding digitalisation as a socio-technical process embedded in everyday practice, rather than as a set of discrete technical interventions.

Cross-category synthesis of health and welfare technology (HWT) in individual and family services (IFS)

Taken together, the six categories of HWT illustrate that HWT in Nordic IFS operates across multiple, interconnected levels of service provision, ranging from direct user interaction to organisational infrastructures and broader socio-technical transformations (Frennert & Östlund, 2018; Gustafsson, 2020; Kamp et al., 2019).

A central pattern across the mapping is the co-existence of front-end and back-end

digitalisation. User-facing digital services and self-service solutions (Category 2) and digital communication and participation tools (Category 5) primarily shape how children, young people, and families access services, engage with support, and maintain contact with professionals (Løberg, 2021; Mackrill & Ørnbøll, 2019; Sorbring et al., 2015). These technologies are closely linked to everyday experiences of social services and are often framed in terms of accessibility, participation, and flexibility. They also frequently rely on, and are shaped by, back-end systems for case management, documentation, and administration (Category 3), which structure professional work, information practices, and organisational routines (Stranz et al., 2024; Svensson & Ranerup, 2024).

Another cross-cutting theme concerns the increasing role of automation and data-driven decision support. Technologies categorised under decision support, automation, algorithms, and AI (Category 4) intersect with both administrative systems and organisational infrastructures, indicating that digitalisation in IFS is not limited to communication or documentation but increasingly influences decision-making processes and governance arrangements (Kaun, 2022; Mesiäislehto et al., 2024; Petersen et al., 2020). Although represented by a smaller number of studies, this category (4) highlights emerging forms of digitalisation with potentially far-reaching implications for professional discretion, accountability, and transparency (Andersson et al., 2022; Nordesjö et al., 2024).

The mapping also shows that digital infrastructures and e-government solutions (Category 6), while less frequently studied as a primary focus, form an important enabling layer for other types of HWT. These infrastructures support interoperability, coordination across services, and information sharing, thereby underpinning both user-facing services and internal administrative systems (Juvonen et al., 2022; Svensson & Ranerup, 2024).

Importantly, more than half of the included studies are captured by the category of hybrid socio-technical digitalisation of practice (Category 1). This reflects a strong tendency in Nordic research to conceptualise digitalisation not as the implementation of isolated tools but as an ongoing socio-technical process embedded in professional practices, organisational cultures, and institutional contexts (Berg, 1999; Orlikowski, 2007; Stranz et al., 2024). The frequent overlap between this category and the other five underscores that HWT in IFS is best understood as a set of interrelated technological, organisational, and professional transformations rather than as discrete technical solutions (Gustafsson, 2020; Kamp et al., 2019).

Overall, the cross-category synthesis indicates that digitalisation in Nordic IFS is multi-layered, interconnected, and process-oriented. The mapped research demonstrates how HWT simultaneously reshapes service-user contact, professional practice, organisational structures, and governance arrangements, highlighting the need for analytical approaches that attend to these interactions rather than focusing on single technologies in isolation (Frennert & Östlund, 2018; Nordic

Policy-oriented synthesis: Implications for Nordic welfare policy

The cross-category mapping highlights that digitalisation in Nordic IFS is not a single reform initiative but a multi-layered transformation affecting service users, professional practice, organisational structures, and governance arrangements simultaneously (Gustafsson, 2020; Kamp et al., 2019). From a policy perspective, this underscores the importance of addressing HWT as an integrated part of welfare development rather than as isolated technical solutions, a position also emphasised in recent Nordic policy work on proactive and sustainable HWT development (Melkas et al., 2023; Nordic Council of Ministers, 2020a).

First, several aspects of the included studies have important implications for policy, the prominence of user-facing digital services and digital communication tools indicates that digitalisation increasingly shapes how children, young people, and families access support and interact with social services (Mackrill & Ørnbøll, 2019; Sorbring et al., 2015). While these technologies may improve accessibility and flexibility, the mapped research suggests a need for policy frameworks that explicitly address issues of digital inclusion, participation, and the protection of rights, particularly for vulnerable groups who may face barriers to digital engagement (Frennert & Östlund, 2018; Melkas et al., 2023; Nordic Council of Ministers, 2021).

Second, the extensive use of case management, documentation, and administrative systems highlights that much of the digital transformation in IFS occurs 'behind the scenes', structuring professional work and organisational routines (Stranz et al., 2024; Svensson & Ranerup, 2024). From a policy perspective, this points to the importance of considering how documentation requirements, system design, and standardisation efforts influence professional discretion, workload, and service quality, rather than focusing solely on efficiency gains (Kamp et al., 2019).

Third, the emergence of automation, decision-support systems, algorithms, and AI raises distinct governance challenges. Although currently explored by relatively few studies, these technologies have potentially far-reaching implications for transparency, accountability, and the distribution of responsibility between professionals and automated systems (Kaun, 2022; Petersen et al., 2020). The mapping of digitalisation and HWT in Nordic IFS suggests a need for Nordic policy development that proactively addresses ethical, legal, and organisational questions related to ADM in social services, rather than responding reactively once such systems are widely implemented (Andersson et al., 2022; European Commission, 2019).

Fourth, the limited but strategically important body of research on digital

infrastructures and interoperability indicates that coordination across services and administrative levels is a key, yet underexplored, policy issue (Juvonen et al., 2022). Effective digitalisation in IFS depends not only on individual tools but on shared infrastructures that enable information exchange and collaboration while safeguarding data protection and privacy. Recent comprehensive Nordic policy briefs further stress that such coordination requires clear governance structures, shared goals, and cross-sector leadership to support integrated, distance-spanning solutions (Melkas et al., 2024; Nordic Council of Ministers, 2020a).

Finally, the strong presence of hybrid socio-technical perspectives across the mapped studies suggests that Nordic research consistently emphasises that digitalisation is inseparable from organisational culture, professional practice, and implementation processes (Berg, 1999; Orlikowski, 2007; Stranz et al., 2024). For policymakers, this implies that successful digital transformation in IFS requires sustained investment in organisational learning, professional competence development, and participatory implementation approaches, rather than one-off technological deployments – a perspective mirrored in Nordic policy-oriented research on proactive HWT implementation (Gustafsson, 2020; Melkas et al., 2023).

Taken together, the mapping indicates that Nordic welfare policy on digitalisation in IFS would benefit from a holistic approach that integrates user perspectives, professional conditions, organisational capacities, and governance frameworks. Such an approach is essential for ensuring that HWT contributes to high-quality, equitable, and trustworthy social services across the Nordic countries (Kamp et al., 2019; Melkas et al., 2024; Nordic Council of Ministers, 2021).

Part II – Grey literature and review-based sources: Policy, governance, and documentation dynamics in Nordic individual and family services

Anderson et al., 2019; Andersson & Engwall, 2025; Buitrago et al., 2023; Eurofound, 2020; Jørgensen, 2023; Kozica & Malmberg-Heimonen, 2025; Motsi-Omoijade et al., 2024; Randall et al., 2018; Swedish eHealth Agency, 2022; Vestergård & Lundgren, 2020; Wendt-Lucas et al., 2024.

In addition to the 48 empirical studies included, Part II synthesises a complementary body of grey literature (n = 11). The grey literature consisted primarily of research institute reports, EU policy reports, and national governmental publications.

Compared with the empirical material presented in Part I, these sources

predominantly address digitalisation from a structural, governance, and system-development perspective. A smaller subset provides practice-relevant insights into how digital documentation models, and information and communication technology systems shape professional work and client representation. The thematic synthesis identified three overarching clusters: (1) digital social services as structural reform, (2) digital documentation and interoperability, and (3) digital inequalities and organisational capacity.

Digital social services as structural reform

Across EU-level and national reports, digitalisation is framed as a strategic and structural transformation of welfare systems (Anderson et al., 2019; Buitrago et al., 2023; Eurofound, 2020). Digital social services are positioned as mechanisms for increasing accessibility, enhancing efficiency, streamlining administrative workflows, and strengthening system resilience (Eurofound, 2020; Motsi-Omoijade et al., 2024). The COVID-19 pandemic is repeatedly described as a catalyst accelerating digital transformation, leading to the expansion of remote counselling, digital helplines, online benefit applications, telework, and app-based mental health support (Buitrago et al., 2023; Motsi-Omoijade et al., 2024).

Nordic welfare systems are frequently characterised as digitally advanced, with high levels of digital readiness, established digital identity infrastructures, and strong national digital strategies (Randall et al., 2018; Swedish eHealth Agency, 2022; Wendt-Lucas et al., 2024). However, despite this level of advancement, reports emphasise ongoing challenges related to implementation, coordination, and equitable access (Buitrago et al., 2023; Eurofound, 2020; Jørgensen, 2023). In contrast to the empirical studies in Part I, these documents rarely examine how digitalisation affects relational practice or professional judgement at the micro level, and they tend to emphasise reform rationales and system-level ambitions rather than documented practice outcomes.

Digital documentation and interoperability

Digital documentation is primarily framed as part of broader digital infrastructure and governance architecture rather than as a matter of everyday professional documentation practice (Anderson et al., 2019; Buitrago et al., 2023; Eurofound, 2020). Key topics in this regard include interoperability between agencies, national data-sharing platforms, secure digital identity systems, electronic record integration, and automation of administrative processes (Motsi-Omoijade et al., 2024; Wendt-Lucas et al., 2024). Several sources highlight uneven municipal implementation and persistent fragmentation across organisational levels,

positioning interoperability as both a technical and a governance challenge (Eurofound, 2020; Jørgensen, 2023).

In addition, a subset of the included material adds a more practice-oriented layer by illustrating how structured digital documentation systems and standardised documentation models may shape professional discretion, categorisation practices, and the representation of service users (Andersson & Engwall, 2025; Kozica & Malmberg-Heimonen, 2025). In this sense, digital documentation is not only an infrastructural prerequisite for coordination; it can also function as a governance technology that influences how needs are defined, legitimised, and recorded within social services (Andersson & Engwall, 2025; Kozica & Malmberg-Heimonen, 2025).

Digital inequalities and organisational capacity

A recurring theme concerns structural digital divides (Buitrago et al., 2023; Eurofound, 2020; Wendt-Lucas et al., 2024). At the workforce level, variations in digital device use, access to training, and organisational digital readiness are highlighted, suggesting that digitalisation depends on competence development and workplace capacity (Jørgensen, 2023; Motsi-Omoijade et al., 2024). At the service-user level, risks of digital exclusion persist among vulnerable groups, particularly in cases in which 'online-first' strategies are implemented (Buitrago et al., 2023; Eurofound, 2020). Digitalisation is thus framed simultaneously as a tool for inclusion and as a potential source of new exclusion mechanisms unless accessibility safeguards and alternative service pathways are maintained (Motsi-Omoijade et al., 2024; Wendt-Lucas et al., 2024).

