Aalborg Universitet

AALBORG UNIVERSITY

DENMARK

Digitalisation of social services for children, young people and families in Denmark

Country report 2022

Jørgensen, Andreas Møller

Publication date:
2023

Link to publication from Aalborg University

Andreas Møller Jørgensen

Digitalisation of social services for children, young people and families in Denmark

Country report 2022

Digitalisation of social services for children, young people and families in Denmark

Country report 2022

Content

Summary

This report is compiled by Andreas Møller Jørgensen, Associate Professor at Aalborg University, Denmark, and is commissioned by the Institut für Sozialpädagogische Forschung Mainz gGmbH as part of the project *JAdigital. Digitalisierung in der Kinder- und Jugendhilfe konzeptionell gestalten*, which is funded by the German Federal Ministry for Family Affairs, Senior Citizens, Women and Youth. The report provides an overview and an in-depth account of digitalisation efforts with a focus on social services for children, adolescents and families with a special need for support.

The report examines the legal, strategic and political framework for, and the organisation of, social support services for families. Drawing on empirical research and governmental reports, it provides a detailed discussion of selected digitalisation efforts aimed at supporting aspects of social services towards children, adolescents and families including prevention and risk assessment, counselling, communication, guidance and advice, case management, treatment and intervention as well as collaboration. The report does not provide an exhaustive overview of all existing digitalisation efforts in Denmark. Examples have been chosen to illustrate the breadth of digitalisation in social work with children, adolescents and families as well as key opportunities, dilemmas and challenges. Based on the Danish experience, the report examines implications for the further development of digitalisation of social services for children, adolescents and families and considers potential gains, important organisational and professional preconditions as well as unresolved challenges and unintended consequences.

The Danish experience shows that digitalisation should not and cannot be a substitute for or lessen the role of social workers nor their practical skills and knowhow, their theoretical knowledge or their ethically and value-based approach to people in vulnerable positions. On the contrary, digitalisation presupposes competent social workers and strong welfare organisations who are capable of a critical and reasoned use of digital tools in practice. Under this condition, digitalisation has the potential to improve the efficiency of case management and administrative processes. Furthermore, digitalisation may benefit the involvement of and the relationships between relevant actors and contribute to the knowledge base employed in decision making. However, potential gains do not necessarily transpire. Surveillance, overexposure, the risk of reproducing systemic bias and power relations are issues pertinent to data mining, predictive analytics and data based counselling and treatment. Moreover, digitalisation does not reduce the complexities, obscurities and insecurities inherent in social work. Neither does

it narrow the workload, the responsibilities placed upon or the professional skills required of social workers. Finally, advanced digitalisation risks excluding already marginalised and vulnerable groups of people. Digitalisation presupposes some degree of IT literacy and administrative skills, proficiency and knowledge not just from the welfare professionals involved but also from their clients.

1. Introduction

Denmark is often characterised and characterises itself as being internationally in a lead position when it comes to public digitalisation. Digitalisation of the public sector can be defined as the use of digital technologies to support, improve and transform public services. This can involve supporting and transforming processes, tasks, roles and relations in public services as well as strategies for public services. Denmark tops several European and international digital government benchmarks. For example, Denmark is placed first in the 2021 European Commission's Digital Economy and Society Index, which measures the level of digitalisation in European Union member states according to four benchmark categories: human capital, connectivity, integration of digital technology, and digital public services. Moreover, Denmark ranked number one in the 2020 UN E-Government Survey (United Nations, Department of Economic and Social Affairs, 2020), which includes and ranks 193 countries according to their level of digitalisation of their public sector.

Denmark has been digitalising the public sector since before the turn of the millennium and today digitalisation is familiar to most Danish citizens. According to Statistics Denmark (2020), 97% of families had access to the internet from their homes in 2020, which is seven per cent more than the European median. 78% of the Danish population aged between 16 and 89 are online several times a day. The youngest segment of the population is most frequently online and internet usage declines with age. Although the proportion of people who are acquainted with the internet is far greater today than it was ever before, one per cent of the population has never been online. Digital communication with public authorities is becoming increasingly widespread. In 2020, 85% of 16 to 89-year–olds search for and find information about government departments and public services online and 65% use the public authorities' online digital self-services. 91% of those who have used government department's websites to collect forms, retrieve or send information are satisfied with the websites, while 8% are dissatisfied. 71% find the public authorities' digital self-services convenient, while seven per cent find they are not easy to use and 23% have at some point needed help in using them.

The youngest and oldest part of the population as well as people with primary school as their highest level of education attained have most need for help (Statistics Denmark, 2020).

Denmark has compiled internationally unique datasets and -registers and built a robust digital infrastructure, enabling citizens to manage administrative procedures with the public sector online, trusting that public authorities will handle data and cases responsibly. The Danish public sector is organised in such a way that public welfare services are, as far as possible, adapted and provided locally or regionally within the legislative framework. Correspondingly, to promote citizens' trust through the experience of local affiliation, digitalisation is designed to prioritise local decision-making and responsibilities. 81% of the population trust the public authorities' responsible handling of personal data. Nonetheless, half of the population think that the public authorities hold too much information on individuals and approximately 20% believe that incorrect information on individuals is exchanged between government departments and their online self-services. Approximately 82% of the population completely or partially agree that public authorities should share information with each other to a greater extent than is the case today to improve digital self-service solutions. Eight out of ten people completely or partially agree that confidence in public authorities would increase if members of the public had the opportunity to gain insight into the information being held by public authorities (Statistics Denmark, 2020).

Digitalisation impacts all public authorities and most public services. This report provides an overview and a description of the current state of affairs regarding digitalisation of social services for children, adolescents and families. The report focusses on those children, adolescents and families who are entitled to social services according to the *Act on Social Services, chapter 11 - Special support for children and adolescents*. The objective of chapter 11 is to provide support to children and adolescents in need and to ensure that they may achieve the same opportunities for personal development, health and an independent adult life as their peers. The report does not describe digitalisation with regard to public services for children, adolescents and families in general – e.g., digital services in primary school and nursery school, and e-learning in primary school – unless estimated to be of importance to children, adolescents and families with a special need for support. As a case in point, communication with public authorities in Denmark is by default digital via online self-service platforms and a state authorised e-mail system called *Digital Post*. This can be problematic for certain vulnerable parts of the population including children, adolescents and families with a special need for support.

This report explains the Danish legislation regulating social services for children, adolescents and families as well as the legislation regulating and strategies guiding digitalisation. The aims of these illustrations are to describe the key objectives of welfare services for children, adolescents and families, where these objectives are imposed by law, the different types of welfare services available to children, adolescents and families, and what professionals do to assess the risk of a child's welfare being threatened. Furthermore, the illustrations aim at elucidating the intersection between digitalisation and social work with children, adolescents and families in need of special support at a strategic and policy level and at providing the legislative and political context for digitalisation with regard to social work with children, adolescents and families. Drawing on empirical research and governmental reports, the report outlines and maps the status quo of the digital landscape in Denmark and provides a detailed characterisation of selected digitalisation efforts aimed at supporting important aspects of social services towards children, adolescents and families, such as prevention, early intervention, risk assessment, counselling, communication, guidance and advice, case management, treatment and intervention and, finally, collaboration. The digitalisation efforts presented in this report have been chosen to exemplify and illustrate the breadth of digitalisation in social work with children, adolescents and families as well as the key issues. In conclusion, the report will summarise the lessons learned regarding the development, implementation, use of and experience with digitalisation, with a focus on obstacles, positive aspects and key challenges and issues.

2. Social services for children, adolescents and families

Denmark is a relatively small country neighbouring Germany. Not including Greenland and the Faroe Islands, which are part of the Kingdom of Denmark, Denmark has a total area of 43.094 km² with a relatively homogeneous population of approximately 5.9 million. It is a social democratic, redistributive welfare state with strong institutions, universal welfare provision and a strong relationship between the state, the market and civil society (Esping-Andersen, 1990). Welfare provision is distributed among the state, the market and civil society, but welfare services, including social services for children, adolescents and families are primarily dispensed by the public sector. The Danish welfare state is based on universal, tax-financed social benefits and citizens' rights to free social services, health care and education. There is a strong emphasis on income equality and of state intervention, and welfare benefits are targeted at individuals rather than

families. Income taxes are progressive, social transfer payments are relatively generous and the public service sector is large and decentralized. Finally, the Danish welfare state has a strong Keynesian legacy and full employment is generally considered a central social policy goal (Torfing, 1999)

Figure 1: Danish regions and municipalities. © Clio, 2016. Hans Møller.

2.1 Administrative units and responsibilities

Denmark is divided into five administrative regions and 98 municipalities. The five regions are: Region Nordjylland, Region Midtjylland, Region Syddanmark, Region Sjælland and Region Hovedstaden. The regions are responsible for healthcare services (including hospitals, health insurance and outpatient medicine), regional development, regional transport and the environment. The 98 municipalities are responsible for most citizen-related tasks, including but not exclusively, education (pre-school, primary, lower secondary and specialised education), some healthcare (rehabilitation, home care, prevention of abuse, dental care, and health promotion and preventive medicine), social welfare (care for the elderly and the disabled, psychiatric treatment, social psychiatry, placement of abused or neglected children, and special education), support services (unemployment insurance, early retirement benefits, cash benefits, and sickness

benefits), labour force participation and job centres, integration of immigrants as well as administration and digitalisation (Local Government Denmark, n.d.; OECD, 2016). Thus, the municipalities are responsible for the social services towards children, adolescents and families with a special need for support.

KL - Local Government Denmark (KL) is the municipalities' association and interest organisation. KL's mission is to safeguard and promote the municipalities' common interests, to assist individual municipalities with consultancy services and to ensure that the local government agencies are provided with up-to-date and relevant information. This includes collecting and sharing knowledge and best practices, assisting with the implementation of new acts, clarifying legal issues as well as developing and offering practical tools and guidelines for municipal politicians and officials. KL and KOMBIT, a non-profit shareholder company owned 100% by KL and which advises municipalities on digitalising public services, have established a knowledge centre for digitalisation and technology (https://videncenter.kl.dk/), aimed at supporting the municipalities' digital transformation by providing inspiration and access to knowledge, action guides and tools.

Social services for children, adolescents and families are regulated in the *Act on Social Services* and the municipal councils are charged with making decisions and providing services under this Act. The municipalities are responsible for ensuring the availability of all necessary services required under this act, by providing their own services and using their own facilities and through cooperation with other municipalities, regions, private actors, and voluntary social organisations and associations.

2.2 Brief history of child welfare policy

Throughout history, the Danish child welfare services experienced significant changes (see Nissen, 2017, for a more in-depth account). With the 1905 *Act on Treatment of Delinquent and Neglected Children and Young Persons*, the Danish state took responsibility for the education and upbringing of children in state-financed correctional institutions. This was primarily a response to widely held beliefs at the time that amoral children posed a potential threat to the social order. Following World-War-I and the global economic crisis, child welfare policies were increasingly guided by medical science and eugenics and concerned with the working mother's capabilities to take charge of her child's health, thereby contributing to the reproduction of a strong and healthy population. Sterilisation Acts targeting antisocial elements and mentally retarded inmates found support in hereditary, economic, political and humanitarian arguments (Koch, 2006). The 1937 *Act of Control of Illness and Mortality among Children During*

the first Year of Life perceived the mothers' purported potential ignorance as an obstacle to the reproduction and nurturing of a strong and healthy population. Hence, the newly established Child Health Care Services and the organisation Mothers Help (Mødrehjælpen in Danish) offered health check-ups of new-borns and parent counselling to teach child-care practices, which emphasised pedagogical care for children.