Analytical contrast with empirical studies

Compared to the empirical studies in Part I, the literature in Part II demonstrates a distinct macro-level orientation, emphasising governance frameworks, infrastructural development, and system optimisation (Anderson et al., 2019; Buitrago et al., 2023; Eurofound, 2020). It provides limited country-specific outcome analysis and often lacks detailed examination of relational and discretionary dimensions of practice (Motsi-Omoijade et al., 2024; Wendt-Lucas et al., 2024). However, review-based and practice-adjacent contributions within Part II complement the studies in Part I by highlighting how digital documentation and information and communication technology systems may restructure professional work, administrative burden, and client representation (Andersson & Engwall, 2025; Kozica & Malmberg-Heimonen, 2025).

Taken together, the literature in Part II adds to the empirical findings by situating

digitalisation within broader welfare governance agendas and infrastructural reform trajectories (Buitrago et al., 2023; Eurofound, 2020; Randall et al., 2018). While Part I illustrates how digital technologies are enacted and negotiated in everyday practice, Part II reveals how digitalisation is constructed as a strategic reform project shaping the structural and institutional conditions under which frontline digitalisation unfolds (Motsi-Omoijade et al., 2024; Wendt-Lucas et al., 2024). Building on these two analytical layers, the following section integrates both bodies of literature through a structured mapping and synthesis of HWT in Nordic IFS, identifying cross-cutting categories, patterns, and policy-relevant implications.

Reflections on the state of Nordic knowledge regarding health and welfare technology in individual and family services

This section critically reflects on the current state of Nordic research on digitalisation in IFS, drawing on the mapping of the literature, the categorisation of HWT types, and the synthesis of reported effects presented in previous sections. Together, the findings indicate a rapidly expanding and increasingly dynamic research field, particularly since 2020. The review also reveals structural imbalances, conceptual gaps, and methodological limitations that shape both what is currently known and what remains insufficiently explored regarding digitalisation in IFS.

The reflections in this section should be understood within the broader context of Nordic welfare transformation processes, in which digitalisation has been framed as a strategic reform agenda and a key instrument for modernising public services (Kamp et al., 2019; Nordic Council of Ministers, 2020a). The analysis of grey literature further demonstrates that digitalisation is frequently conceptualised at the policy level as a structural transformation of welfare systems, emphasising governance frameworks, digital infrastructures, interoperability, and administrative efficiency. This macro-level orientation contrasts with much of the empirical research literature, which more often focuses on organisational processes and professional practices within specific service settings. Together, these two bodies of literature reveal a gap between policy-driven narratives of digital transformation and the empirical knowledge base that documents how digital technologies are enacted in everyday IFS practice. While the research field is vibrant and innovative, it remains uneven and fragmented in important respects, as discussed below.

Uneven country representation and limited comparative knowledge

Although firmly anchored in the Nordic region, the evidence base is unevenly distributed across countries. Denmark, Finland, Norway, and Sweden dominate the literature, while Iceland is absent from the included sample. This imbalance may

reflect differences in research infrastructure, publication practices, language dissemination, or the maturity of digitalisation initiatives.

Moreover, the uneven country representation limits the extent to which findings can be generalised across the Nordic region. It also highlights the need for systematic cross-Nordic comparative research. Comparative approaches are essential for understanding how different welfare regimes, administrative traditions, governance structures, and legal frameworks shape the implementation and consequences of digitalisation in IFS (Frennert & Östlund, 2018; Kamp et al., 2019). Without such perspectives, it remains difficult to distinguish national particularities from broader Nordic trends.

Strong organisational and professional focus, but limited user-centred research

The mapping of primary target groups demonstrates a pronounced emphasis on organisational, professional, and governance-related dimensions of digitalisation. A large proportion of studies focus on case management systems, documentation practices, automation, and administrative infrastructures. Fewer studies centre on the lived experiences of children, young people, and families.

The grey literature also highlights how digital documentation systems and standardised documentation models increasingly function as governance technologies within social services. Structured documentation frameworks, classification systems, and interoperable information infrastructures do not merely record professional assessments but may also shape how needs are categorised, legitimised, and represented within administrative systems. Despite the potential implications of these dynamics for professional discretion and client representation, they remain relatively underexplored in Nordic empirical research.

This imbalance mirrors a broader pattern in digital welfare research, in which system-level and professional perspectives often take precedence over user-centred analyses (Gillingham, 2019; Eubanks, 2018). In the context of Nordic social work – in which participation, relational trust, and user involvement are core normative principles – this represents a significant gap.

Empirical evidence concerning how digitalisation affects participation, accessibility, trust, and power relations in everyday IFS practice remains limited. Issues related to digital inclusion and differentiated access to technology are particularly underexplored (Frennert & Östlund, 2018; Nordregio, 2024). Findings from policy and review literature further suggest that digitalisation is closely linked to organisational capacity and workforce readiness. Variations in digital competence, access to training, and organisational infrastructure influence how digital systems are implemented and used in practice. Furthermore, digital 'online-first' service strategies may risk reinforcing exclusion among vulnerable groups unless alternative service pathways and accessibility safeguards are maintained.

Strengthening user-centred and participatory research is therefore essential for assessing whether digitalisation promotes – or risks undermining – equity and inclusion.

Concentration in certain practice areas

The distribution of research across practice areas reveals a concentration within the areas of child and family services and administrative infrastructures. Preventive and community-based services, as well as substance use services, are comparatively underrepresented.

This suggests that digitalisation is more frequently studied in administrative and governance contexts than in relational, preventive, and community-oriented domains of social work. Such a pattern aligns with international findings indicating that digital transformation often begins in rule-based and administratively structured areas before extending to more complex relational practice domains (Buffat, 2015; Gillingham, 2019). Given that preventive and community-based approaches are central components of Nordic welfare models, their limited representation constitutes an important knowledge gap.

A relatively new and rapidly evolving evidence base

The temporal distribution of publications demonstrates a marked increase since 2020. This expansion likely reflects intensified digital transformation agendas across Nordic welfare states and the acceleration of digital service delivery during the COVID-19 pandemic (OECD, 2021).

While this growth indicates a dynamic and evolving research field, it also means that much of the evidence base is recent. Longitudinal research is scarce, and there is limited knowledge concerning the long-term organisational, professional, and client-level consequences of digitalisation in IFS. Questions related to sustainability, institutionalisation, professional identity, and enduring service outcomes remain insufficiently examined.

Furthermore, the analysis of the grey literature indicates that policy ambitions and strategic reform narratives surrounding digitalisation often advance more rapidly than the empirical evidence documenting their consequences in practice. Digital transformation is widely promoted as a tool for improving efficiency, accessibility, and coordination across welfare systems, yet systematic evaluations of its long-term impacts on professional practice, organisational dynamics, and client outcomes remain limited. Addressing this gap represents an important priority for future Nordic research on HWT in IFS.

Methodological imbalance

The methodological profile of the field is dominated by qualitative research. This

has generated rich insights into socio-technical processes, implementation dynamics, professional meaning-making, and organisational adaptation (Berg, 1999; Orlikowski, 2007). Such approaches are particularly valuable for understanding complex welfare contexts.

However, quantitative, comparative, and evaluative studies remain relatively scarce. This limits the ability to draw more generalisable conclusions regarding effectiveness, cost-efficiency, and equity outcomes. As a result, policy discussions about the benefits and risks of digitalisation in IFS often rely on reform narratives rather than robust outcome evidence (Kamp et al., 2019).

Technology optimism and expectations of digital transformation

Another topic meriting reflection is the presence of technology optimism within Nordic welfare policy discourse and, to some extent, in the research literature. Digitalisation and HWT are frequently framed as solutions to structural challenges such as demographic change, labour shortages, fiscal constraints, and increasing service demands (Kamp et al., 2019; Nordic Council of Ministers, 2020). Policy reports and governance-oriented analyses often present digital social services as instruments for improving accessibility, strengthening system coordination, enhancing efficiency, and increasing the resilience of welfare systems.

The analysis of the grey literature further illustrates how digitalisation is frequently framed as a structural reform of welfare governance. EU-level and national reports emphasise infrastructural development, interoperability between agencies, secure digital identity systems, and the integration of digital documentation systems as key elements of modern welfare administration. Within these narratives, digital transformation is positioned as a central strategy for modernising public services and enabling more efficient and coordinated service delivery.

However, the mapping conducted in this review suggests that empirical evidence concerning long-term outcomes, cost-efficiency, and equity effects remains limited. Much of the existing research focuses on implementation processes, professional adaptation, and organisational change rather than systematically measured impacts. The contrast between ambitious reform narratives and the still-emerging empirical evidence base reflects what has been described internationally as technology optimism or techno-solutionism – the assumption that technological innovation can resolve complex social and organisational challenges (Eubanks, 2018; Sætra & Selinger, 2024).

In the context of IFS, in which practice is relational, discretionary, and ethically complex, digitalisation cannot be understood as a neutral technical intervention. Its consequences depend on socio-technical arrangements, organisational contexts, governance frameworks, and professional judgement (Orlikowski, 2007). As highlighted in both the empirical studies and the grey literature analysed, digital infrastructures such as documentation systems, data-sharing platforms, and

automated administrative tools may reshape professional practices, categorisation processes, and organisational workflows in ways that are not always anticipated in policy discourse.

Recognising this does not imply rejecting digital innovation. Rather, implementation of HWT highlights the need for critical, evidence-informed, and participatory approaches to digital transformation in Nordic IFS. Bridging the gap between policy ambitions and empirical knowledge is essential for ensuring that digitalisation supports equitable, effective, and ethically grounded service provision.

Overall assessment

Taken together, Nordic research on digitalisation in IFS can be characterised as innovative, context-sensitive, and attentive to socio-technical complexity. The field provides valuable insights into how digital tools are embedded in professional work and organisational structures. However, the evidence base remains fragmented and uneven.

Key gaps include the following:

- Limited cross-Nordic comparative research
- Insufficient amount of user-centred and participatory studies
- Underrepresentation of preventive and community-based practice areas
- Scarcity of longitudinal research
- Limited systematic evaluation of organisational, client-level, and equity outcomes
- Methodological imbalance favouring qualitative designs over evaluative approaches

Addressing these gaps would strengthen the Nordic knowledge base and support more balanced, evidence-informed, and equitable digital transformation in IFS.



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6. Implications for policy and governance

This section outlines key implications for Nordic policymakers, decision-makers, public authorities, and practitioners engaged in the digitalisation of individual and family services (IFS). The recommendations are grounded in the findings of this review and are further informed by recent Nordic policy briefs (The PROTECT policy brief: Melkas et al., 2023) and on proactive health and welfare technology (HWT) governance and integrated distance-spanning solutions (The iHAC governance brief: Melkas et al., 2024).