The post-World-War-II period was characterized by an expansion of the welfare state and an individualisation of child welfare concerned with the psychological stimulation and well-being of the child. The 1964 *Act on Child and Youth Welfare* included the psychological and pedagogical stimulation of the child by offering universal welfare services such as day care and psychological and pedagogical counselling. During the 1970s and 1980s, child policies became increasingly concerned with adequately socialising the individual child into a competent citizen, referring to children's rights and the need to view the child as a unique, socially competent human being in and of itself. The *Act of Social Services* during the 1990s emphasised the need to include and consider the child in relation to its expected life trajectory and as a person with certain rights. This focus is still present in current child welfare policies. Welfare professionals are encouraged to consider the child's whole life and to include the child in all relevant systems and spheres of society and to create equal opportunities despite individual problems.

In response to concerns about public expenditure and cases of severe professional negligence, child welfare services today are increasingly focused on risk awareness, early preventive measures, cost-effectiveness, efficiency and evidence-based knowledge. This is illustrated by a continuous flow of reforms including the 2006 Placement reform, the 2010 Child reform, the 2012 Violation package and the 2013 Reform of child welfare control. In addition, the notion of keeping the child's best interests at heart has become the prevalent precept in social welfare policies, ushering in an era of a particularly child-centred approach in social work (Gilbert, Parton & Skivenæs, 2011). Most recently, in 2021, a broad coalition agreed on the Children's Act, scheduled to become effective in April 2023. The Act provides for mandatory child protection investigations of siblings under the age of 15, mandatory parental action plans in cases of placement without consent due to neglect, improved possibilities for permanent placements, placements within the family's social network, for example with next of kin, placement and adoption before birth, increased child rights, measures to improve the municipalities' case management, the improvement of conditions for foster-care families and the improvement of the quality of residential institutions (The Ministry of Social Affairs and Senior Citizens, 2021).

2.3 Act on Social Services

Social services for children, adolescents and families are regulated in the *Act on Social Services* (LBK nr 170 af 24/01/2022). The *Act on Social Services* is comprehensive and regulates, in addition to social services for children, adolescents and families, also social services for adults and senior citizens. *Section IV – Children and young people* regulates social services for children, adolescents and families in general and *Chapter 11 – Special support for children and adolescents* is concerned with the regulation of special support for children and adolescents. *Section I – Introduction*, *Section II – Prevention, counselling and knowledge development*, *Section III – User involvement* and *Section VIII – Administration etc.* are also relevant to social services for children, adolescents and families with special needs, as they describe the general objectives of the *Act on Social Services* and regulate preventive measures, counselling, user involvement and the administration. In the following sections the most relevant parts of these sections are described.

2.3.1 Objectives

The general objectives of the *Act on Social Services* are 1) to offer counselling and support to prevent social problems, 2) to offer general social services designed to also serve as preventive measures and 3) to meet needs resulting from impaired physical or mental functioning or special social circumstances. Support should aim at improving the capability of the individual welfare recipient to be self-reliant, or to make his or her daily life easier and to enhance their quality of life. Support is based on the individual recipient's taking responsibility for his or her family as well as personal responsibility for developing and exploiting his or her individual potential. Support is based on an individual evaluation of the welfare recipient's particular needs and circumstances and professional and financial considerations (LBK nr 170 af 24/01/2022, Section I, §1). Support must be organised in consultation with the individual recipient (LBK nr 170 af 24/01/2022, Section III, Chapter 5, §16) and all services must be organised in such a way that coherence is ensured between the municipality's general and preventive work and specific steps taken to help children and adolescents in need of special support. These regulations are further developed and defined in *Section IV – Children and adolescents*.

Section IV – Children and adolescents. Chapter 11 – Special support for children and adolescents is particularly important, as it regulates support and services for children and adolescents who have a special need for this, in order to ensure that they are given the same opportunities for personal development, health and an independent adult life

as their peers. Support must have the child's or young person's best interest at heart and seek to 1) ensure continuity in their upbringing and a safe care environment that offers close and stable relationships with adults, 2) ensure the child's or young person's opportunities for personal development and the development of skills to enter into social relationships and networks, 3) support the child's or young person's education, 4) promote the health and well-being of the child or young person and 5) prepare the child or young person for an independent adult life. Support must be provided as early as possible, to prevent problems as far as possible at home or in the immediate environment. Support must be organised based on an assessment of the circumstances of the individual child or young person and their family and the child's or young person's own resources. The child's or young person's views must always be taken into consideration and given a weight which is appropriate to their age and maturity. As far as possible, difficulties must be resolved in cooperation with the family. If this is not possible, the background, purpose and content of applied measures must be made clear to the holder of parental authority and to the child or young person (LBK nr 170 af 24/01/2022, Section IV, Chapter 11, §46).

2.3.2 Involvement, cooperation and coordination

The municipalities must ensure that services for children, adolescents and their families are carried out in collaboration with the parents, so as to promote the development, well-being and independence of children and adolescents. This applies both to general and preventive work and to measures for children and adolescents with reduced physical or mental functioning or other special needs. Measures offered to children and adolescents with reduced physical or mental functioning or other special needs must be in keeping with the corresponding laws and regulations.

At least every four years, the municipalities are legally bound to review, prepare and publish a contingency plan for the prevention, early detection and treatment of cases of abuse against children and adolescents (LBK nr 170 af 24/01/2022, Section IV, Chapter 6, §19). In principle, parental consent must be obtained when making decisions regarding the implementation of measures. When measures are considered to be of significant importance in view of the child's or young person's needs for support, and parents have not given their consent, government agencies may proceed to implement measures even without parental consent, where it is deemed that the purpose of the measure cannot be attained otherwise (LBK nr 170 af 24/01/2022, Section IV, Chapter 11, §56 and §58).

The municipality must ensure systematic involvement of the family and relevant networks and involve children or adolescents prior to any decisions and in relation to child

protection investigations and youth specialist investigations. Involvement of children and adolescents can take place without the consent of the holder of parental authority and without his or her presence, when this is in the child's or young person's best interests, considering their situation. The child's or young person's position on decisions that social services intend to take must always be obtained. Involvement of children and adolescents can be omitted, only to the extent that the lack of maturity of the child or the nature of the case precludes their involvement (LBK nr 170 af 24/01/2022, Section IV, Chapter 11, §47-48). Apart from the stipulation that involvement in the investigation should not put children and adolescents in danger, the Act does not specify when the nature of the case militates against involvement of the child. Exemption from involvement must always be based upon a concrete evaluation of the specific case.

Government agencies in charge of resolving issues in relation to vulnerable children and adolescents[1] can exchange information relating to a child's or a young person's personal and family circumstances. They may do so if the exchange of information is considered necessary as part of early or preventive measures, including prevention of abuse against children and adolescents (LBK nr 170 af 24/01/2022, Section IV, Chapter 11, §49a-49b).

When a young person with a significant and lasting impairment of their physical or mental functioning or with a serious chronic or long-term disorder turns 16, the municipality must prepare the young person or his or her guardians for the transition to adulthood. The preparation must be transversal and holistic and consider the need for help and support, education, employment, housing conditions, social conditions and other relevant conditions. The preparations for the transition must be carried out in such a way that decisions about future support can be implemented immediately after the young person turns 18 (LBK nr 170 af 24/01/2022, Section IV, Chapter 6, §19a).

2.3.3 Child protection investigation

If it is assumed that a child or young person requires special support, the municipality must conduct a child protection investigation examining the child's or young person's circumstances, resources and any issues in relation to the family and the network. Insofar as it is possible, the investigation must be carried out in collaboration with the holder of parental authority and the young person who has reached the age of 15. The investigation must be carried out as gently as the conditions permit and must not be more

---

[1] These include, for example, private and public schools, after-school programmes, nurses, health care institutions, the police, the public prosecutor's office, dentists and dental hygienists, day care, after-school care and the Family Court

extensive than the purpose calls for. The investigation must be holistic and in general consider the child's or young person's development and behaviour, family relationships, school conditions, health conditions, leisure activities, relationships and friendships and other relevant circumstances. As part of the investigation, the municipal board must involve additional professionals who already have knowledge of the child's or young person's and the family's situation. The child protection investigation must lead to a reasoned decision as to whether there is a basis for implementing measures at all, and if so, what kind of measures ought to be taken, or which measures already in effect should be continued or adapted. The child protection investigation must be completed no later than four months after the municipality becomes aware that a child or young person may need special support. During a child protection investigation, it must be assessed whether an investigation should be carried out on other children in the family, too.

If there are reasons to assume that a need for special support may arise for a child immediately following their birth, the municipality must investigate the circumstances of the expectant parents. If there is an obvious risk of serious damage to a child's or a young person's health or development, the municipality may, without the consent of the holder of parental authority and the young person who has reached the age of 15, decide to admit the young person to an institution or a hospital, including a psychiatric ward, and then carry out the investigation (LBK nr 170 af 24/01/2022, Section IV, Chapter 11, §50-51).

2.3.4 Preventive measures, counselling and support

The municipalities must provide equal access to free and anonymous counselling, in order to prevent social problems, help citizens with immediate difficulties and enable them to try and solve problems on their own. Counselling can be offered separately from or in conjunction with other social services. During counselling, attention must be paid to additional needs as well (LBK nr 170 af 24/01/2022, Section II, Chapter 3, §10).

The municipalities must offer preventive measures to children, young persons and families. This includes 1) counselling, such as free and anonymous family-oriented counselling to parents and expectant parents, who, considering their circumstances, may be assumed to require counselling, 2) network or chat groups, 3) advice on family planning, 4) other measures aimed at minimizing a child's, a young person's, or a family's difficulties and 5) financial support for expenditures such as contraception or leisure activities, if the holder of parental authority does not have sufficient means. The municipalities must offer free counselling, examination and treatment to children and adolescents with behavioural difficulties or physical or mental impairment and to their families

within three months after an impairment having come to a municipality's attention. (LBK nr 170 af 24/01/2022, Section III, Chapter 3, §11).

The municipalities must provide special day-care facilities for children who, due to significant and permanently reduced physical or mental functioning, have a special need for support and treatment, which cannot be met by ordinary day-care centres or after-school care. Assistance may also be provided in whole or in part by parents at home, who receive training. This requires that, based on the child protection investigation, it can be ensured that the home training promotes the child's or adolescent's well-being and meets the child's or adolescent's needs, that the parents are able to perform the tasks and that the home training is carried out methodically and is documented. This means that the municipalities must continuously supervise the home training and provide training tools, courses, helpers etc. to ensure the quality of the home training meets required standards. Moreover, the municipality must provide financial support to cover earnings lost in connection with the home training (LBK nr 170 af 24/01/2022, Section IV, Chapter 7, §32-32a).

Based on the child protection investigation, the municipality can initiate various types of help and support including 1) stays in a day care programme, a leisure home, a youth club, an educational institution or similar, 2) practical, educational or other support at home, 3) family treatment or treatment of the child's or young person's problems, 4) 24-hour or short-term stay in a general foster family, an enhanced foster family, a specialized foster family, a residential institution or other types of facilities, 5) respite stay in a general foster family, an enhanced foster family, a specialized foster family a network foster family, a residential or inpatient institution, 6) designation of a permanent contact person, 7) placement of the child or young person outside the home, 8) internship placements of adolescents with public or private employers or 9) other types of help, such as advice, treatment and practical and educational support. Under special circumstances, the aforementioned types of support can be implemented as emergency support concurrently with the launching of child protection investigation (LBK nr 170 af 24/01/2022, Section IV, Chapter 11, §52). Measures must terminate when their aim has been achieved, when they no longer fulfil their purpose, or when the young person turns 18 (LBK nr 170 af 24/01/2022, Section IV, Chapter 11, §68). Alternatively, other forms of assistance can be provided (LBK nr 170 af 24/01/2022, Section VIII, Chapter 26, §148).