Both the empirical research literature and the grey literature analysed in this review indicate that digitalisation in IFS is increasingly framed as a structural transformation of welfare governance. Policy reports emphasise the development of digital infrastructures, interoperable data systems, and integrated administrative platforms as key mechanisms for modernising welfare services.

However, the empirical evidence base documenting the long-term organisational, professional, and client-level consequences of these reforms remains limited. This demonstrates the importance of approaching digitalisation not merely as technological innovation but as a complex socio-technical governance process requiring coordinated action across multiple institutional levels.

The recent Nordic policy briefs' solutions (Melkas et al., 2023; Melkas et al., 2024) emphasise that digitalisation must be approached as a coordinated, multi-level transformation involving governance (macro level), organisational leadership and implementation (meso level), and professional practice and service-user interaction (micro level). The implications listed below reflect this systemic perspective and underline that sustainable digitalisation in IFS requires strategic alignment, integrated governance structures, and attention to both human and organisational dimensions.

1. Strengthen cross-Nordic collaboration and shared learning ecosystems

Given the uneven country representation identified in this review, there is a need for more structured Nordic collaboration in research, policy development, and knowledge dissemination regarding digitalisation in IFS.

The grey literature analysed in this review suggests that digital transformation agendas are often developed within national governance frameworks, while empirical knowledge about their implementation remains fragmented across countries. This fragmentation limits opportunities for systematic learning across the Nordic region.

The PROTECT policy brief highlights that sustainable and proactive HWT development requires coordination across micro, meso, and macro levels, including cross-sectoral and cross-national learning (Melkas et al., 2023). Similarly, the iHAC governance brief underscores the importance of integrated governance models that transcend organisational silos and administrative boundaries for supporting coherent digital transformation (Melkas et al., 2024).

In practical terms, this could involve the following:

- Joint Nordic research programmes on digitalisation in IFS
- Shared knowledge platforms and comparative policy analyses
- Mechanisms for exchanging implementation experiences across municipalities and countries
- Development of common Nordic principles for ethical, inclusive, and sustainable digital welfare

Such collaboration would strengthen the region's collective capacity to govern digital transformation coherently, reduce duplication of effort, and promote shared

standards for transparency, equity, and quality.

2. Treat digitalisation as welfare governance, and not merely as technology implementation

The mapping of HWT categories (Table 6) demonstrates that much of the digital transformation in IFS occurs 'behind the scenes' through administrative systems, documentation infrastructures, automation, and interoperability solutions. These systems are not merely technical tools; they shape how information is structured, how decisions are documented, and how responsibilities are distributed across organisational levels.

The grey literature further highlights that digital documentation systems, data-sharing platforms, and integrated information infrastructures increasingly function as governance mechanisms within welfare systems. They influence accountability structures, professional discretion, and the ways in which service users' needs are categorised and represented within administrative processes.

Both policy briefs' solutions (Melkas et al., 2023; Melkas et al., 2024) stress that digitalisation should be understood as a governance issue rather than a technical procurement or an IT implementation matter. The PROTECT brief frames HWT as part of systemic reform requiring long-term strategic alignment across governance levels (Melkas et al., 2023). Furthermore, the iHAC brief emphasises that integrated and distance-spanning digital solutions demand clear leadership, coordinated decision-making, and defined responsibilities across institutional levels (Melkas et al., 2024).

The following actions are recommended for policymakers

- Embed digitalisation within broader welfare governance strategies.
- Clarify roles and responsibilities across national, regional, and municipal levels.
- Align digital strategies with professional standards, child rights frameworks, and social work ethics. Ensure that system design, data structures, and interoperability arrangements are subject to democratic and ethical scrutiny.

Addressing digitalisation as governance reform strengthens accountability and reduces the risk of fragmented or technology-driven development.

3. Balance efficiency objectives with relational and ethical foundations of social work

Digital tools are often introduced to enhance efficiency, standardisation, and coordination. Policy narratives frequently emphasise the potential of these tools to streamline administrative processes and improve system performance. However, the findings of this review indicate that digitalisation may also intensify documentation demands, managerial oversight, and standardisation pressures, potentially affecting professional discretion and relational practice.

The PROTECT brief stresses that HWT must promote human well-being and sustainable work practices rather than focusing solely on cost-efficiency (Melkas et al., 2023). Likewise, the iHAC brief underscores that successful digital integration requires attention to human factors such as trust, professional engagement, and organisational culture (Melkas et al., 2024).

The following actions are recommended for policy development:

- Safeguard professional discretion and relational work.
- Avoid over-standardisation that undermines contextual judgement.
- Ensure that digital systems support, rather than replace, professional responsibility.
- Evaluate digital reforms not only in terms of productivity but also in terms of service quality, trust, and equity.

Maintaining the relational and ethical foundations of social work is essential to preserving legitimacy in digitally mediated welfare systems.

4. Ensure equitable and system-wide digitalisation across individual family services practice areas

The review reveals that research and digital investment are concentrated in administrative systems and child and family services, while preventive, community-based, and substance use services remain underrepresented. At the same time, the grey literature highlights that digitalisation across welfare systems is frequently uneven in practice, with significant variation in implementation capacity between municipalities, organisations, and service sectors.

The PROTECT brief calls for sustainable HWT development that considers equity and inclusion at the societal (macro) level (Melkas et al., 2023). The broader policy literature analysed in this review further suggests that equitable digitalisation requires attention not only to technological access but also to organisational capacity, leadership, and institutional readiness. Differences in digital competence,

infrastructure, and administrative resources may create uneven implementation conditions across municipalities and service domains.

The following actions are recommended for policymakers:

- Develop digital strategies that encompass the full spectrum of IFS practice areas.
- Address digital divides affecting vulnerable groups and digitally marginalised populations.
- Ensure that smaller municipalities and less-resourced services are not excluded from digital development.
- Promote inclusive and accessibility-oriented design principles across sectors.
- Invest in organisational capacity, digital competence development, and implementation support.

A system-wide approach reduces the risk that digitalisation will reinforce existing structural inequalities within IFS and helps ensure that digital transformation benefits all service areas and population groups.

5. Develop proactive and integrated governance frameworks for automation and artificial intelligence

The increasing presence of decision-support systems, algorithms, and automation in IFS suggests a need for anticipatory governance. These technologies reshape responsibility, discretion, and accountability, particularly in high-stakes decision-making contexts.

The grey literature analysed in this review emphasises that digital infrastructures – including interoperable data systems, integrated documentation platforms, and automated administrative processes – are becoming central components of welfare governance. These systems influence how information flows between organisations, how decisions are documented, and how professional accountability is structured.

Both recent Nordic policy briefs emphasise proactive and coordinated governance. The PROTECT brief advocates anticipatory rather than reactive regulation of HWT (Melkas et al., 2023), while the iHAC brief highlights the need for integrated governance frameworks capable of managing complex, distance-spanning digital systems (Melkas et al., 2024).

In the context of IFS, such regulation implies the following:

- Clear ethical and legal frameworks for ADM
- Mandatory human oversight in high-stakes or complex cases

- Transparent documentation of algorithmic logic, decision rules, and data use
- Continuous monitoring and evaluation of system impacts on professional practice and client outcomes
- Cross-level coordination between policymakers, IT developers, and frontline professionals
- Governance arrangements that address interoperability and data-sharing across agencies

Proactive governance is essential to prevent the entrenchment of systems that may later prove difficult to reform and to ensure alignment with Nordic welfare values of transparency, accountability, and fairness.



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7. Implications for practice

Digitalisation in integrated individual and family services (IFS) is not merely a technical shift but a transformation of how services are designed, delivered, and governed. The following three implications highlight key areas where practice must evolve to ensure that digital tools support, rather than constrain, professional judgement, user engagement, and sustainable service development.

1. Promote user-centred and participatory digital design

Both recent Nordic policy briefs' solutions (Melkas et al., 2023; Melkas et al., 2024) emphasise co-creation and stakeholder involvement as prerequisites for sustainable HWT development. In IFS, this entails systematically involving children, young people, families, and frontline professionals in the design, implementation, and evaluation of digital interventions. Participatory approaches can enhance interventions' usability, legitimacy, and alignment with lived needs while strengthening democratic accountability. They also help ensure that digital systems

reflect the relational and contextual nature of social work practice.

2. Strengthen professional digital competence and ethical reflexivity

Digitalisation reshapes professional roles and responsibilities at the micro level. The PROTECT brief identifies competence development as a key condition for sustainable HWT use (Melkas et al., 2023).

The findings of this review also indicate that digital documentation systems, data infrastructures, and automated administrative tools increasingly shape how professional work is organised and recorded. Practitioners therefore require both technical competence and a critical understanding of how digital systems influence documentation practices, categorisation processes, and professional discretion. Practitioners require the following:

- Continuous professional development in digital systems and data governance.
- Training in ethical reasoning regarding automation and digital decision-making.
- Organisational support for critical reflection on how digital systems shape discretion, documentation practices, and client relationships.

Digital competence should be understood as a combination of technical, organisational, and ethical competence.

3. Foster organisational learning and reflective practice

The iHAC governance policy brief highlights leadership, organisational learning, and cross-sector coordination as key enablers of successful digital integration (Melkas et al., 2024). Reflective practice regarding digital tools should therefore be embedded within organisational structures. Given the rapid pace of digital transformation and the evolving nature of digital infrastructures, organisations need mechanisms that support continuous learning and adaptation.

Such mechanisms may include the following:

- Structured forums for discussing the unintended consequences of digital systems
- Mechanisms for systematic feedback from service users and professionals
- Iterative adaptation of digital systems based on practice experience
- Leadership commitment to learning-oriented implementation

Such processes strengthen resilience, adaptability, and long-term sustainability in

digital transformation.



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8. Implications for future research

In line with the multi-level perspective emphasised in the PROTECT policy brief (Melkas et al., 2023), future research should address digitalisation in IFS across governance (macro), organisational (meso), and practice (micro) levels. The findings of this review further highlight the need for research examining digital infrastructures, interoperability arrangements, and governance mechanisms shaping digital welfare systems.

Priorities for future research include the following:

- Comparative Nordic studies examining how governance models shape digitalisation trajectories
- Longitudinal research assessing long-term impacts on service quality,

professional practice, organisational culture, and client outcomes

- User-centred research foregrounding children's and families' perspectives on participation, trust, accessibility, and power relations
- Mixed-methods and quantitative evaluations to strengthen the evidence base regarding interventions' effectiveness, efficiency, and equity
- Research on underexplored practice areas, including preventive and substance use services
- Studies on digital infrastructures, interoperability, and integrated governance arrangements across welfare systems

A stronger and more balanced evidence base is necessary to support proactive, equitable, and sustainable digital welfare governance in the Nordic region.