When a child's or a young person's development is at risk, and this is assessed to be due to the holder of parental authority not fulfilling their parental responsibility, the municipality can issue a parental order, without prior completion of a child protection investigation. A parental order specifies one or more concrete obligations for the holder

of parental authority such as ensuring school attendance or participating in a parent education programme. Compliance is a precondition for receiving child and youth benefits (LBK nr 170 af 24/01/2022, Section IV, Chapter 11, §57a). Similarly, a child or youth order can be issued to a child or young person aged between 10 and 17 who exhibits behavioural problems or negative behaviour of such a nature that the child or young person's development is at risk, and when it is deemed that voluntary collaboration is insufficient (LBK nr 170 af 24/01/2022, Section IV, Chapter 11, §57b).

2.3.5 Action plans

The municipality must draw up an action plan prior to a decision on measures or, if measures need to be implemented immediately, as soon as possible and within four months at the latest. The action plan must be consistent with the results of the child protection investigation and must state the purpose of the measures. Regarding issues that have come to light during the child protection investigation, the action plan must contain concrete goals in relation to the child's or young person's well-being and development that are set in accordance with the overall purpose of the measure and indicate the expected duration of the measure. Action plans for adolescents who have reached the age of 16 must set concrete goals for the young person's transition to adulthood, including in relation to employment and education (LBK nr 170 af 24/01/2022, Section IV, Chapter 11, §140).

In accordance with Section IV, Chapter 11, §47 and §48 (LBK nr 170 af 24/01/2022), the municipality must involve parents as well as children and adolescents prior to taking a decision. In addition, the municipality must take into consideration the child's or young person's position on measures in the action plan.

A joint action plan that takes the children's individual circumstances into account can be drawn up for several children in one family. Similarly, plans concerning parents and adolescents between the ages of 16 and 23, can be replaced by a holistic plan, provided they consent to it. The holistic plan can be offered to parents and adolescents with complex problems, where several plans can or must be drawn up each containing different measures, and where there is a need for coordination (LBK nr 170 af 24/01/2022, Section VIII, Chapter 25, §140a).

The municipality must continuously monitor the individual action plans to ensure that the measures continue to fulfil their purpose and to ascertain whether there is a need to provide other forms of assistance (LBK nr 170 af 24/01/2022, Section VIII, Chapter 26, §148)

2.3.6 Notification obligation

Anyone must notify the municipality if they become aware of, or have reason to assume, that a child or young person under the age of 18 may need special support or that a child may need special support immediately after birth due to the circumstances of the expectant parents (LBK nr 170 af 24/01/2022, Section VIII, Chapter 27, §153-154). In principle, any means of communication is sufficient. Municipalities, however, often encourage citizens to phone the social services or to use online self-service notification forms on the municipalities' websites.

If a family moves from one municipality to another municipality and it is assessed that one or more children or the expectant parents need special support, the municipality from where the family moves must inform the receiving municipality about this and send the necessary information and case records, including a summary of relevant assessments (LBK nr 170 af 24/01/2022, Section VIII, Chapter 27, §152).

The municipality must ensure that a timely and systematic assessment of all notifications is carried out and must assess, no later than 24 hours after receiving a notification, whether the child's or adolescent's health or development is at risk and whether there is a need to initiate emergency measures to protect the child or adolescent. When assessing notifications, a conversation *can* take place with the child or young person without the consent of the holder of parental authority and without his or her presence, when the child's or young person's best interests call for this. When the municipality receives a report on abuse against a child or young person, an interview *must* take place with the child or young person. Interviewing the child or young person is optional if they are not sufficiently mature or if the nature of the case precludes conducting an interview (LBK nr 170 af 24/01/2022, Section VIII, Chapter 27, §155-155a). Apart from the requirement that the interviews may not put children and adolescents in danger, the act does not specify the nature of cases in which the interview may be omitted. Exemption from interviews must always be based upon a concrete evaluation of the specific case.

2.4 Summary of key responsibilities and tasks

The key responsibilities imposed by law can be summed up in various interrelated dimensions such as prevention, early intervention, risk assessment, counselling, service planning, cooperation with children, adolescents, parents and welfare professionals, case management, treatment and intervention.

The dimensions are to some extent chronologically linked and can be characterised in accordance with their position in relation to each other. For example, treatment and intervention usually ensue from welfare professionals' service planning, which may follow after cooperation with and involvement of children based upon risk assessments of reports of suspected child maltreatment. However, no two cases are alike and social workers often become aware of additional social problems while intervening in or counselling families. Moreover, intervention, treatment and support are continuously monitored and risks assessed. Across all dimensions, involvement of and communication with children, adolescents and families are of key importance, as is the knowledge or information upon which social workers base decisions regarding appropriate measures, their effects and duration.
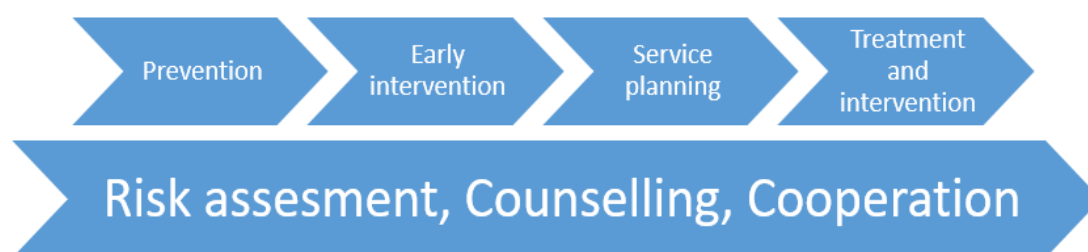
Figure 2: Interrelated dimensions of social services.

3. Digitalisation regulations, policies and strategies

In the previous chapter I described the most pertinent sections in the *Act on Social Services* for the regulation of social services for children, adolescents and families. I then summarized the key tasks and responsibilities. These tasks and services are potential areas of digitalisation and as such impacted by rules and regulations as well as strategies and political visions for digitalisation. This section provides a brief history of Danish digitalisation strategies and gives an overview of digitalisation efforts impacting (but not limited to) social services for children, adolescents and families. The objective is to illustrate the intersections between digitalisation in general and social work with children, adolescents and families in need of special support at a strategic and policy level.

3.1 Brief history of digitalisation

The first Danish national digitalisation strategy (Ministry for Research, 1994) was enthusiastic and optimistic about the potential of new technologies, but also aware about potentially negative consequences, especially for vulnerable people. The strategy argued that digitalisation should be guided by values such as democracy, social inclusion, freedom of information, and public sector efficiency. The objectives of digitalisation were to enhance democratic participation, increase transparency and empower citizens. It was emphasised that every citizen holds certain IT-rights including easy access to technology, affordable prices, universal design and privacy (Jæger & Löfgren, 2010). Apart from emphasising citizens' data rights, the values guiding the 1994 strategy no longer appeared in the 1999 national digitalisation strategy (Ministry for Research, 1999), which shifted the focus towards increasing efficiency in the public sector and establishing a centralised digitalisation governance structure that emphasised the government's role in instigating and coordinating digitalisation projects. During the 2000s, the Ministry of Finance established a digital task force which was assigned the task of formulating the national digitalisation strategy. The ensuing strategy (The Digital Task Force, 2002) echoed the Liberal Government's digitalisation policy, arguing that the aim of digitalisation was to improve welfare services by enhancing the efficiency of the public sector. Digitalisation efforts should aim at freeing up resources to enable frontline workers to engage more with people in need, rather than spending time on bureaucracy and deskwork epitomised by the phrase "turning cold hands into warm hands" (Jæger, 2003).

In 2011 the digital task force was replaced by the Agency for Digitalisation under the Ministry of Finance. Meanwhile, the local governments and their interest organisation, KL - Local Government Denmark, also began devising their own digitalisation strategies. Thus, a patchwork of interrelated and interdependent strategies emerged. As a result, digitalisation policies span different levels of government, with only a formal hierarchical structure. Whereas digitalisation in the 2000s was focussed on the public administration, the digitalisation strategies of the 2010s started to include the welfare services, which had hitherto been left in the hands of the welfare professionals (Jæger, 2020). In addition to focusing on welfare technologies such as robotic vacuum cleaners, the 2011 digitalisation strategy (The Danish Government, KL & The Danish Regions, 2011) advocated that welfare services should be improved and made more efficient by digitalising key areas such as healthcare and unemployment services as well as the communication between citizens and government agencies. The 2011 strategy marks a shift from perceiving digitalisation as a tool for raising the efficiency of social services,

towards an appreciation of digitalisation as a means to transform and improve welfare services.

3.2 Digital self-service and communication

As part of the implementation of the "four waves of obligatory digital self-service" presented in the joint public digitalisation strategy 2011-15 (The Danish Government, KL & The Danish Regions, 2011), the *Decree on Mandatory Digital Self-Service Regarding Applications and Notifications etc. on Social Benefits etc.* (BEK nr 1584 af 07/07/2021) came into effect. The Decree states that a number of services must be accessible online through the Danish citizen portal borger.dk, including applications for housing benefits, reporting changes of address, ordering a social security card, applying for childcare, and registering children for after school care. Thus, citizens applying for, for example, housing benefits are required to do so online.

Borger.dk was launched in 2007 as a single point of entry for online digital self-service and public information. Today, borger.dk hosts approximately 2,000 self-service solutions covering 89 authoritative areas within the public sector, several of which are mandatory. *Borger.dk* only hosts the self-service solutions. The municipal, regional and central government agencies are responsible for developing and keeping the self-service solutions operational and user-friendly. Self-service solutions must live up to the usual standards for good user experience (Agency for digital government, KL & The Danish Regions, n.d.), which describe how to comply with the mandatory minimum requirements for the development of public self-service solutions.

In June 2012, the Danish Parliament adopted the *Decree on Digital Post from Public Authorities* (LBK nr 686 af 15/04/2021), whereby it became mandatory for citizens to receive mail from public authorities digitally, rather than in paper form. The online solution, Digital Post, is provided by the state and hosted by and accessed via the online citizen portal *borger.dk*. The Decree gives the government agencies the right to send messages, documents, decisions etc. digitally to citizens and states that digital mail sent through the mail solution *Digital Post* has the same legal effect as traditional paper mail. Moreover, it states that *Digital Post* is mandatory for all citizens over the age of 15 who are residents or have a permanent address in Denmark. This means that all citizens that have not been exempted from this rule receive their post from the public sector digitally. The public authorities must provide help and guidance to citizens who have difficulty accessing the post digitally. Of the 4.8 million Danish citizens over the

age of 15 to whom the Decree on Digital Post from Public Authorities applies, 4.6 million citizens are registered with Digital Post. Approximately 331,000 citizens are exempt from using Digital Post (Agency for digital government, April, 2022).

Citizens who meet at least one of the criteria below can be exempted from *Digital Post* and receive mail from public authorities in paper form instead. Exemption criteria include mental impairment or physical disability preventing the use of *Digital Post*, no access to online devices at home, language barriers, other special circumstances and difficulties in acquiring the digital signatures (*NemID* or *MitID*), which gives access to *Digital Post* (LBK nr 686 af 15/04/2021, § 5). Exemption from *Digital Post* does not automatically imply exemption from other digital solutions such as digital online self-service solutions (Bächler, 2022).

The municipalities' citizen services assist with accessing and using *Digital Post* as well as other digital self-services (Pors, 2021). This assistance aims at training citizens to become digitally independent.

3.3 Digital signature

NemID, which was launched in 2010, is a common online log-in and digital signature for public and private self-service solutions, including online banking. *NemID* consists of a user ID, a password, the *NemID* card or *NemID* code token for generating one-time codes or a *NemID* key app for mobile devices (e.g. a smartphone or tablet). In principle, *NemID* is voluntary. However, since post from public authorities and some services by default are digital, *NemID* is de facto a necessity. Requirements for *NemID* are: a minimum age of 15 years, a Danish social security number, and identification. Non-Danish citizens such as people with a Danish residence permit or exchange students are also eligible for a Nem-ID. As of April 2022, 5.2 million citizens have *NemID*.

To meet new and additional security requirements, *MitID* replaced *NemID* in 2021 and 2022. When *MitID* is fully implemented, *NemID* will be terminated. To be eligible for a *MitID*, one has to be at least 13 years of age and meet the identification requirements (BEK nr 1778 af 01/09/2021). *MitID* is Denmark's eID solution and can be used for online identification on public digital self-services provided by European Union member states.

3.4 Digitalisation-ready legislation

In quest of more efficiency in the public sector and more consistent and transparent case management, the Government and the political parties set up the 2018 *Agreement on Digital-Ready Legislation* (The Danish Government, 2018). The agreement states that legislation henceforth must be simple and clear, making it easier to understand for citizens and facilitating the public administration's digitalisation and automation of procedures. This implies that objective criteria as well as clear, unambiguous and commonly understood concepts should be used. Objective rules must only be applied within limits, i.e. when there is no need for a professional judgement. The aim is to promote automation by applying objective criteria where appropriate, and to ensure that there is room exercising discretion in cases where closer examination by a professional is called for. An increased application of objective rules can thus enable professionals to spend more time on complex cases, where there is a greater need for professional assessment, for example in cases concerning the welfare of children or support for particularly vulnerable citizens. Finally, the agreement states that concepts and data must be reused across government agencies so that it becomes possible to use these in case management across public authorities. The agreement came into effect with the *Guidance on Digitization-Ready Legislation* (VEJ nr 9590 af 12/07/2018).

3.5 Artificial intelligence, ethics and inclusion

Recognising the advances in artificial intelligence, (systems based on algorithms that, by analysing and identifying patterns in data, can identify probable solutions), the Danish Government published the first national strategy for artificial intelligence in 2019. The strategy states that artificial intelligence must be used to improve public services based on the needs of citizens and to support faster and more efficient case processing. Artificial intelligence is supposed to improve services, provide quicker diagnoses, assist in decision-making and improve communication between public authorities and citizens. Benefits in the short terms are expected to include better service for citizens, better case

record management, higher quality and more citizen-centred care through better re-source management, quicker and better diagnosis as well as more targeted treatments, better possibilities to combat fraud in social benefit programmes and, finally, quicker case processing and overall, more efficient administration. To support these ambitions, the government plans to develop the Basic Data Programme, which, since 2012 has aimed at enhancing coherence and the quality of data held by the public sector and facilitating access to public-sector data. Moreover, the government has established an investment fund to support the development and dissemination of new technologies (Antczak & Birkholm, 2019). From 2020 to 2022, the investment fund invested 25,11 million Euros and supported a total of 40 signature projects which develop and test artificial intelligence in the public sector. Supported projects must demonstrate the ap-plication of artificial intelligence in the areas of welfare, climate protection or admin-istration. The aim is to test artificial intelligence in areas where there is potential to im-prove the quality and expand capacities in the future public sector by scaling up the technology, but where there is currently little concrete experience. The focus is on ex-ploiting the opportunities that artificial intelligence offers, but at the same time also on creating awareness of the limitations and challenges.

Most of the projects are healthcare-related and endeavour to use artificial intelligence for the diagnosis of chronic illnesses such as osteoarthritis, cancer and schizophrenia or when treating medical emergencies such as blood poisoning, kidney and lung failure. Some projects relate to climate initiatives and deal with, for example, optimising and managing energy consumption in public buildings. A few projects are concerned with employment. For example, one project aims at devising effective employment initiatives for the unemployed, with the aim of reducing the duration of unemployment, getting long-term unemployed people into work and increasing satisfaction with the imple-mented measures. Only one project relates directly to social services for children, ado-lescents and families. This project develops a decision support system, assisting social workers in screening and evaluating risks in incoming notifications.

Acknowledging potential ethical challenges and limitations of artificial intelligence, the strategy cautions that artificial intelligence should support analysis, understanding and decisions but not replace welfare professionals and their assessments. Thus, artificial intelligence must be developed and used responsibly and with a value-based approach emphasising the citizens' fundamental rights, legal security, fundamental societal val-ues and ethical principles including self-determination, dignity, accountability, equality and justice (The Danish Government, 2019).

The most recent digitalisation strategy, *Digitalisation that Lifts Society - The Joint Government Digital Strategy 2022-2025* (The Danish Government, KL & The Danish Regions, 2022), was published in 2022. The strategy has not yet had much of an effect, but it does provide some interesting insights into the future digital public sector. The strategy follows on from *Digital Inclusion in the Digitalised Society* (Agency for digital government & KL, 2021), a report which explores the complexity which characterises the digital relationship between citizens and public authorities and emphasises the need for digital transformation based on consideration for the citizen, regardless of circumstances, opportunities and skills. Based on this, the strategy emphasises the need for inclusive and coherent digital services and that people who are digitally challenged should receive the necessary help and support. This includes providing adults who are responsible for children easy access to relevant digital information about the child and developing more coherent procedures for vulnerable children, adolescents and families whose cases are being dealt with by different government agencies. This involves improving data sharing possibilities between public authorities and across the public sector. The strategy identifies social services for vulnerable children and adolescents as the primary area in which the central government, the municipalities and the regions must cooperate to exchange data more effectively.

4. Mapping digital technologies

There is no agreed upon or easy way of mapping digital technologies in social work. This section provides an overview of digital technologies in relation to various dimensions, or aspects, of social support for children, adolescents and families. First, a general overview is presented. This overview is based upon KL and KOMBIT's technology radar and provides examples of technologies in social services for children, adolescents and families. Second, digital technologies are mapped in relation to the different dimensions of social support for children, adolescents and families.

4.1 General overview

As mentioned above, KL (Denmark's local government interest group) and KOMBIT support the municipalities' digital transformation by providing inspiration and access to knowledge, action guides and tools. As part of this initiative, KL and KOMBIT provide a technology radar. The technology radar shows the maturity of 25 technologies in the municipalities in six different welfare areas. The welfare areas include, among others, e*mployment and integration*, *health and senior citizens*, *economy and administration*, and *social services*. Social services for children, adolescents and families are a subsection of general social services, but technologies related to economy and administration are also of relevance. The radar's 25 technologies comprise, among other things, robotic process automation, apps, self-services, video solutions, physical robots, machine learning and natural language processing. This report focusses on the above-mentioned technologies because they have been implemented to varying degrees in social services for children, adolescents and families in need of special support. I will introduce these technologies briefly below.
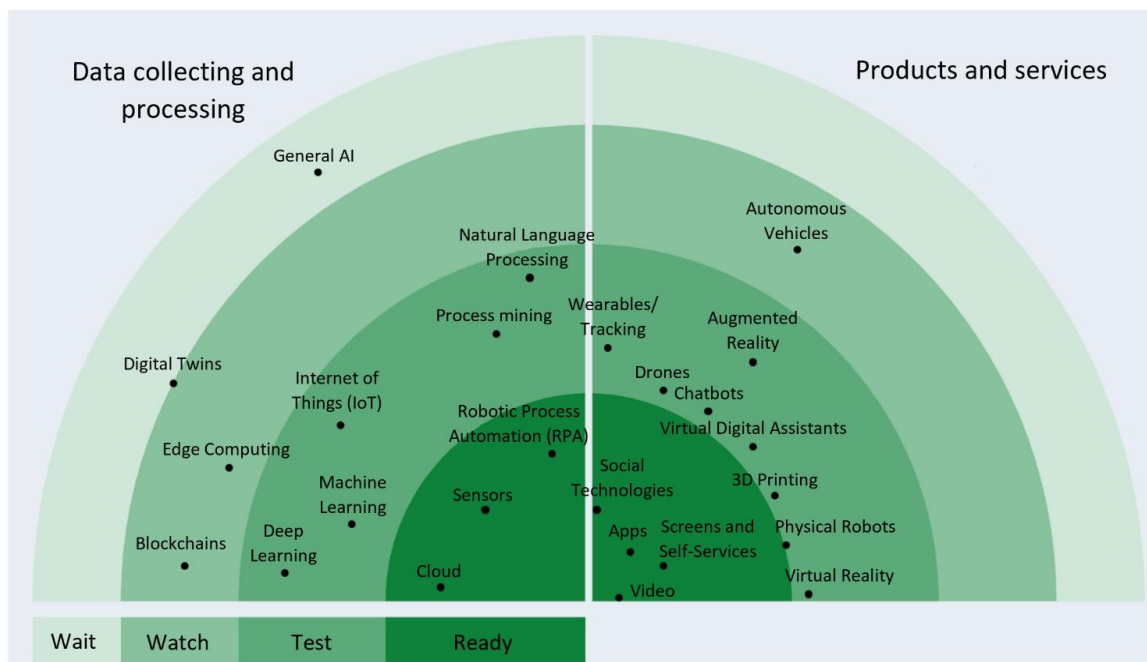
Figure 3: Screenshot 07/11-2022 - Technology radar on social welfare services. Adapted and translated by the author.

A technology's position on the radar is based on its technological maturity and its proliferation in local government administration. Technologies that are labelled "ready", are technologically mature and in operation in many municipalities. The least mature and implemented technologies are labelled "wait". They are less technologically mature and have only been tested in very few municipalities. In addition to providing an

overview, the technology radar aims at facilitating a dialogue on how technology can contribute to solving municipal tasks and developing welfare services.

Robotic Process Automation (RPA) is software that automates simple, routine tasks such as linking documents or postings in several different systems. This technology is estimated to be technologically mature and is widespread in the municipalities, especially as an administrative technology. In social services for children and adolescents, RPA is, for example, used to compile case records when access to documents has been requested, to ensure that deadlines are kept, to link siblings in the case management systems, to close cases correctly and at the appropriate time, and to send correct information to the right institutions, in order to calculate and pay child welfare support (Jørgensen & Nissen, 2021).

Apps are also estimated to be technologically mature and are widely used for various purposes in the municipalities. An app is, strictly speaking, not a technology but a term for software specially designed to communicate with a user on a computer, smartphone or tablet. Apps can be used for various ends, for example, for communicating with children, adolescents and families through a secure, familiar and encrypted channel. Smartphone apps can also save time, as they can connect the municipal employees on the move with the computer-based IT solutions that employees use at their desks. A significant advantage of apps for smartphones is the ability to use the user's location to customize the app's content and use. However, there are also ethical and data-related issues relating to the monitoring of users. Although the development of apps has become easier and cheaper, several municipalities emphasise that apps require a lot of development and maintenance resources.

Another technology that is estimated to be mature and in common use is digital self-service solutions. The online citizen portal, *borger.dk*, hosts approximately 2,000 self-service solutions covering 89 authoritative areas within the public sector, several of which are mandatory. Several municipalities have emphasised that self-service solutions must be simple and easy to use so that as many citizens as possible can use the self-service solutions. KL warns that there may be situations that are better suited to in-person meetings or other platforms, for example if the amount of information needed to apply for and process a service is large and complex.