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9. Conclusions

This report has presented a comprehensive scoping review of Nordic research and grey literature on health and welfare technology (HWT) and digitalisation in individual and family services (IFS). By combining a structured mapping of 48 empirical studies with a thematic synthesis of policy reports and strategic documents, the review provides a multi-layered understanding of how digitalisation unfolds within Nordic social services at both the practice level and the governance level.

The findings demonstrate that digitalisation in IFS is not a singular reform initiative but a complex, multi-dimensional, and ongoing socio-technical transformation. Across both empirical research and grey literature, digitalisation is shown to operate simultaneously at several interconnected levels:

- Shaping how children, young people, and families access and experience services

- Restructuring professional work, documentation practices, and decision-making
- Reconfiguring organisational routines and governance arrangements
- Influencing inter-organisational coordination, interoperability, and data infrastructures

While the empirical studies illuminate how these processes are negotiated in everyday professional practice, the grey literature situates them within broader policy frameworks that emphasise efficiency, resilience, interoperability, and digital governance as strategic priorities for Nordic welfare systems. Rather than representing discrete technological innovations, digitalisation should therefore be understood as an integrated transformation embedded in everyday social work practice, institutional frameworks, and Nordic welfare governance. The mapping of results across the six HWT categories illustrate this layered nature of digitalisation. Front-end, user-facing services and communication tools are closely intertwined with back-end administrative systems and increasingly connected to automation and decision-support technologies. These developments are enabled – and constrained – by broader digital infrastructures and strategic reform agendas identified in policy-level documents.

The synthesis of reported effects further highlights that digitalisation produces context-dependent and interconnected consequences rather than simply positive or negative outcomes. Digital tools may enhance accessibility and flexibility for some service users, yet they also risk reproducing inequalities linked to digital literacy, access, and organisational capacity. Policy reports similarly warn of structural digital divides and uneven municipal implementation, reinforcing the need to consider digital inclusion as a core welfare issue rather than a purely technical matter.

Documentation systems may strengthen transparency and consistency while simultaneously increasing administrative workload and negatively influencing professional discretion. Empirical studies show how digital case management systems shape professional judgement in practice, whereas grey literature frames documentation primarily as part of broader data governance, interoperability, and system-integration strategies. Together, these perspectives reveal a continuing tension between efficiency-oriented reform objectives and the relational values of social work.

Automation and ADM systems further illustrate this complexity. While automation may improve efficiency in rule-based tasks, it also raises fundamental questions regarding accountability, transparency, and professional responsibility. Policy-level documents often frame automation and AI as tools for system optimisation, whereas empirical research highlights the continuing importance of human

oversight and interpretative discretion. Across all HWT categories, one consistent finding emerges: Trust, professional judgement, and relational engagement remain central to effective social services. Digitalisation appears to complement rather than replace these core elements of practice.

From a policy perspective, digitalisation in IFS must therefore be approached primarily as a welfare governance challenge rather than as a narrow technical implementation project. The grey literature underscores that much of the digital transformation occurs 'behind the scenes' through infrastructural reform, interoperability initiatives, and digital identity systems that reshape accountability, autonomy, and service coordination. In addition, the expansion of user-facing digital services highlights the need to actively safeguard digital inclusion, participation, and the rights of children and families within digitally mediated welfare systems. The growing use of automation and AI further underscores the importance of proactive governance frameworks capable of balancing innovation with transparency, fairness, and human oversight.

Despite the rapid expansion of research on HWT and digitalisation in IFS since 2020, the Nordic knowledge base remains uneven and fragmented. Research is concentrated in certain countries and practice areas, with notable gaps concerning Iceland, preventive and community-based services, substance use services, and the lived experiences of service users. The grey literature provides valuable strategic perspectives but offers limited practice-level or country-specific outcome evaluations. Moreover, the predominance of qualitative research has generated rich contextual insights while leaving important questions regarding long-term impacts, effectiveness, and equity insufficiently addressed.

In conclusion, digitalisation is becoming a defining feature of IFS across the Nordic countries. Its trajectory is shaped not only by technological innovation but also by policy priorities, governance arrangements, organisational capacities, and professional norms. Ensuring that this transformation strengthens rather than undermines the core values of the Nordic welfare model requires sustained attention to and support for equity, participation, transparency, professional integrity, and sustainable digital infrastructures.

Ultimately, the development of HWT in IFS should not be driven by technological possibilities alone but guided by a continued commitment to the well-being, rights, and trust of children, young people, families, and communities within the Nordic welfare states.

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Appendix A

Health and welfare technology in social services

Sources

- Scopus
- Web of Science
- SocINDEX
- ASSIA
- Social Services Abstracts
- PubMed

Search strategy

Search matrices for each database are presented below.

Scopus (Elsevier), 2025-08-07

Search #	Search terms / keywords	Hits
1.	TITLE-ABS-KEY ("social work*" OR "social group work" OR "social welfare" OR "social service*" OR "welfare service*" OR "social security system*" OR "social assistance" OR "welfare provision" OR "Public Welfare" OR "Community Welfare" OR "child protection" OR "child welfare" OR "adolescent welfare" OR "relief work*" OR "social intervention*" OR "welfare work*" OR "case work*" OR casework*)	254,677

2.	TITLE-ABS-KEY (digital* OR technolog* OR electronic* OR e-service* OR e-government* OR "e-social work" OR e-application* OR automation OR automatization OR automatisisation OR programming OR "artificial intelligence" OR ai OR algorithm* OR "big data" OR app OR apps OR "mobile application*" OR "application software" OR "social media" OR internet OR web* OR online OR software* OR computer* OR computing OR "smart phone*" OR "mobile phone*" OR chat OR robot* OR "information system*" OR blog* OR microblog* OR "decision support system*" OR gamification OR "text messag*" OR "instant messag*" OR hybrid OR "social bookmark*" OR backchannel* OR virtual* OR cyber* OR "social informatics" OR telecommunication* OR e-mail OR email OR "electronic mail" OR "voice mail system*" OR multimedia* OR video* OR television OR TV OR "communication* media" OR avatar* OR robot* OR "electronic communication*" OR streaming* OR "sociotechnical system*" OR "information processing" OR "information society" OR "information management" OR "data analysis")	23,138,914
3.	TITLE-ABS-KEY (scandinavia* OR nordic OR norway* OR norwegian* OR denmark* OR danish OR danes OR sweden* OR swedish OR swedes OR finland* OR finnish OR finns OR greenland* OR iceland* OR "Faroe Island*" OR faroes*)	814,753
4.	1 AND 2 AND 3	1,315
Limitations	-	
Total		1,315

Web of Science Core Collection (Clarivate), 2025-08-07

Search #	Search terms / keywords	Hits
1.	TS=("social work*" OR "social group work" OR "social welfare" OR "social service*" OR "welfare service*" OR "social security system*" OR "social assistance" OR "welfare provision" OR "Public Welfare" OR "Community Welfare" OR "child protection" OR "child welfare" OR "adolescent welfare" OR "relief work*" OR "social intervention*" OR "welfare work*" OR "case work*" OR casework*)	149,942
2.	TS=(digital* OR technolog* OR electronic* OR e-service* OR e-government* OR "e-social work" OR e-application* OR automation OR automatization OR automatisisation OR programming OR "artificial intelligence" OR ai OR algorithm* OR "big data" OR app OR apps OR "mobile application*" OR "application software" OR "social media" OR internet OR web* OR online OR software* OR computer* OR computing OR "smart phone*" OR "mobile phone*" OR chat OR robot* OR "information system*" OR blog* OR microblog* OR "decision support system*" OR gamification OR "text messag*" OR "instant messag*" OR hybrid OR "social bookmark*" OR backchannel* OR virtual* OR cyber* OR "social informatics" OR telecommunication* OR e-mail OR email OR "electronic mail" OR "voice mail system*" OR multimedia* OR video* OR television OR TV OR "communication* media" OR avatar* OR robot* OR "electronic communication*" OR streaming* OR "sociotechnical system*" OR "information processing" OR "information society" OR "Information management" OR "data analysis")	16,133,979
3.	TS=(scandinavia* OR nordic OR norway* OR norwegian* OR denmark* OR danish OR danes OR sweden* OR swedish OR swedes OR finland* OR finnish OR finns OR greenland* OR iceland* OR "Faroe Island*" OR faroes*)	621,707
4.	1 AND 2 AND 3	1,060
Limitations	-	

Total	1,060
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SocINDEX (EBSCO host), 2025-08-07

Find all my search terms

Search #	Search terms / keywords	Hits
1.	(TI "social work*" OR AB "social work*") OR (TI "social group work" OR AB "social group work") OR (TI "social welfare" OR AB "social welfare") OR (TI "social service*" OR AB "social service*") OR (TI "welfare service*" OR AB "welfare service*") OR (TI "social security system*" OR AB "social security system*") OR (TI "social assistance" OR AB "social assistance") OR (TI "welfare provision" OR AB "welfare provision") OR (TI "Public Welfare" OR AB "Public Welfare") OR (TI "Community Welfare" OR AB "Community Welfare") OR (TI "child protection" OR AB "child protection") OR (TI "child welfare" OR AB "child welfare") OR (TI "adolescent welfare" OR AB "adolescent welfare") OR (TI "relief work*" OR AB "relief work*") OR (TI "social intervention*" OR AB "social intervention*") OR (TI "welfare work*" OR AB "welfare work*") OR (TI "case work*" OR AB "case work*") OR (TI casework* OR AB casework*)	103 735

2.

DE "CHILD welfare" OR DE "CHILD abuse" OR DE "CHILD support" OR DE "COMMUNITY-based child welfare" OR DE "FOSTER home care" OR DE "INSTITUTIONAL care of children" OR DE "COMMUNICATION in social work" OR DE "DECISION making in child welfare" OR DE "FAMILY social work" OR DE "PERMANENCY planning" OR DE "SOCIAL case work" OR DE "CONFIDENTIAL communications in social case work" OR DE "SOCIAL case work reporting" OR DE "SOCIAL case work with children" OR DE "SOCIAL case work with teenagers" OR DE "SOCIAL case work with youth" OR DE "PUBLIC welfare" OR DE "ALMSHOUSES" OR DE "ASYLUMS (Institutions)" OR DE "CHILD welfare" OR DE "COMMUNITY organization" OR DE "FAITH-based initiative (Government program)" OR DE "FOOD stamps" OR DE "INCOME maintenance programs" OR DE "INSTITUTIONAL care" OR DE "MATERNALISM (Public welfare)" OR DE "NATIONAL service" OR DE "PRO bono publico legal services" OR DE "RURAL social services" OR DE "SOCIAL medicine" OR DE "SOCIAL work with migrant labor" OR DE "WELFARE dependency" OR DE "WELFARE fraud" OR DE "WELFARE state" OR DE "SOCIAL services" OR DE "ADOPTION agencies" OR DE "ARTS in social service" OR DE "CHARITIES" OR DE "COMMUNICATION in social work" OR DE "COMMUNITY organization" OR DE "COMMUNITY services" OR DE "COMMUNITY-based social services" OR DE "DRAMA in social services" OR DE "EVIDENCE-based social work" OR DE "FAMILY planning services" OR DE "FRIENDLY visiting" OR DE "HEALTH care intervention (Social services)" OR DE "HOMOPHOBIA in social work" OR DE "INDUSTRIAL welfare" OR DE "INTERVIEWING in social services" OR DE "MASS media & social services" OR DE "MEDICAL social work" OR DE "NATIONAL service" OR DE "OUTREACH programs" OR DE "PARAPROFESSIONALS in social services" OR DE "POLICE social work" OR DE "PRIVATE practice social work" OR DE "PSYCHIATRIC social work" OR DE "PUBLIC welfare" OR DE "RACISM in social services" OR DE "RURAL social services" OR DE "SCHOOL social work" OR DE "SERVICE learning" OR DE "SERVICES for abused wives" OR DE "SOCIAL advocacy" OR DE "SOCIAL case work" OR DE "SOCIAL group work" OR DE "SOCIAL services & race relations" OR DE "SOCIAL services case management" OR DE "SOCIAL services utilization" OR DE "SOCIAL work administration" OR DE "SOCIAL work theory" OR DE "SOCIAL work with Black people" OR DE "SOCIAL work with LGBTQ+ people" OR DE "SOCIAL work with children"

138 832

	OR DE "SOCIAL work with criminals" OR DE "SOCIAL work with disabled persons" OR DE "SOCIAL work with immigrants" OR DE "SOCIAL work with indigenous peoples" OR DE "SOCIAL work with men" OR DE "SOCIAL work with migrant labor" OR DE "SOCIAL work with minorities" OR DE "SOCIAL work with older people" OR DE "SOCIAL work with people with alcoholism" OR DE "SOCIAL work with people with drug addiction" OR DE "SOCIAL work with sex offenders" OR DE "SOCIAL work with single parents" OR DE "SOCIAL work with the homeless" OR DE "SOCIAL work with the underprivileged" OR DE "SOCIAL work with the unemployed" OR DE "SOCIAL work with women" OR DE "SOCIAL work with youth" OR DE "STUDENT volunteers in social services" OR DE "TASK-centered social work" OR DE "TEENAGE volunteers in social services" OR DE "TELEVISION in social services" OR DE "VIDEO recording in social services" OR DE "VOLUNTEER workers in social services" OR DE "WOMEN'S programs" OR DE "YOUNG volunteers in social services" OR DE "SOCIAL security" OR DE "WELFARE recipients" OR DE "EX-welfare recipients" OR DE "SOCIAL workers" OR DE "AFRICAN American social workers" OR DE "BLACK social workers" OR DE "BLIND social workers" OR DE "CHILD welfare workers" OR DE "LGBTQ+ social workers" OR DE "MALE social workers" OR DE "MINORITY social workers" OR DE "PARAPROFESSIONALS in social services" OR DE "SOCIAL worker attitudes" OR DE "WOMEN social workers" OR DE "YOUTH workers (Social services)"	
3.	1 OR 2	175 310

4.	(TI digital* OR AB digital*) OR (TI technolog* OR AB technolog*) OR (TI electronic* OR AB electronic*) OR (TI e-service* OR AB e-service*) OR (TI e-government* OR AB e-government*) OR (TI "e-social work" OR AB "e-social work") OR (TI e-application* OR AB e-application*) OR (TI automation OR AB automation) OR (TI automatization OR AB automatization) OR (TI automatisisation OR AB automatisisation) OR (TI programming OR AB programming) OR (TI "artificial intelligence" OR AB "artificial intelligence") OR (TI ai OR AB ai) OR (TI algorithm* OR AB algorithm*) OR (TI "big data" OR AB "big data") OR (TI app OR AB app) OR (TI apps OR AB apps) OR (TI "mobile application*" OR AB "mobile application*") OR (TI "application software" OR AB "application software") OR (TI "social media" OR AB "social media") OR (TI internet OR AB internet) OR (TI web* OR AB web*) OR (TI online OR AB online) OR (TI software* OR AB software*) OR (TI computer* OR AB computer*) OR (TI computing OR AB computing) OR (TI "smart phone*" OR AB "smart phone*") OR (TI "mobile phone*" OR AB "mobile phone*") OR (TI chat OR AB chat) OR (TI robot* OR AB robot*) OR (TI "information system*" OR AB "information system*") OR (TI blog* OR AB blog*) OR (TI microblog* OR AB microblog*) OR (TI "decision support system*" OR AB "decision support system*") OR (TI gamification OR AB gamification) OR (TI "text messag*" OR AB "text messag*") OR (TI "instant messag*" OR AB "instant messag*") OR (TI hybrid OR AB hybrid) OR (TI "social bookmark*" OR AB "social bookmark*") OR (TI backchannel* OR AB backchannel*) OR (TI virtual* OR AB virtual*) OR (TI cyber* OR AB cyber*) OR (TI "social informatics" OR AB "social informatics") OR (TI telecommunication* OR AB telecommunication*) OR (TI e-mail OR AB e-mail) OR (TI email OR AB email) OR (TI "electronic mail" OR AB "electronic mail") OR (TI "voice mail system*" OR AB "voice mail system*") OR (TI multimedia* OR AB multimedia*) OR (TI video* OR AB video*) OR (TI television OR AB television) OR (TI TV OR AB TV) OR (TI "communication* media" OR AB "communication* media") OR (TI avatar* OR AB avatar*) OR (TI robot* OR AB robot*) OR (TI "electronic communication*" OR AB "electronic communication*") OR (TI streaming* OR AB streaming*) OR (TI "sociotechnical system*" OR AB "sociotechnical system*") OR (TI "information processing" OR AB "information processing") OR (TI "information society" OR AB "information society") OR (TI "Information management" OR AB "Information management") OR (TI "data analysis" OR AB "data analysis")	276 309
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5.	DE "ARTIFICIAL intelligence" OR DE "ARTIFICIAL intelligence tests" OR DE "HEURISTIC programming" OR DE "COMPUTER networks" OR DE "COMPUTER bulletin boards" OR DE "ELECTRONIC villages (Computer networks)" OR DE "CYBERCULTURE" OR DE "DIGITAL communications" OR DE "DIGITAL inclusion" OR DE "DIGITAL storytelling" OR DE "EMAIL" OR DE "EMAIL systems" OR DE "HUMAN-computer interaction" OR DE "INFORMATION technology" OR DE "INFORMATION & communication technologies" OR DE "SOCIAL informatics" OR DE "VIRTUAL communications" OR DE "INFORMATION technology & society" OR DE "INTERNET" OR DE "INTERNET & activism" OR DE "INTERNET & children" OR DE "INTERNET & older people" OR DE "INTERNET & teenagers" OR DE "INTERNET & youth" OR DE "INTERNET access" OR DE "INTERNET celebrities" OR DE "INTERNET friendship" OR DE "INTERNET usage monitoring" OR DE "LANGUAGE & the Internet" OR DE "ONLINE ministry" OR DE "VIRTUAL communities" OR DE "INTERNET forums" OR DE "MICROBLOGS" OR DE "SOCIAL media" OR DE "BACKCHANNELS (Social media)" OR DE "BLOGS" OR DE "COMPUTER bulletin boards" OR DE "ONLINE chat" OR DE "SOCIAL bookmarks" OR DE "SOCIAL media mobile apps" OR DE "STREAMING media" OR DE "LIVE streaming" OR DE "TECHNOLOGICAL literacy" OR DE "COMPUTER literacy" OR DE "TECHNOLOGY" OR DE "APPROPRIATE technology" OR DE "COMMUNICATION & technology" OR DE "DOMESTICATION of technology" OR DE "EDUCATIONAL technology" OR DE "ELECTRONICS -- Social aspects" OR DE "HISTORY & technology" OR DE "INFORMATION technology" OR DE "MASS media & technology" OR DE "MECHANIZATION" OR DE "MEDICAL technology" OR DE "TECHNOCRACY" OR DE "TECHNOLOGY & civilization" OR DE "TECHNOLOGY & culture" OR DE "TECHNOLOGY & state" OR DE "TECHNOLOGY & women" OR DE "TECHNOLOGY & youth" OR DE "TECHNOLOGY transfer" OR DE "TECHNOLOGY & society" OR DE "HIGH technology & society" OR DE "INFORMATION technology & society" OR DE "TOOLS -- Social aspects" OR DE "TELECOMMUNICATION systems" OR DE "VOICE mail systems" OR DE "VIRTUAL reality" OR DE "VIRTUAL reality -- Social aspects" OR DE "VIRTUAL communities" OR DE "VIRTUAL communications" OR DE "WEBSITES" OR DE "BLOGS" OR DE "INTERACTIVE websites" OR DE "ONLINE chat" OR DE "WORLD Wide Web" OR DE "WEB 2.0" OR DE "WEB 3.0"	53 832
6.	4 OR 5	283 229

7.	(TI scandinavia* OR AB scandinavia*) OR (TI nordic OR AB nordic) OR (TI norway* OR AB norway*) OR (TI norwegian* OR AB norwegian*) OR (TI denmark* OR AB denmark*) OR (TI danish OR AB danish) OR (TI danes OR AB danes) OR (TI sweden* OR AB sweden*) OR (TI swedish OR AB swedish) OR (TI swedes OR AB swedes) OR (TI finland* OR AB finland*) OR (TI finnish OR AB finnish) OR (TI finns OR AB finns) OR (TI greenland* OR AB greenland*) OR (TI iceland* OR AB iceland*) OR (TI "Faroe Island*" OR AB "Faroe Island*") OR (TI faroes* OR AB faroes*)	43 447
8.	3 AND 6 AND 7	343
Limitations	-	
Total		343

Applied Social Sciences Index & Abstracts (ASSIA), (ProQuest), 2025-08-07

Search #	Search terms / keywords	Hits
1.	TI,AB("social work*") OR TI,AB("social group work") OR TI,AB("social welfare") OR TI,AB("social service*") OR TI,AB("welfare service*") OR TI,AB("social security system*") OR TI,AB("social assistance") OR TI,AB("welfare provision") OR TI,AB("Public Welfare") OR TI,AB("Community Welfare") OR TI,AB("child protection") OR TI,AB("child welfare") OR TI,AB("adolescent welfare") OR TI,AB("relief work*") OR TI,AB("social intervention*") OR TI,AB("welfare work*") OR TI,AB("case work*") OR TI,AB(casework*)	45,170