Video solutions, which cover solutions where two or more parties communicate with each other via video, are estimated to be among the most mature and widely used technologies in the municipalities. It is also the technology, which is estimated to have created most value in the municipalities. Video solutions include meetings, online visits, consultations and conversations with citizens and meetings with welfare professionals,

within and outside the organisation. There are no rules regulating the use of video solutions to support various kinds of consultation situations. However, it is advised that the use of video solutions is based on an individual evaluation of the case at hand. For example, some social workers would rather not conduct initial meetings with vulnerable families over the phone or via a video solution. Building meaningful and respectful relationships with families is a fragile affair that depends on attentiveness to, and understanding of, even the smallest clues during interaction, something which digital communication can distort (Jørgensen et al. 2023). Solutions can be both mobile solutions and video conference solutions in meeting rooms. While video solutions were already being tested before the Covid 19 pandemic, the pandemic-related lock-down required increased use of video-based social work to minimise the risk of infection. For example, during the lock-down periods municipalities implemented and tested online video supported treatment for families with complex problems, who are in need of emergency and compensatory interventions (Hjelmar, Pedersen & Jensen, 2021).

KL believes that over the next five to ten years advances in autonomous system technologies and cognitive computing will pave the way for much more flexible robotic systems that can be integrated into various welfare institutions. However, robotic technologies are estimated to be a little less common and less mature than robotic process automation, self-service solutions and apps. Robots can assist and take over a number of tasks that are currently handled by humans. Robots are typically designed with very specific functions and ends in mind and have a wide range of potential applications, especially within eldercare, e.g. assistance with heavy lifting, cleaning, and eating. Regarding social services for children, adolescents and families, baby robots or infant simulators have been used in parent educational programmes as pedagogical tools to guide and train vulnerable individuals believed to be at risk of becoming incompetent parents. The baby robot is coded to display some elementary behaviour and needs of a real child. For example, the baby robot will start crying at any time of day or night and must be attended to within a certain time frame. Responses to the baby's needs are recorded and used to evaluate the participants' parental performance and are used in the guidance about future potential parenthood (Søgaard, 2017, 2019, 2021).

The last technologies considered here are machine learning and natural language processing. While these technologies are highly mature, they are not widely used yet – at least not in social services for children, adolescents and families. However, endorsed by, among others, the national strategy for artificial intelligence (The Danish Government, 2019) and the Danish government's investment fund, these technologies are expected to become much more significant to social work and public administration in

general and in relation to children, adolescents and families in particular. Natural language processing allows computers to process and analyse natural language data including the content and the contextual nuances of the language. The purpose can be understanding and processing text alone or a mixture of text, sound and images. Natural language processing makes it possible for, for example, chatbots to interact with citizens. Natural language processing can also be combined with, for example, machine learning, where it can be used to extract meaning from large amounts of text. For example, natural language processing has been used in a decision support system that distinguishes between urgent and less urgent reports of child abuse and neglect by analysing the open-ended texts in incoming reports on children and adolescents (Jørgensen & Nissen, 2022).

We can distinguish between supervised machine learning, which is sometimes referred to as simply machine learning, and unsupervised deep learning which is characteristic of neural networks (Bini, 2018; Sathya & Abraham, 2013). In both cases, machine learning builds algorithms based on sample data, known as training data, to make predictions or decisions based on data. In relation to social services for children, adolescents and families, machine learning has been employed in three projects developing decision support systems which, each in a different way, seek to predict the risk of child abuse and neglect, thereby assisting social workers in their assessment of reports on children (Meilvang & Dahler, 2022). To this day, only one of these systems has been implemented. Other high-profile projects using machine learning to predict the risk of future child abuse and neglect have been publicly and controversially debated and have never left the drawing board (Chiusi et al., 2020; Jørgensen et al. 2022). The debate was mostly concerned with legal issues, such as the use of data and citizens' legal rights and with trust in the public sector.

4.2 Mapping technologies in relation to social work processes

Typologically and in relation to the responsibilities imposed by law, professional social work consists of various interrelated dimensions or elements, including prevention, early intervention, risk assessment, counselling, guidance and advice, service planning and case management, case management, treatment and intervention, and, finally, care. These can be understood as being on a continuum (Antczak & Birkholm, 2022; Henriksen, 2015). The depth, the scope and the methods and theories applied in each dimen-

sion depend on the nature of the problem at hand, the aim of the task, the specific situation, the political and organisational context as well as the level focused on (individual, group, local community or societal level) (Henriksen, 2015).

Prevention and early intervention ⟩ Counseling ⟩ Case management ⟩ Interventions and treatment ⟩ Care

Figure 4: Ideal-typical model of social work dimensions (Antczak & Birkholm, 2022). Adapted and translated by the author.

This is an ideal-typical model at best. Social work is rarely if ever a linear process made up of a series of phases that succeed one another. No two cases are alike and social workers often become aware of additional social problems when intervening in or counselling families. In the real world, then, the dimensions overlap. Nonetheless, all dimensions are affected by various digitalisation efforts (Antczak & Birkholm, 2022).

As for prevention and early intervention, machine learning and big data are expected to become valuable technologies for collating and analysing large amounts of data on families or individual citizens from different administrative systems in order to identify early stages of abuse and neglect of children and adolescents and even to predict risk of maltreatment (KL - Local Government Denmark, 2018).

Advice, guidance and counselling are increasingly being digitalised. Young people, for example, can receive anonymous, web-based advice from welfare professionals working in child protection services and from nationwide operating non-governmental organisations that advise young people on issues such as loneliness, violence, abuse or psychological problems. Moreover, information about rights, duties and social services is provided via the online citizen portal *borger.dk* or the municipality's website.

Many case management processes in the social sector are today digitalised. Applications for social services are primarily submitted online through self-service platforms, authenticated using *NemID* or *MitID*. In addition to using digital case management systems, several municipalities have also implemented robot process automation to automate and support case processing. *DUBU* (short for Digitalisation – Vulnerable Children and Young People) is by far the most widely used case management system in Denmark. The system is based on the *Integrated Children's System* (ICS) developed in the United Kingdom which guides all administrative case management processes, from the opening of a case to the documentation of the child protection investigation, official correspondence, conversations, counselling, granted services and planning (Høybye-Mortensen, 2020).

Interventions and treatment refer by their very nature to a wide array of practices and processes and will vary depending on the case at hand. Digital interventions and treatment include, among other things, online video supported family treatment for families with complex problems (Hjelmar, Pedersen & Jensen, 2021) and Feedback Informed Treatment (FIT). *FIT-Outcomes* is an evidence-based dialogue and evaluation tool developed for professional therapists that is used to evaluate and improve the quality and effectiveness of therapeutic interventions by asking clients to rate their experience of the intervention and their level of satisfaction.

The care dimension has also been digitalised to some extent. For example, online video supported family treatment for families with complex problems can be understood as care if compensatory interventions are involved (Hjelmar, Pedersen & Jensen, 2021). Likewise, *TeleDialogue*, which aims at strengthening the relationship between placed children and their social services case managers through videoconferencing, chat and texting can also be characterised as a care practice. The experience with *TeleDialogue* indicates that children and case managers talk with each other more often, learn more about each other and that case managers come to play a more active role in the everyday lives of placed children (Andersen et al., 2018).

Social services use several digital technologies, such as case management systems, robotic process automation, decision support systems, risk prediction systems, online communication systems, online self-service systems and *Digital Post*. These systems are not completely disjointed from each other. For example, artificial intelligence-based risk prediction systems can be linked to robotic process automation. Moreover, different technological systems can support more than one social services dimension. For example, case management systems employing algorithms, robotic process automation, schemes etc. can aid risk assessment, service planning and cooperation among welfare professionals. Likewise, baby robots can be understood as intersecting with both counselling and early intervention and treatment. Thus, baby robots are used to train expecting parents with low parenting skills. But recorded data from individual training sessions may also be used to teach other expecting parents. Finally, *MySocialworker*, which is a mobile app, facilitates communication between social workers and vulnerable young people. It helps with the formulation of shared and specific agreements, with making plans more concrete than is often the case with mandatory action plans, and with the continuous monitoring of compliance with agreements and continuous self-examination through a diary and self-reported progress evaluations. Thus, the *MySocialworker* app integrates elements of counselling, case-management, intervention and care.

The subsequent chapters discuss in more detail digital systems that support one or more of the following dimensions: risk assessment, prediction and decision-making, case management and social services planning, communication and, finally, cooperation. In addition to describing how these elements have been digitalised, special attention will be given to experience of possibilities, issues and dilemmas.

5. Risk assessment, risk prediction and decision-making

This section presents digital technologies developed to assist decision-making, risk assessments, preventive social work and early interventions. Some of these systems are in the development phase, some have already been implemented, and some have been shelved. Decision support systems incorporate algorithms or neural networks, which have been trained and tested on large data sets to calculate and produce an output concerning the likelihood of a particular outcome, in order to assist social services professionals in their decision-making. This may also be referred to as predictive analytics (Gillingham, 2019). Such systems differ from automated decision systems in that they only provide information to help in human decision-making. Decision support systems have been developed and implemented in child protection services in several countries, including the USA, the UK, New Zealand, Australia, the Netherlands, Norway and Denmark (Jørgensen et al., 2022).

Artificial intelligence, big data and predictive algorithms are still in their infancy in the Danish public sector. Specific welfare areas that are expected to benefit from these technologies include the employment and health services (The Danish Government, 2019). Regarding child protection services, local governments are currently developing predictive analytics and decision support systems to identify children at risk of harm, predict the risk of future social problems, to provide a better-informed foundation upon which social workers can form decisions and responses (Jørgensen, 2020; Lund, 2019). This can be understood as a response to 1) a recurrent criticism that decisions and professional judgements are arbitrary, subjective and rely too heavily on the individual social worker (Meilvang & Dahler, 2022), 2) a socio-political child and risk-orientation and 3) a political discourse calling for evidence-based practice (Jørgensen et al., 2022). Finally, these systems should be understood within the context of the municipalities' legal obligation to assess systematically all reports of child abuse and neglect no later than 24 hours after reception, thereby determining whether the child's health or development is at risk, and whether there is a need to initiate emergency measures (LBK nr

170 af 24/01/2022, Section VIII, Chapter 27, §155-155a). Meilvang & Dahler (2022) identify three systems in Denmark:

1) A system to support social workers in sorting reports on child abuse by urgent and non-urgent cases. The system was developed in-house and tested and implemented in the municipality of Copenhagen. Utilising natural language processing and machine learning, the system processes open-ended text in incoming reports, categorising them as either requiring immediate action or not. The system generated an algorithm by analysing a historical training data set consisting of approximately 15,000 reports.

2) A predictive risk model for detecting child maltreatment and at risk thereof using machine learning techniques. During the first phase of the project, an algorithm to support social workers in risk assessment was codeveloped by VIA University College and Aarhus University and tested in two participating municipalities. During the second phase, which runs from 2019 to 2023, the long-term effects of using the algorithm are being evaluated. Administrative data was used to design statistical models predicting the likelihood of a child having to be removed from their home and placed in out-of-home care as a proxy for child maltreatment. The model's objective was to support social workers' interpretation of incoming notifications reporting child abuse and neglect, but it has not been implemented.

3) An algorithm for categorising notifications, which is being developed by a private company for the child and family welfare services in a large Danish city. This project is still in the design phase.

In addition to these three systems, the never realised Gladsaxe model spurred a public debate about the collection and use of data by child welfare services (Jørgensen et al., 2022). Rooted in the municipality's wish for a pre-emptive strategy, the local government of Gladsaxe envisioned a predictive algorithm to identify children at risk of becoming socially vulnerable, by compiling and comparing data concerning, among other things, medical history, abuse data, residence and ethnicity. Planning for this model commenced in 2018 but was soon put on hold due to legal issues about the use of data for purposes other than what individuals had consented to (Frederiksen, 2019). Although, the model never left the ideation stage, the public debate surrounding it brought to the fore some of the contentious issues associated with using machine learning and big data for risk assessments in social work, such as citizens' legal rights and trust in the public sector.