2.	MAINSUBJECT.EXACT("Child welfare") OR MAINSUBJECT.EXACT.EXPLODE("Child placement") OR MAINSUBJECT.EXACT("Maternal and infant welfare") OR MAINSUBJECT.EXACT("Case management") OR MAINSUBJECT.EXACT("Social welfare") OR MAINSUBJECT.EXACT("Welfare benefits") OR MAINSUBJECT.EXACT("Welfare services") OR MAINSUBJECT.EXACT("Social services") OR MAINSUBJECT.EXACT.EXPLODE("Social work") OR MAINSUBJECT.EXACT("Social security") OR MAINSUBJECT.EXACT("Welfare recipients") OR MAINSUBJECT.EXACT.EXPLODE("Social workers")	61,928
3.	1 OR 2	75,252
4.	TI,AB(digital*) OR TI,AB(technolog*) OR TI,AB(electronic*) OR TI,AB(e-service*) OR TI,AB(e-government*) OR TI,AB("e-social work") OR TI,AB(e-application*) OR TI,AB(automation) OR TI,AB(automatization) OR TI,AB(automatisation) OR TI,AB(programming) OR TI,AB("artificial intelligence") OR TI,AB(ai) OR TI,AB(algorithm*) OR TI,AB("big data") OR TI,AB(app) OR TI,AB(apps) OR TI,AB("mobile application*") OR TI,AB("application software") OR TI,AB("social media") OR TI,AB(internet) OR TI,AB(web*) OR TI,AB(online) OR TI,AB(software*) OR TI,AB(computer*) OR TI,AB(computing) OR TI,AB("smart phone*") OR TI,AB("mobile phone*") OR TI,AB(chat) OR TI,AB(robot*) OR TI,AB("information system*") OR TI,AB(blog*) OR TI,AB(microblog*) OR TI,AB("decision support system*") OR TI,AB(gamification) OR TI,AB("text messag*") OR TI,AB("instant messag*") OR TI,AB(hybrid) OR TI,AB("social bookmark*") OR TI,AB(backchannel*) OR TI,AB(virtual*) OR TI,AB(cyber*) OR TI,AB("social informatics") OR TI,AB(telecommunication*) OR TI,AB(e-mail) OR TI,AB(email) OR TI,AB("electronic mail") OR TI,AB("voice mail system*") OR TI,AB(multimedia*) OR TI,AB(video*) OR TI,AB(television) OR TI,AB(TV) OR TI,AB("communication* media") OR TI,AB(avatar*) OR TI,AB(robot*) OR TI,AB("electronic communication*") OR TI,AB(streaming*) OR TI,AB("sociotechnical system*") OR TI,AB("information processing") OR TI,AB("information society") OR TI,AB("Information management") OR TI,AB("data analysis")	173,311

5.	MAINSUBJECT.EXACT("Algorithms") OR MAINSUBJECT.EXACT("Artificial intelligence") OR MAINSUBJECT.EXACT("Big data") OR MAINSUBJECT.EXACT("Chat rooms") OR MAINSUBJECT.EXACT("Communication technology") OR MAINSUBJECT.EXACT("Computer assisted counseling") OR MAINSUBJECT.EXACT("Computer based") OR MAINSUBJECT.EXACT("Computer based support groups") OR MAINSUBJECT.EXACT("Computer conferencing") OR MAINSUBJECT.EXACT("Computer mediated communication") OR MAINSUBJECT.EXACT("Computerization") OR MAINSUBJECT.EXACT("Computerized assessment") OR MAINSUBJECT.EXACT("Computerized decision support systems") OR MAINSUBJECT.EXACT("Computerized diagnosis") OR MAINSUBJECT.EXACT("Computerized information systems") OR MAINSUBJECT.EXACT.EXPLODE("Computers") OR MAINSUBJECT.EXACT("Cybernetics") OR MAINSUBJECT.EXACT("Digital") OR MAINSUBJECT.EXACT("Digital media") OR MAINSUBJECT.EXACT.EXPLODE("Electronic games") OR MAINSUBJECT.EXACT.EXPLODE("Information management") OR MAINSUBJECT.EXACT.EXPLODE("Information processing") OR MAINSUBJECT.EXACT.EXPLODE("Information systems") OR MAINSUBJECT.EXACT("Information technology") OR MAINSUBJECT.EXACT.EXPLODE("Internet") OR MAINSUBJECT.EXACT("Mobile phones") OR MAINSUBJECT.EXACT("Multimedia") OR MAINSUBJECT.EXACT("Multimedia programs") OR MAINSUBJECT.EXACT("Robotics") OR MAINSUBJECT.EXACT("Social media") OR MAINSUBJECT.EXACT("Streaming") OR MAINSUBJECT.EXACT("Automation") OR MAINSUBJECT.EXACT("Technology") OR MAINSUBJECT.EXACT("Adaptive technology") OR MAINSUBJECT.EXACT("Telecommunications") OR MAINSUBJECT.EXACT("Video- conferencing") OR MAINSUBJECT.EXACT("Web sites") OR MAINSUBJECT.EXACT("Webcams") OR MAINSUBJECT.EXACT("Websites")	78,107
6.	4 OR 5	198,911

7.	TI,AB(scandinavia*) OR TI,AB(nordic) OR TI,AB(norway*) OR TI,AB(norwegian*) OR TI,AB(denmark*) OR TI,AB(danish) OR TI,AB(danes) OR TI,AB(sweden*) OR TI,AB(swedish) OR TI,AB(swedes) OR TI,AB(finland*) OR TI,AB(finnish) OR TI,AB(finns) OR TI,AB(greenland*) OR TI,AB(iceland*) OR TI,AB("Faroe Island*") OR TI,AB(faroes*)	28,812
8.	3 AND 6 AND 7	171
Limitations	-	
Total		171

Social Services Abstracts (ProQuest), 2025-08-07

Search #	Search terms / keywords	Hits
1.	TI,AB("social work*") OR TI,AB("social group work") OR TI,AB("social welfare") OR TI,AB("social service*") OR TI,AB("welfare service*") OR TI,AB("social security system*") OR TI,AB("social assistance") OR TI,AB("welfare provision") OR TI,AB("Public Welfare") OR TI,AB("Community Welfare") OR TI,AB("child protection") OR TI,AB("child welfare") OR TI,AB("adolescent welfare") OR TI,AB("relief work*") OR TI,AB("social intervention*") OR TI,AB("welfare work*") OR TI,AB("case work*") OR TI,AB(casework*)	95,322
2.	MAINSUBJECT.EXACT("Child welfare") OR MAINSUBJECT.EXACT("Child placement") OR MAINSUBJECT.EXACT("Case management") OR MAINSUBJECT.EXACT("Social welfare") OR MAINSUBJECT.EXACT.EXPLODE("Social services") OR MAINSUBJECT.EXACT.EXPLODE("Social work") OR MAINSUBJECT.EXACT("Social security") OR MAINSUBJECT.EXACT("Welfare recipients") OR MAINSUBJECT.EXACT.EXPLODE("Social workers")	96,306
3.	1 OR 2	125,709

4.	TI,AB(digital*) OR TI,AB(technolog*) OR TI,AB(electronic*) OR TI,AB(e-service*) OR TI,AB(e-government*) OR TI,AB("e-social work") OR TI,AB(e-application*) OR TI,AB(automation) OR TI,AB(automatization) OR TI,AB(automatisation) OR TI,AB(programming) OR TI,AB("artificial intelligence") OR TI,AB(ai) OR TI,AB(algorithm*) OR TI,AB("big data") OR TI,AB(app) OR TI,AB(apps) OR TI,AB("mobile application*") OR TI,AB("application software") OR TI,AB("social media") OR TI,AB(internet) OR TI,AB(web*) OR TI,AB(online) OR TI,AB(software*) OR TI,AB(computer*) OR TI,AB(computing) OR TI,AB("smart phone*") OR TI,AB("mobile phone*") OR TI,AB(chat) OR TI,AB(robot*) OR TI,AB("information system*") OR TI,AB(blog*) OR TI,AB(microblog*) OR TI,AB("decision support system*") OR TI,AB(gamification) OR TI,AB("text messag*") OR TI,AB("instant messag*") OR TI,AB(hybrid) OR TI,AB("social bookmark*") OR TI,AB(backchannel*) OR TI,AB(virtual*) OR TI,AB(cyber*) OR TI,AB("social informatics") OR TI,AB(telecommunication*) OR TI,AB(e-mail) OR TI,AB(email) OR TI,AB("electronic mail") OR TI,AB("voice mail system*") OR TI,AB(multimedia*) OR TI,AB(video*) OR TI,AB(television) OR TI,AB(TV) OR TI,AB("communication* media") OR TI,AB(avatar*) OR TI,AB(robot*) OR TI,AB("electronic communication*") OR TI,AB(streaming*) OR TI,AB("sociotechnical system*") OR TI,AB("information processing") OR TI,AB("information society") OR TI,AB("Information management") OR TI,AB("data analysis")	58,809
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5.	MAINSUBJECT.EXACT("Algorithms") OR MAINSUBJECT.EXACT("Artificial intelligence") OR MAINSUBJECT.EXACT("Big Data") OR MAINSUBJECT.EXACT("Computer & video games") OR MAINSUBJECT.EXACT.EXPLODE("Computer mediated communication") OR MAINSUBJECT.EXACT.EXPLODE("Computers") OR MAINSUBJECT.EXACT.EXPLODE("Data analysis") OR MAINSUBJECT.EXACT("Digital media") OR MAINSUBJECT.EXACT("Human technology relationship") OR MAINSUBJECT.EXACT("Human-computer interaction") OR MAINSUBJECT.EXACT.EXPLODE("Information processing") OR MAINSUBJECT.EXACT("Information society") OR MAINSUBJECT.EXACT.EXPLODE("Internet") OR MAINSUBJECT.EXACT("Mobile phones") OR MAINSUBJECT.EXACT("Social media") OR MAINSUBJECT.EXACT("Automation") OR MAINSUBJECT.EXACT("Technology") OR MAINSUBJECT.EXACT("Appropriate technologies") OR MAINSUBJECT.EXACT("Cybernetics") OR MAINSUBJECT.EXACT("Electronic technology") OR MAINSUBJECT.EXACT("Information technology") OR MAINSUBJECT.EXACT("Technology attitudes") OR MAINSUBJECT.EXACT.EXPLODE("Telecommunications") OR MAINSUBJECT.EXACT("Virtual reality") OR MAINSUBJECT.EXACT("Websites")	53,074
6.	4 OR 5	92,580
7.	TI,AB(scandinavia*) OR TI,AB(nordic) OR TI,AB(norway*) OR TI,AB(norwegian*) OR TI,AB(denmark*) OR TI,AB(danish) OR TI,AB(danes) OR TI,AB(sweden*) OR TI,AB(swedish) OR TI,AB(swedes) OR TI,AB(finland*) OR TI,AB(finnish) OR TI,AB(finns) OR TI,AB(greenland*) OR TI,AB(iceland*) OR TI,AB("Faroe Island*") OR TI,AB(faroes*)	10,240
	3 AND 6 AND 7	845
Limitations	-	
Total		845