5.1 Accuracy

Decision support systems are, for obvious reasons, concerned with accuracy, which is understood as the ability to identify or predict the cases that are cause for concern and only those cases. That is, the systems should avoid false negatives (cases not identified or categorised as belonging to the target group, but which should be) and false positives (cases identified or categorised as belonging to the target group, but which should not be). Success criteria differ among systems and depend on their respective purpose. For example, the system developed in the municipality of Copenhagen was meant to be able to distinguish between urgent and non-urgent reports while the predictive risk model developed by Via University Collage and Aarhus University was meant to be able to tell children at risk of maltreatment apart from children who are not. However, research shows that success criteria and the demarcation lines between false and true distinctions are also negotiated during the development processes and may change over time. For example, when tests showed false negatives in 9 out of 444 cases, Copenhagen municipality decided to calibrate the thresholds for the urgent and non-urgent categories and merge the urgent and statistically ambiguous categories. Thus, the probability of false negatives decreased while the probability of false positives increased (Jørgensen & Nissen, 2022).

The accuracy of the predictive risk model developed by Via University College and Aarhus University has also been tested. The test shows that with a probability of almost 84% the model will assess a child who is placed to be at higher risk than a child who is not placed. In comparison, in a similar study from New Zealand, a score of 76% was achieved. Values above 90% are considered excellent, values between 80 and 90% as good, values between 70 and 80% as reasonable, and values below 70% as poor (Rosholm, Bodilsen & Toft, 2022). The upshot is that accuracy does not refer to a fixed quality or property. Rather, developers and other relevant actors continually re-evaluate and redefine what accuracy means and how accurate predictions should be.

5.2 Bias and data

Systems that base predictions or categorisations on existing data risk reinforcing or amplifying existing systemic bias and discrimination. What a model learns through machine learning depends on the examples to which it has been exposed. If the data are unrepresentative, or in some other way of poor quality, the system's predictions or categorisations will similarly be poor. Unusable, unavailable, or unrecorded data constitutes limits as to what AI systems can learn. Available data, moreover, can contain and

reflect bias and can affect categories of people in consistently unfavourable ways. Available training data is constructed or created in specific social, political and organisational contexts and depends on policymakers', system developers' and social workers' choices based on explicit reasoning as well as tacit cultural assumptions and doxas (Petersen, et al., 2021). International research, for example, illustrates how racial bias is inherent in data used for predictive policing reproducing discriminatory practice (Richardson, Schultz & Crawford, 2019). Good predictive systems, in other words, require good data stewardship.

The Danish experience is limited in this regard. Copenhagen municipality is aware of the risks of reproducing potential bias in historical assessments of incoming notifications. For example, if historical assessments of child notifications are biased towards children from families with ethnic origins other than Danish, there is a risk that such bias will be reproduced by predictive algorithms, unless efforts are made to check for bias. Instead of systematically checking for bias, developers trust that the historical assessments are free of bias (Jørgensen & Nissen, 2022). During the development of other predictive risk models, attention was being paid to correlations and unfounded prejudice in the training data that had no relevance to predicting child abuse and neglect. Thus, the model developed by Via University College and Aarhus University does not include information about gender or ethnicity. However, as the developers caution, there may still be variables included in the model, which are correlated with gender or ethnicity. Such correlations and distinctions can be well-founded. For example, sexual assault happens more frequently to girls than to boys. Accordingly, it is advised that differences and correlations are carefully scrutinised, as they may also be due to historical bias in the decisions, which can be regarded as discriminatory and thus unfair (Rosholm, Bodilsen & Villumsen, 2021). Therefore, it is thought that the involvement of a human social worker making the final assessment or risk prediction can reduce potential bias. This is paradoxical, since the systems are developed to counter the criticism that professional judgements are arbitrary and rely too heavily on the individual social worker (Meilvang & Dahler, 2022).

5.3 Surveillance

In addition to questions of fairness, predictive risk modelling and risk assessment technologies raises questions about ethical values and the balance between privacy and surveillance. The debate concerning the Gladsaxe model illustrates this balancing act. The local government of Gladsaxe desired to detect child maltreatment earlier. It was widely acknowledged that the municipality tended to react too late in cases of child

abuse and neglect and that social workers did not react in time in urgent cases because they lacked valuable information. In response, the local government of Gladsaxe envisioned and started developing a predictive algorithm to identify children at risk of becoming socially vulnerable, by compiling and comparing data concerning, among other things, health history, abuse data, residence and ethnicity. The head of the social services in Gladsaxe municipality maintained that the system would not surveil the population at large but would make it possible to detect children at risk of maltreatment ahead of it happening. Lisbeth Zornig, former chairperson of the *Government's Children Council*, chairperson and founder of the social policy think tank *Social Innovations Forum* and founder of the *Children's IT Foundation* supported the initiative. Inspired by the *Nottinghamshire model* and the *Troubled Families Programme* in the United Kingdom, she argued that local government agencies should use whatever means necessary to detect children at risk of abuse and neglect. Mai Mercado, Denmark's Minister for Children and Social Affairs at the time, shared this view (Lessel & Houlind, 2018). However, surveilling and targeting vulnerable families and children was questioned on moral and legal grounds and because of potentially negative consequences for the trust between social services users and social workers (Motzfeldt, 2019). The central question was how the local government agencies could identify citizens at risk and act upon risks, without surveilling them. In addition, the *Danish Association of Social Workers* raised concerns that the predictive model could jeopardise the relationship between social workers and parents, as the first contact would be based upon a potentially unwarranted suspicion of child abuse and neglect (Lessel & Houlind, 2018).

5.4 Overexposure

Decision support systems that rely on large amounts of data to categorise cases or predict outcomes tend to employ more data than is necessary for the task at hand. That is, the systems risk overexposing cases. Some reports of child maltreatment are of such a nature that it is not necessary to use all of the variables employed by a predictive risk model. The question is whether some of the variables that a predictive risk model includes to make predictions or to categorise are in certain cases unnecessary, because an immediate review of a notification by a social services professional would rule out that immediate action must be taken. This is, however, only possible to determine after the fact. This dilemma also constitutes a judicial tightrope walk. On the one hand, public authorities have a duty to clarify the legal basis for a decision and a duty to investigate the case in question. On the other hand, the principle of proportionality dictates that investigations must not exceed their purpose. Moreover, it is required that cases must be processed as simply, quickly and economically as possible (Schmith, 2022).

5.5 Explicability

Danish public authorities have no duty to inform citizens when they use profiling or predictive models as part of case processing (Akhtar et al., 2021). However, according to *Act on Social Services* (LBK nr 170 af 24/01/2022, Section IV, Chapter 11, §46), the background, purpose and content of decisions must be made clear to the holder of parental authority and to the child or young person. Decision-making processes can be obscure even without the use of decision support systems. But the systems add to the complexity and obscurity, thereby potentially reducing explicability. Decision support systems differ in their degree of complexity, and some are much more obscure than others. For example, the system used in Copenhagen municipality to distinguish between urgent and non-urgent reports utilises a neural network, which, almost per definition, is opaque even to trained professionals (Jørgensen, 2020). Other systems make use of known variables and algorithms that can be understood by the trained eye. In addition, predictive models are used in different ways and for different purposes. This means that different explicability requirements can apply depending on the context. If a decision support system has only a limited impact on the final decision, systemic transparency is required to explain, for example, how the model was used. If the system, however, does have a more substantial impact on the decision making, then algorithmic transparency is also required. This involves for example, that it is possible to explain how the system generates results. Akhtar et al. (2021) suggest three methods to improve algorithmic transparency: 1) Visualisation methods that illustrate the effect of single variables on the result. 2) Contrafactual methods that calculate the smallest change in the value of a variable needed to change the result. 3) Surrogate models that have been trained to evaluate cases in the same way as the non-transparent models, but which are, in principle, transparent and explainable.

However, it remains questionable whether algorithmic calculations amounting to risk scores are meaningful when it comes to children, adolescents and parents under investigation.

5.6 De-personalisation

It is of utmost importance that the interpersonal communication with families and the decision-making process are respectful, understanding, empathetic, empowering and that they build trust. In order to achieve this, the human caseworker is indispensable. Decision support systems risk de-personalising the relationship between social work-

ers and citizens if social workers use the systems as authoritative judges, as legal protection against the families or if the systems are used purely as guides, without social workers understanding their implicit limitations (Rosholm, Bodilsen & Villumsen, 2021). To address these concerns, social workers must be adequately trained to understand, interpret, responsibly use and be aware of the limitations of decision support systems. An important element of this is training in how to communicate about the decision support systems' output with concerned families, and how to further their understanding of the rationale behind the decision made, while maintaining their dignity (Rosholm, Bodilsen & Villumsen, 2021). Increasing social workers' technological literacy, which can be defined as the skills needed to use, understand and critically assess decision support systems and to communicate decisions involving or based upon such systems is not only a prerequisite for countering de-personalisation. It is also a prerequisite for augmenting explicability.

5.7 Discretion

Discretion can be understood as the social worker's right and capability to make a choice among alternatives according to what seems most suitable in a particular situation. Social workers' discretionary power when assessing clients' needs and obligations is considered pivotal, desirable and inevitable, since it is impossible to anticipate and thereby regulate all possible events and circumstances that citizens experience (Høybye-Mortensen, 2015). Nonetheless, social workers' discretionary powers and freedom have been under attack and questioned. Thus, decision support systems have been envisioned as being able to provide a more objective basis for decisions, thereby protecting citizens' legal rights. The question, however, is how decision support systems impact the social workers' room for discretion.

According to Justesen and Plesner (2018) and Petersen, Christensen and Hildebrandt (2020), the Agreement on Digitalisation-ready Legislation (The Danish Government, 2018) in effect discredits and reduces social workers' discriminating powers. To prepared for digitalisation and automation, the agreement states that legislation must be simple and clear and employ objective criteria as well as clear and unambiguous concepts and commonly understood concepts. The agreement explicitly considers discretion inferior to automation. Discretion is defined as an arbitrary and capricious exercise by an individual in a position of authority that may be inconsistent with a successful implementation of service delivery. Hence, the political strategy is to replace subjective criteria with objective criteria (Justesen & Plesner, 2018) assuming that a noise-free relationship between human reasoning and formal decision-making procedures can be

obtained via automation and that casework can be reduced to an entirely objective and decontextualized operation (Petersen, Christensen & Hildebrandt, 2020).

Empirical research of the experience by social workers with decision support systems shows that the primary concern is that the risk scores generated by decision support systems may reduce their discretionary powers and become decisive in the assessments, even if the original intention was not to automate the professional assessment but to support it. The unease is understandable, but not necessarily unambiguously supported. Tests show that social workers do not significantly alter their concepts when decision support systems are introduced. However, social workers are concerned that algorithms may eventually decouple from the professional's independent decision-making process (Lund, 2019). In connection with this, Meilvang and Dahler (2022) find that decision support systems in Danish child welfare consistently are characterised as providing decision *support.* No one seriously considers fully automated decision-making. Instead, everyone stresses the need for human judgement and professional discretion and that social workers provide contextual information over and above the decision support systems, thereby also countering potential systemic bias. In summary, algorithmic decision support systems take an ambivalent and undecided position in respect of the role of professional discretion, as Meilvang and Dahler argue. On the one hand, professional discretion is criticised for being too subjective and arbitrary, prompting the development of decision support systems in the first place. On the other hand, professional discretion is fundamental for the establishment, testing, and working of the algorithmic systems.

Discretion is also impacted by case management systems (for more about case management systems, see below), which provide standards for procedures and methods to be used when investigating and documenting needs and eligibility for services. Højbye-Mortensen (2015) explores how different case management systems impact social workers' scope for discretionary assessment. She finds that *DUBU*, which is by far the most widely used case management system in social services for children and families, leaves considerable room for discretion when defining what is at stake and when deciding on the measures to be taken. Nevertheless, *DUBU* defines and describes exhaustively what information is relevant to include in the investigation. *DUBU* also dictates the theoretical framework to be used when interpreting information, as does the *Integrated Child System* upon which it is based.

5.8 Political strategy

In 2019, the Government established a Data Ethics Council. The Council's objectives are to contribute to the investigation of ethical issues in relation to artificial intelligence to support public debates on data ethics and to make recommendations for the ethically responsible development of artificial intelligence. In addition, the Danish Government (2019) drew up six ethical principles forming a common framework for the development and use of artificial intelligence in decision support systems:

1) Human autonomy must be prioritised. People must be able to make informed and independent choices, without artificial intelligence diminishing people's capacity for self-determination.

2) Human dignity must be respected. Artificial intelligence must not harm people and must support legal security and not unjustifiably put people at a disadvantage. Artificial intelligence must respect democracy and democratic processes, and it must not be used to violate basic human rights.

3) Private and public developers, users and public authorities are responsible for the consequences of the development and use of artificial intelligence. It must be possible to hold people accountable for decisions made using artificial intelligence.

4) It must be possible to describe, control and recreate data, the underlying logic and the consequences when using artificial intelligence, for example by being able to track and explain decisions taken. Clarity does not entail full transparency around algorithms. However, public authorities have a special responsibility to ensure openness and transparency when using algorithms.

5) Artificial intelligence must not reproduce prejudices that marginalise groups of people. Bias must be prevented and eliminated and designs that avoid discriminatory categorisation based on e.g. ethnicity, sexuality and gender must be promoted. Demographic and professional diversity should be a guideline.

6) Technical and organisational solutions should be created that support the ethically responsible development and use of artificial intelligence to achieve the greatest possible benefit for society.

While it is important that the ethical and legal issues are acknowledged politically, and the government's six ethical principles are commendable, it is less clear exactly how they will guide the development of artificial intelligence and decision support systems in social services for children, adolescents and families.

6. Case management

Case management systems are digital applications designed to support complex processes by facilitating workflows, management and collaboration, storage, records management and documentation often by providing digital workflow or process templates. As such, case management systems also structure how cases are handled.

In recent years, social services for children and families have been facing growing case processing and documentation requirements. To meet these challenges, the government and KL decided in 2010 to strengthen the case management via digitalisation. In collaboration with the Ministry of Social Affairs, the Ministry of Integration and KL, KOMBIT started developing a joint municipal case management system, in order to improve the quality of the social services. In 2013, the government and KL decided that all municipalities should acquire the case management system *DUBU* or a similar system for case management and documentation. Today, 80 municipalities use *DUBU*. The remaining 18 municipalities use similar systems, such as *SBSYS* and *CSC Social*. The purpose is to ensure systematic case management and improve the professional and financial management of the social services for children and families.

DUBU supports all administrative case management processes from the registration of a notification on a child, the opening of a case, to documenting the child protection investigation, formal correspondence with the parties involved, conversations, counselling, services granted and planning. Relational interactions such as conversations with children during the child investigation and other cooperative initiatives, such as with parents, are documented in *DUBU*, but the system does not provide interview guidelines or suggestions for other such initiatives (Høybye-Mortensen, 2020). *DUBU* is not automatised in the sense that registered information – e.g., on a child welfare investigation – automatically lead to specific evaluations or measures – e.g., regarding risk assessments or proposed interventions or treatments. Nonetheless, the administrative parts of case management systems can be automatised (see below).

According to KOMBIT (2020) *DUBU* is a joint public IT solution that promotes coherence and quality in social services for vulnerable children and adolescents with or without disabilities. The system is set up to be compliant with the legal requirements for documentation. It provides an overview of case processing and the required documentation and improves financial management. Thus, *DUBU* has at least three purposes:

1) to facilitate all administrative procedures in case management

2) to support local management by providing management information and facilitating comparison of cases among —— different departments.

3) to support financial management by facilitating an overview of costs and the duration of interventions.

In addition, *DUBU* is meant to promote consistency among government departments and across municipal borders, since it creates a framework for standardising and sharing data. *DUBU*'s aim is furthermore to provide–social workers with the best possible tools to–understand the situation of vulnerable citizens, which is especially useful when citizens move between municipalities (see below for more about cooperation across administrative units).

DUBU, is based upon the United Kingdom's *Integrated Children's System* (ICS), which has been adapted to the Danish context. Inspired by Bronfenbrenner's ecological system theory, which emphasises the necessity of understanding child and families in multiple contexts, ICS is based upon a holistic and a bio-psycho-social perspective on human development (National Board of Social Services, 2018).

While *DUBU* does not predetermine social workers' interpretations of children's needs and problems, it does frame needs and problems in a particular way and hence possible interventions. For example, problems may be described in terms of ill health and adverse behaviour is framed as caused by low parenting skills and low levels of employment. Obviously, these may be issues of great importance and of great concern. But they do not necessarily tell the whole story. For example, structural circumstances are not considered. Thus, in addition to structuring the administrative processes, *DUBU* also guides or directs social workers' interpretations of social problems (Høybye-Mortensen, 2020). In addition, data retrieved from *DUBU* for management purposes or for training predictive algorithms risks reinforcing the problem definitions built into the system. This is because social workers document and record cases, interpretations of problems and interventions in *DUBU* using predefined categories, based upon *ICS*.
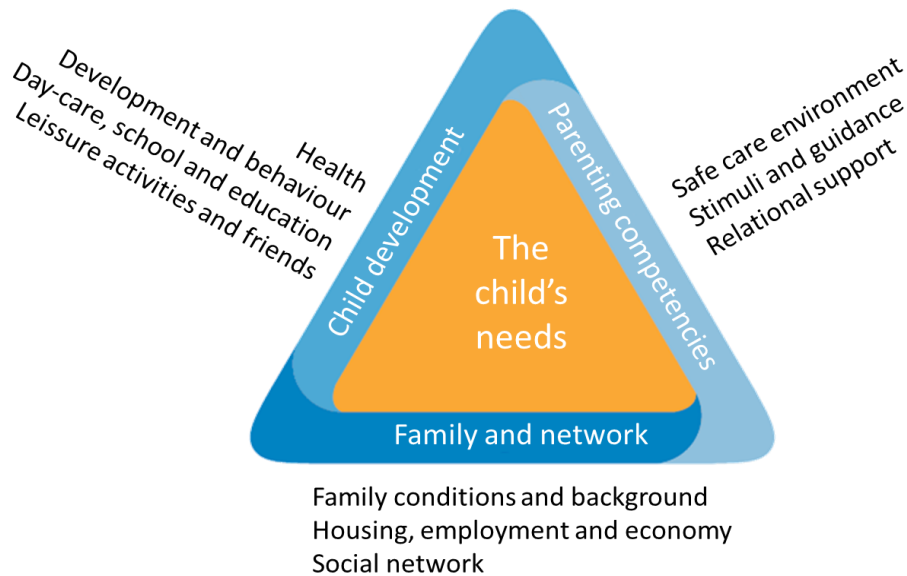
Development and behaviour
Day-care, school and education
Leissure activities and friends
Health

Child development

Parenting competencies

Safe care environment
Stimuli and guidance
Relational support

The child's needs

Family and network

Family conditions and background
Housing, employment and economy
Social network

6.1 Automation

As mentioned above, case management systems can be automatised. Manual and re-petitive case management processes can be automatised through robotic process au-tomation (RPA). RPA is a small software program that imitates human interactions with the interfaces of different software systems – e.g., case management systems – to com-plete a predefined task. Software robots, for example, can interact with case manage-ment systems and log in, enter, copy, calculate and collect information, structure data and much more. In principle, any task that is carried out in one or more IT systems, and for which a fixed procedure can be created, can be automated using RPA. However, the technology is particularly suitable for frequently occurring, uniform and repetitive tasks (Aguirre & Rodriguez, 2017; Van der Aalst, Bichler & Heinzl, 2018). The robot executes instructions, which are described in process diagrams consisting of a number of mod-ules, which consist of action sequences. The advantages of RPA are that software ro-bots work much faster than humans and without breaks and that they are relatively easy to develop and implement. Thus, the use of robots can free up resources in the organisation, which can be used elsewhere to create added value. For example, from 2016 to 2018 Copenhagen municipality automatised 63 administrative processes through RPA. During this period, software robots processed 18,875,937 transactions

in 247,030 cases and freed up 45,914 working hours (Copenhagen Municipality, 2019) across all departments. The cost saving potential, therefore, is significant.

However, automation often creates additional tasks that did not exist before and that need to be attended to (Høybye-Mortensen & Ejbye-Ernst, 2018; Justesen, Plesner & Glerup, 2020). Thus, social workers must be very systematic when interacting with software robots and extremely careful with, and spend time quality checking, the robots' output. Moreover, software robots are vulnerable to changes in software systems and can, therefore, be prone to error. Consequently, IT specialists need to invest time and resources in monitoring and fixing erroneous software robots (Jørgensen & Nissen, 2021). Thus, in the greater scheme of things, the potential for cost saving is somewhat uncertain.

7. Communication, involvement, guidance and counselling

Research shows that the success rate is far greater when social workers and young people together reach agreements and goals, and when they continuously communicate with each other about how things are going. Dialogue between children, adolescents and social workers, however, is often limited to the child protection investigation and subsequent statutory inspections. In many cases, this is not sufficient. Limited communication risks weakening social workers' knowledge of clients, clients' knowledge of possibilities as well as their rights and duties, deteriorating the relationship between them and hence the possibility of talking about problems and finding suitable solutions and initiatives, and, finally, decreasing the involvement of families and their influence on decisions (Ballegaard et al., 2018).

While communication, involvement, guidance and counselling are being digitalised in all areas of municipal services, social services for children, adolescents and families are at the forefront of digitalisation (Antczak & Birkholm, 2022). Being online is a natural part of children's and adolescents' lives. Information is sought on the internet and social relations and identities are created and nurtured and in online social networks and communities. Moreover, studies show that most children and young people desire a closer contact with their social workers and that they are likely to be particularly receptive in terms of their willingness and ability to engage and communicate via digital technologies (Ballegaard et al., 2018). Thus, it has been argued that refraining from incorporating digital technology in statutory casework can disenfranchise young people whose lives are already immersed in digital media (Mackrill & Ebsen, 2018). Communication,

involvement, guidance and counselling by digital means, therefore, can be meaningful complements to local and physical offers.

Communication, involvement, guidance and counselling can be broken down into information, interaction and transaction (Antczak & Birkholm, 2022). Information in this sense can be defined as one-way communication, for example in the form of informative texts about social services, duties, rights and legislative frameworks. Since the beginning of the 1990s, Danish municipalities have progressively informed citizens about such matters and offered advice and guidance on the municipalities' websites and on the online citizen portal *borger.dk*. Interaction can be defined as communication by citizens with public authorities, for example when applying for services online, filling in various forms, etc. via *borger.dk*. Transaction can be defined as two-way communication between citizens and public authorities. Denmark's *Digital Post*, for example, supports two-way communication.