PubMed

(<https://pubmed.ncbi.nlm.nih.gov>), 2025-08-07

Search #	Search terms / keywords	Hits
1.	"social work*" [Title/Abstract] OR "social group work" [Title/Abstract] OR "social welfare" [Title/Abstract] OR "social service*" [Title/Abstract] OR "welfare service*" [Title/Abstract] OR "social security system*" [Title/Abstract] OR "social assistance" [Title/Abstract] OR "welfare provision" [Title/Abstract] OR "Public Welfare" [Title/Abstract] OR "Community Welfare" [Title/Abstract] OR "child protection" [Title/Abstract] OR "child welfare" [Title/Abstract] OR "adolescent welfare" [Title/Abstract] OR "relief work*" [Title/Abstract] OR "social intervention*" [Title/Abstract] OR "welfare work*" [Title/Abstract] OR "case work*" [Title/Abstract] OR casework* [Title/Abstract]	56,316
2.	"Child Protective Services" [Mesh] OR "Social Welfare" [Mesh] OR "Social Work" [Mesh] OR "Social Workers" [Mesh]	81,611
3.	1 OR 2	118,331

4.	digital*[Title/Abstract] OR technolog*[Title/Abstract] OR electronic*[Title/Abstract] OR e-service*[Title/Abstract] OR e-government*[Title/Abstract] OR "e-social work" [Title/Abstract] OR e-application*[Title/Abstract] OR automation[Title/Abstract] OR automatization[Title/Abstract] OR automatisisation[Title/Abstract] OR programming[Title/Abstract] OR "artificial intelligence"[Title/Abstract] OR ai[Title/Abstract] OR algorithm*[Title/Abstract] OR "big data"[Title/Abstract] OR app[Title/Abstract] OR apps[Title/Abstract] OR "mobile application*" [Title/Abstract] OR "application software"[Title/Abstract] OR "social media"[Title/Abstract] OR internet[Title/Abstract] OR web*[Title/Abstract] OR online[Title/Abstract] OR software*[Title/Abstract] OR computer*[Title/Abstract] OR computing[Title/Abstract] OR "smart phone*" [Title/Abstract] OR "mobile phone*" [Title/Abstract] OR chat[Title/Abstract] OR robot*[Title/Abstract] OR "information system*" [Title/Abstract] OR blog*[Title/Abstract] OR microblog*[Title/Abstract] OR "decision support system*" [Title/Abstract] OR gamification[Title/Abstract] OR "text messag*" [Title/Abstract] OR "instant messag*" [Title/Abstract] OR hybrid[Title/Abstract] OR "social bookmark*" [Title/Abstract] OR backchannel*[Title/Abstract] OR virtual*[Title/Abstract] OR cyber*[Title/Abstract] OR "social informatics" [Title/Abstract] OR telecommunication*[Title/Abstract] OR e-mail[Title/Abstract] OR email[Title/Abstract] OR "electronic mail" [Title/Abstract] OR "voice mail system*" [Title/Abstract] OR multimedia*[Title/Abstract] OR video* [Title/Abstract] OR television[Title/Abstract] OR TV[Title/Abstract] OR "communication* media" [Title/Abstract] OR avatar*[Title/Abstract] OR robot*[Title/Abstract] OR "electronic communication*" [Title/Abstract] OR streaming*[Title/Abstract] OR "sociotechnical system*" [Title/Abstract] OR "information processing" [Title/Abstract] OR "information society" [Title/Abstract] OR "Information management" [Title/Abstract] OR "data analysis" [Title/Abstract]	3,738,984
5.	"Algorithms"[Mesh] OR "Blogging"[Mesh] OR "Computer Communication Networks" [Mesh] OR "Decision Making, Computer-Assisted"[Mesh] OR "Digital Divide"[Mesh] OR "Information Systems"[Mesh] OR "Information Technology"[Mesh] OR "Mobile Applications"[Mesh] OR "Multimedia"[Mesh] OR "Online Social Networking"[Mesh] OR "Robotics"[Mesh] OR "Software"[Mesh] OR "Telecommunications"[Mesh] OR "Text Messaging"[Mesh] OR "Virtual Reality"[Mesh] OR "Virtual Reality Exposure Therapy" [Mesh]	1,181,573

6.	4 OR 5	4,246,232
7.	scandinavia*[Title/Abstract] OR nordic[Title/Abstract] OR norway*[Title/Abstract] OR norwegian*[Title/Abstract] OR denmark*[Title/Abstract] OR danish[Title/Abstract] OR danes[Title/Abstract] OR sweden*[Title/Abstract] OR swedish[Title/Abstract] OR swedes[Title/Abstract] OR finland*[Title/Abstract] OR finnish[Title/Abstract] OR finns[Title/Abstract] OR greenland*[Title/Abstract] OR iceland*[Title/Abstract] OR "Faroe Island*" [Title/Abstract] OR faroes*[Title/Abstract]	273,698
8.	"Scandinavian and Nordic Countries"[Mesh]	234,174
9.	7 OR 8	356,911
10.	3 AND 6 AND 9	431
Limitations	-	
Total		431

Matrix Part I : HWT in IFO

Nr	Author	Journal	Country	Year	IFS area	HWT category
1.	Aasback, A. W & Røkkum,	Journal of Comparative Social Work	Norway	2021	Study based on interviews with social workers from adult welfare services and child welfare.	Use of digital communication tools in social work during COVID-19 to maintain client contact and service delivery.
2.	Aasback, A. W.	Nordic Social Work Research	Norway	2022	Defines terminology: counsellor = NAV employee; social worker = profession.	DAP is a digital platform enabling communication between clients and counsellors, improving accessibility
3	Andersson, C., Hallin, A., & Ivory, C.	Government Information Quarterly	Sweden	2022	Study of a Swedish municipal project automating social work processes using RPA.	Use of RPA (robotic process automation) to automate administrative case processing, including digital safety alarm applications.

4	Antczak, H. B., Mackrill, T., Steensbæk, S., & Ebsen, F.	Social Work Education	Denmark	2019	Examines challenges of statutory casework and the importance of supervisors' knowledge of procedures, practice, and professional language.	Use of video-recorded meetings and online supervision in casework; technical and data protection challenges reported.
5.	Bakkeli, V., & Grønningsæter, A. B.	Nordic Journal of Social Research	Norway	2020	Municipal follow-up and aftercare services for substance use and addiction.	Explores user reflections on potential digital innovations (e.g., apps) in municipal substance abuse services.
6	Bank, M.	Subjectivity	Denmark	2021	Study conducted in a Danish municipal drug treatment program for young people with voluntary participation.	Use of short digital video narratives ("pocket movies") in youth drug treatment to support storytelling and empowerment.
7	Blomberg, H., Östlund, G., Lindstedt, P. R., & Cürüklü, B.	Qualitative Social Work	Sweden	2022	Context: Swedish child welfare investigations conducted by municipalities under national legislation.	DIG Child application: digital tool developed to support children's participation in child welfare investigations.

8.	Börjesson, U., & Ulmestig, R.	Social Work Education	Sweden	2024	Context: municipal social services, focusing on social workers working with social assistance.	Workplace-based online course with recorded lectures on social assistance and current research.
9.	Buchert, U., Kemppainen, L., Olakivi, A., Wrede, S., & Kouvonen, A.	Critical Social Policy	Finland	2023	Large-scale digitalisation of Finnish welfare services, including digital benefit applications (Kela) and the My Kanta health record portal.	Digitalisation of Finnish welfare services, including Kela benefit applications, the My Kanta health portal, and municipal e-services.
10.	Buchert, U., Wrede, S., & Kouvonen, A.	Information, Communication & Society,	Finland	2024	Digital public health and welfare services; barriers for migrant women due to language, digital skills, and system complexity.	Digital services categorized into communication, information/media, private customer services, and public health and welfare services.
11.	Christensen, M., Frederiksen, A. B., & Madsen, K. B.	Nordic Social Work Research	Danmark	2022	Digital tools (e.g., video meetings, chat, digital documentation) in social work with vulnerable children and youth.	Video meetings, chat, and digital documentation.

12.	Cuesta, M., German Millberg, L., Karlsson, S., & Arvidsson, S.	International journal of qualitative studies on health and well-being	Sweden	2020	IFO (Individual and Family Services) staff participated in training on welfare technology, ethics, and digitalisation.	Focus on welfare technology as a concept, addressing digitalisation and ethical implementation in social services.
13.	Fiorentino, V., Romakkaniemi, M., Harrikari, T., Saraniemi, S., & Tiitinen, L.	Qualitative Social Work	Finland	2023	Diary study with 33 Finnish social workers recruited via a professional Facebook group.	Digitally mediated social work (DMSW): video meetings, phone calls, chat, digital platforms, and remote client contact.
14.	Gerdtz-Andresen, T.	Social Science	Norway	2025	Analysis of tribunal decisions regulating phone and digital communication between children in care and their parents.	Mobile phones (calls and SMS) and digital communication platforms (e.g., social media, chat apps).
15.	Hansen, L. I. M., Fruhling, A., & Fossum, M.	Studies in Health Technology and An Interdisciplinary Systems Approach	Norway	2017	Context of municipal social care services.	Study of smartphone technology piloted in a NAV office to support users through an online platform.
16.	Hansen, H. T., Lundberg, K., & Syltevik, L. J.	Social Policy & Administration,	Norway	2018	NAV welfare service users about digital services.	Large-scale survey study of NAV users examining experiences of digitalisation in welfare services.

17.	Hansen, H. A., & Gerdtts-Andresen, T.	Nordic Journal of Social Research	Norway	2023	Child welfare workers in Norway	Digital platforms enabling contact and updates between children and parents living apart.
18.	Hofmann, S., Sæbø, Ø., & Rydén, H. H.	Nordisk Velfärdsforskning	Norway	2024	Study of vulnerable citizens' challenges with digital self-services at a NAV welfare office.	Digital self-services in welfare services
19.	Höglund, F., & Flinkfeldt, M.	Socialvetenskaplig tidskrift	Sverige	2024	Study of welfare administration and human service organisation.	Digital citizen–agency communication (email, Facebook).
20.	Jokela, M., Vornanen, R., & Rissanen, S.	Children and society	Finland	2025	User perspective: young people with care experience reflecting on their time in care.	Video vlogs published on YouTube.
21.	Juvonen, S., Koivisto, J. M., & Toiviainen, H.	Learning, Culture and Social Interaction,	Finland	2022	Conceptual study on future service development rather than individual user cases.	Workshop participants viewed digitalisation as enabling integrated, client-centred welfare services.
22.	Jørgensen, A. M., & Nissen, M. A.	Big data & society	Danmark	2022	Child welfare context; focus on decision support systems (DSS) rather than the social service system itself.	Decision support system (DSS) assisting social workers in assessing child neglect or abuse reports.

23.	Kaun, A.	Information, Communication & Society	Sweden	2022	Municipal social services context	Automated decision-making (ADM) systems used for welfare benefit decisions in municipal social services.
24.	Kaun, A., Larsson, A. O., & Masso, A.	Information, Communication & Society	Estonia, Sweden and Germany	2025	Citizen attitudes toward algorithmic public sector decisions.	Automated decision-making (ADM)
25.	Kirjavainen, H., & Jalonen, H.	Advances in Social Work	Finland	2023	Young adults' experiences of digital welfare administration (employment services, Kela, municipal social services), highlighting bureaucratic processes, benefit sanctions, and perceived exclusion.	Digital administrative systems (benefits, ADM, RPA, portals)
26.	Kvakic, M., & Wærdahl, R	European Journal of Social Work	Norway	2024	Interviews with parents and young people about experiences of digital communication with services, focusing on surveillance, visibility, trust, and power relations.	Child welfare caseworkers in municipal social services.

27.	Løberg, I. B.	Government Information Quarterly	Norway	2021	Social workers and non-social worker welfare staff.	Modia – an online messaging platform enabling digital communication between NAV frontline workers and clients.
28.	Løberg, I. B., & Egeland, C.	European Journal of Social Work	Norway	2023	NAV frontline workers (counsellors/social workers).	Digital messaging systems for communication between NAV counsellors and clients.
29.	Mackrill, T. E., Ebsen, F. C., & Antczak, H.	Advances in Social Work	Denmark	2015	Municipal social workers and young service users.	Co-development of a mobile app with self-assessment scales for youth in social work.
30.	Mackrill, T., & Ørnbøll, J. K.	European Journal of Social Work	Denmark	2019	Youth clients and municipal social workers.	"My Social Worker" mobile app enabling communication and self-monitoring between young clients and social workers.
31.	Mackrill, T., & Svendsen, I. L.	Child and Adolescent Social Work Journal	Denmark	2021	Child welfare social workers and youth clients.	Digital routine outcome monitoring (ROM) system used to collect and track client outcome data in child welfare

32.	Mesiäislehto, M., Kivipelto, M., & Ylikännö, M.	Sozialer Fortschritt	Finland	2022	Social assistance beneficiaries and welfare administration (e.g., Kela and municipal social services).	Digitalised social assistance system for applying for and managing benefits.
33.	Mesiäislehto, M., Moisio, P., & Ilmakunnas, I.	Social Policy & Society	Finland	2024	Welfare administration caseworkers and social assistance beneficiaries.	Digital risk-flagging system used in the Finnish social assistance system to identify clients needing additional attention.
34.	Nordesjö, K., & Scaramuzzino, G.	Journal of Social Work	Sweden	2023	Social workers and their clients in municipal social services.	Digital communication tools (e.g., video meetings, phone, and online platforms) used for remote social work during the COVID-19 pandemic.
35.	Nordesjö, K., Ulmestig, R., & Scaramuzzino, G.	Nordic Social Work Research	Sweden	2024	Street-level bureaucrats (e.g., social assistance and employment service caseworkers).	Automated decision-making (ADM) systems used to process welfare benefit decisions.

36.	Nordesjö, K., & Scaramuzzino, G.	Journal of European Social Policy	Sweden	2025	Municipal caseworkers and social assistance clients	Automated decision-making (ADM) systems used in municipal activation and social assistance services
37.	Oestergaard, C. U., & Dinesen, B.	Mhealth	Denmark	2019	Social workers and service users recovering from severe mental illness.	Video communication used to provide psychosocial support for individuals recovering from severe mental disorders.
38.	Oskarsen, J. S., Verne, G., Bratteteig, T., & Nordlie, L.	Computer Supported Cooperative Work	Norway	2025	Unemployed welfare service users interacting with digital welfare platforms (e.g., NAV).	Digital self-service welfare systems used for unemployment services and benefit management
39.	Petersen, A. C., Christensen, L. R., & Hildebrandt, T. T.	Computer Supported Cooperative Work	Denmark	2020	Public sector caseworkers (e.g., welfare and employment service administrators).	Automated decision-making and algorithmic systems used in welfare administration.

40.	Romakkaniemi, M., Mari, K., Timo, H., Vera, F., Tuomas, L., & Sanna,	European journal of social work,	Finland	2024	Finnish social workers and their clients.	Digital communication and online platforms used for remote social work during the COVID-19 pandemic.
41.	Salovaara, S., & Ylönen, K.	Nordic Social Work Research	Finland	2022	Finnish social workers	Client information systems (CIS) used for digital case documentation and case-based social work.
42.	Saukkonen, P., Elovainio, M., Salovaara, S., Virtanen, L., Kaihlanen, A. M., Kainiemi, E., ... & Heponiemi, T.	International Social Work	Finland	2024	Finnish social workers.	Digital tools and information systems used in social work practice.
43.	Scaramuzzino, G., Nordesjö, K., & Ulmestig, R.	Journal of Comparative Social Work	Sweden	2024	Citizens applying for social assistance	E-applications for social assistance in digital welfare administration.
44.	Sorbring, E., Bolin, A., & Ryding, J.	Advances in Social Work	Sweden	2015	Adolescents and social workers.	Game-based digital intervention to prevent adolescent dating violence.
45.	Stranz, H., Germundsson, N., Hussénus, K., & Bergmark, Å.	Socialvetenskaplig tidskrift	Sweden	2024	Municipal social services and social assistance clients.	Automated decision-making systems for processing social assistance.

46.	Svensson, L., & Ranerup, A.	Socialvetenskaplig tidskrift	Sweden	2024	Municipal social assistance caseworkers.	Digital infrastructure supporting decision-making in social assistance administration.
47.	Tynkkynen, E., Salovaara, S., Viitanen, J., & Lääveri, T.	Health Information Management Journal	Finland	2025	Social welfare professionals.	Information systems supporting case-based knowledge formation in social welfare.
48.	Östlund, G., Lindstedt, P. R., Cürüklü, B., & Blomberg, H.	European Journal of Social Work	Sweden	2024	Child welfare social workers and children.	Digital tool to support children's participation in child welfare assessments.

Appendix B

Grey literature search strategy

Search for grey literature

To complement the review of scientific literature, targeted searches for grey literature were conducted to identify policy reports, evaluations, and other non-peer-reviewed publications addressing digitalisation in social services in the Nordic region.

The grey literature search focused particularly on publications addressing digital documentation and digital infrastructures within Individual and Family Services (IFS), as these themes emerged from the preliminary analysis of the scientific literature.

Two search platforms were used:

- Overton database (global database of policy documents and grey literature)
- Google Search

The searches were conducted in February 2026.

Overton database search

The Overton database was used to identify relevant policy documents, governmental reports, and organisational publications addressing digitalisation in social services in Nordic contexts.

The search was limited to:

- **Document type:** Publications
- **Publication period:** 2022–2026 (February 20)
- **Geographical focus:** Nordic countries

The following search string was applied:

"digitalisation of social services" AND (Sweden OR Norway OR Denmark OR Finland OR Iceland)

This search retrieved policy reports, governmental publications, and analytical reports discussing digital transformation in social services across the Nordic countries.

Google Search

To complement the Overton search and identify additional reports not indexed in policy databases, a supplementary search was conducted using Google Search.

The same search string was used:

"digitalisation of social services" AND (Sweden OR Norway OR Denmark OR Finland OR Iceland)

The first several pages of search results were screened to identify:

- governmental reports
- policy briefs
- institutional reports
- research institute publications

Priority was given to publications from:

- governmental agencies
- Nordic research institutes
- European organisations
- welfare policy organisations

Screening and selection

Identified documents were screened based on the following criteria:

Inclusion criteria

- Address digitalisation, digital technologies, or digital infrastructures in social services
- Focus on Nordic countries
- Relevant to welfare governance, service delivery, or documentation practices

Exclusion criteria

- Publications unrelated to social services

- Commercial or promotional materials
- Documents lacking substantive analytical content

The final set of grey literature sources was analysed thematically and integrated into the review as Part II: Grey Literature Analysis.

Matrix Part II: HWT in IFO – Grey Literature

Nr	Author	Journal/Report	Country	Year	IFS area	HWT category
1.	Anderson, R., Dubois, H., Fernández Ortiz, E., Fóti, K., Jungblut, J.-M., Kulic, N., Leončikas, T., Ludwinek, A., Molinuevo, D., Sandor, E., & van der Schans, C.	Publications Office of the EU	EU comparative	2019	Comparative analysis of welfare services and public service delivery.	Digital public services and e-government welfare platforms.
2.	Andersson, G., & Engwall, K.	European Journal of Social Work	Sweden	2025	Documentation practices in services for persons with psychiatric disabilities.	IBIC framework for structured digital social documentation.
3.	Buitrago, M., Papadaki, C., Brunet, S., Bonvin, J.-M., Guillén, A. M., Muñoz, M. S., Alcidi, C., & Rontu, L.	Publications Office of the EU	EU comparative	2023	European social services and welfare responses during COVID-19.	Digital counselling, helplines and remote welfare services.
4.	Eurofound	Publications Office of the EU	EU comparative	2020	Impact of digitalisation on welfare services and social work.	Digital platforms and ICT-based social service delivery.

5.	Jørgensen, A. M.	Country Report – Digitalisation of Social Services	Denmark	2023	Digitalisation of services for children, young people and families.	Digital case management systems and online service platforms.
6.	Kozica, B., & Malmberg-Heimonen, I	European Social Work Research	International	2025	Literature review of ICT use in social work practice.	Digital communication tools and decision-support systems.
7.	Motsi-Omoijade, I., Smith, P., Devaux, A., Hofman, J., Yiangou, D., Flanagan, I., & Nightingale, M.	RAND Europe Research Report	International	2024	Digitalisation of welfare administration and public services.	Digital welfare platforms and digital identity infrastructures.
8.	Randall, L., Berlina, A., Teräs, J., & Rinne, T.	Nordregio Discussion Paper	Nordic region	2018	Regional development and digital public service transformation.	Digital welfare technologies and e-government services.
9.	Swedish eHealth Agency	Government Report	Sweden	2022	National digital development of health and welfare services.	Electronic records, national health data platforms, interoperability.
10.	Vestergård, L. O., & Lundgren, A.	Nordregio Report	Nordic region	2020	Digitalisation of health and social care systems.	Telehealth services and digital care platforms.
11.	Wendt-Lucas, N., Jessen, S., & Brynteson, M.	Nordregio Report	Nordic & Baltic	2024	Digital inclusion initiatives in welfare services.	Digital inclusion and digital literacy programmes.