Below, digitalisation efforts supporting the informative, interactive and transactive dimensions (or aspects) of communication, involvement, guidance and counselling are presented. The list is not exhaustive but is meant to illustrate digitalisation efforts in different contexts, various usage scenarios and key issues.

7.1 MySocialworker

MySocialworker (MinRådgiver in Danish) (Mackrill & Ørnbøll, 2019) is a mobile app that supports the communication between statutory social workers and vulnerable young people aged 15 to 23. The app was developed as part of an action research project involving three municipalities aimed at improving communication between young people and their municipal case workers. It was released on App Store and Google Play in January 2015. However, it is not clear how many municipalities use the app. The app combines case management, outcome measurement, intervention and communication. It has two interfaces: a smartphone application interface for the young clients and a web interface for the social workers. The system enables self-monitoring, as it lets young people track their well-being, positive and negative behaviour and their experience of social workers' interventions. Simultaneously, the system also enables statutory social workers to monitor and track changes in the young people's situations. As such, the system provides feedback to both the young people and the social workers and combines elements of self-regulation and statutory regulation. Young people can use the information generated by the system about aspects of their behaviour, health or risks to self-regulate their behaviour. Statutory social workers can use the app to monitor the young person and intervene if they estimate that the young person is at
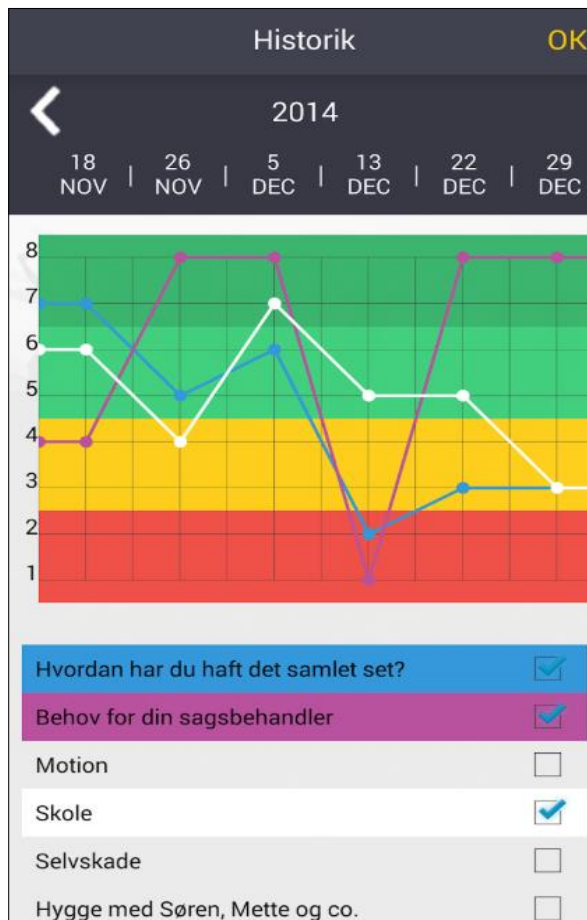
Figure 6: MySocialworker. Screenshot. Translated into English, the options listed in the MySocialworker screenshot above are, from top to bottom: "How have you been doing overall during the past week?", "Need for your social worker?", "Exercise", "School", "Self-harm", "Socialising with friends".

risk. In addition to an optional daily monitoring, where the client can evaluate how they feel in open-ended texts, they are automatically reminded weekly to respond to two standard questions: "How have you been doing overall during the past week?" and "Do you need to talk to your social worker?", with colour-coded standard responses indicating different risk levels. The standard responses are: "badly", "not so well", "OK", and "well" for the first standard question, and "very soon", "earlier than agreed", and "as agreed" for the second standard question. In addition, the app monitors progression on the four standard dimensions: "Good habits", "Disturbance", "Interventions" and "Agreements". The young people and the statutory social worker define the content of each dimension together. For example, they can define "Good habits" as "going for a run when I am angry", "Disturbances" as "my dad is drinking", "Interventions" as "my relationship with my mentor", and, finally, "Agreements" can be defined, for example, as "doing my homework". The young person assesses each dimension weekly with standard, colour coded responses. For example, the possible responses for assessing "Good habits" that were agreed upon are "I'm not following through with them", "I'm following through with them a little bit", "I'm following through with them to an extent", "I'm following through with them a lot". In this way, the system facilitates the formulation of shared and specific agreements, making plans more concrete than is often the case with mandatory action plans, as well as continuous monitoring of compliance with agreements through continuous self-analysis, a diary, and the sharing of information. Finally, the *MySocialworker* system allows young people and social workers to document significant goals and supports a journaling function where the young person can write open-ended texts. The caseworker does not have access to the diary and the journaling function. However, the adolescents can share this information with the caseworker if they wish.

Based on semi-structured qualitative interviews with six young persons about their experience with using the app, Mackrill and Ørnbøll (2019) argue that the system can support the working alliance between the young people and the statutory social workers, as the system emphasises negotiated goals at the centre of the relationship. However, it requires that social workers use the system to engage with young people, instead of merely monitoring risk behaviour. Moreover, young people can be empowered in the sense that they can control the information flow and use the system to document and prove that they have taken action. According to Mackrill and Ørnbøll, digital communication can complement face-to-face communication, as it reduces the anxiety of face-to-face relationships and keeps the social workers' data about their clients' lives more up-to-date. Whereas young people experience digital communication as an improvement of their relationship with their social workers, some statutory social workers equate digitalisation with psychological and social distance and impoverished relationships. Unless statutory social workers are convinced of the potential of the new technology, they will not be able to engage with clients at eye level.

7.2 FIT-Outcomes

Another system that is intended to base communication and counselling upon monitored feedback is *FIT-Outcomes*. *FIT-Outcomes*, which is short for Feedback Informed Treatment, is a web-based outcome management system designed to document the effects of services and adjust services accordingly. The idea is that the quality of social work should be ensured by recording and monitoring the results of treatment instead of focusing on a theoretical and methodological structure. *FIT-Outcomes* consists of two questionnaires: Firstly, an Outcome Rating Scale (ORS), in which, for example, a child must self-report how he or she feels in the family, at school, among friends, etc. Parents, the school and other actors in the child's life can make parallel assessments, thereby providing evaluations from multiple perspectives on whether the child's well-being is improving, stalling or deteriorating, which enables making comparisons. Secondly, the Session Rating Scale (SRS) is used after each meeting to evaluate the cooperation and relationship between the social worker and the child or parent. The objective is to improve and increase the involvement of children, adolescents and families by measuring and documenting effects and strengthening the relationship between the social worker and family. When the ORS and SRS questionnaires are completed, the system calculates a score for each scale, which can indicate whether the treatment has the desired effect, how the client progresses and how he or she experiences the guidance or counselling. However, the system's output must be interpreted with some caution since children and families do not necessarily respond honestly. For example, a
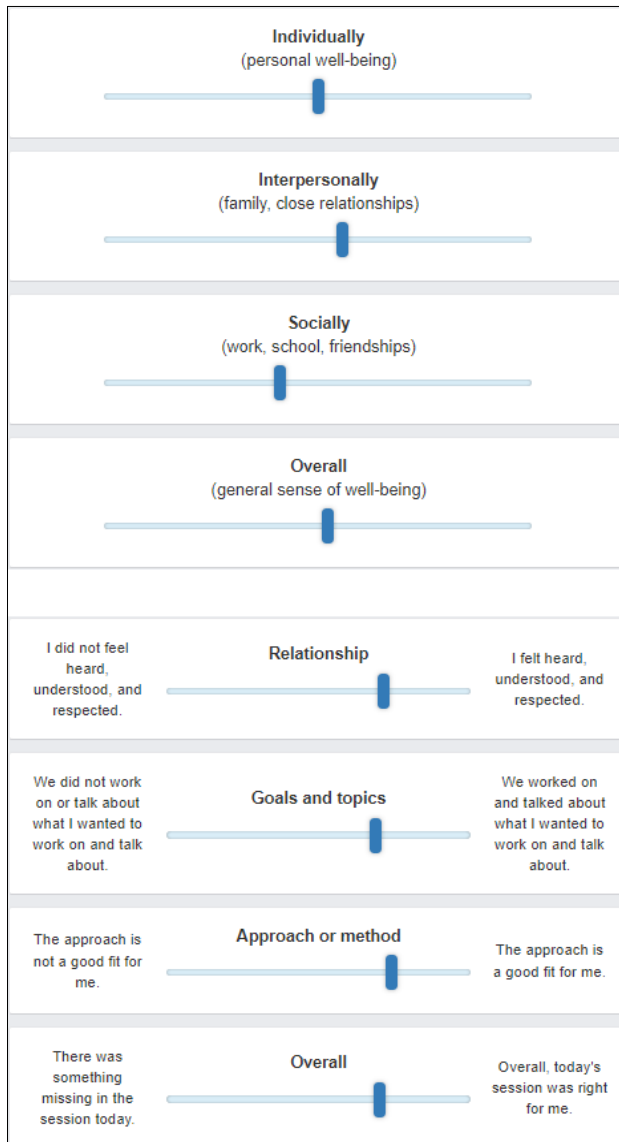
Figure 7: FIT-Outcomes: Outcome and Session Rating Scales.

parent who is worried about being reported to the municipality on suspicion of child abuse could reply in the questionnaire that the child's well-being and development are good (Bonnichsen, 2019). It is therefore important that *FIT-Outcomes* is used as a platform for a dialogue with the child and the family based upon their feedback. A dialogue about the scores can help identify fruitless efforts and ensure continued cooperation. The tool was originally designed for use in psychotherapy, but in Denmark it is also being used in the fields of social pedagogy and social psychiatry. Today, the system is used in approximately one fifths of Danish all municipalities, for example in child protection services and family treatment centres (The National Board of Social Services, 2017a).

7.3 Your Voice

In accordance with *Act on Social Services* (LBK nr 170 af 24/01/2022, §47 and §48), the municipality must obtain the children's and young persons' positions when conducting child investigation and on measures in the action plans. *Your Voice* (Din Stemme in Danish) is a digital dialogue tool that aims at strengthening the relationship between vulnerable children and statutory social workers and at creating trust and transparency in difficult situations, for example within the context of child abuse investigations. In principle, the dialogue tool can be used with children and adolescents, but it seems to have been designed and developed primarily with children in mind. *Your Voice* is meant to be used as a tool guiding, systematising, structuring, and documenting themes talked

about during face-to-face conversations with children. This can be used to monitor evolution in the child's life.

Your Voice is used in synchronous face-to-face meetings as a common reference point between social worker and the child. It is not suitable for distant communication and cannot be downloaded as an app on mobile devices. It employs iconographic representations of topics that are familiar to children, such as significant people, activities, places, thoughts, feelings. In addition, topics that are related to social work and the child investigation, such as the investigation itself, follow-up meetings, difficulties and progression are also ichnographically repre-

Figure 8: Your Voice. Screenshots from introduction video.

sented. The idea is that such topics will become a part of the child's life and that the iconographic representation can make it easier for the child to learn about and recognise such topics. The social worker and the child together can construct mind-maps, by employing the relevant icons, adding open-ended texts, assessing the importance of various topics and using the documented historical overview provided by the system to talk about developments in the child's life. It is advised that open-ended texts are written in first-person singular and, if possible, by the children themselves, so that they can recognise themselves in the texts. In essence, the system aims at making it easier for action plans, status reports and other written documents, which in turn constitute the basis for decisions regarding supportive measures to be based upon the child's understanding.

Your Voice does not audio record conversations. By contrast, the open-ended texts, the mind-maps as well as the assessments of various topics, which are all created during conversations, are saved. This enables social workers and children to return to topics during subsequent conversations and talk about developments. By focusing on and
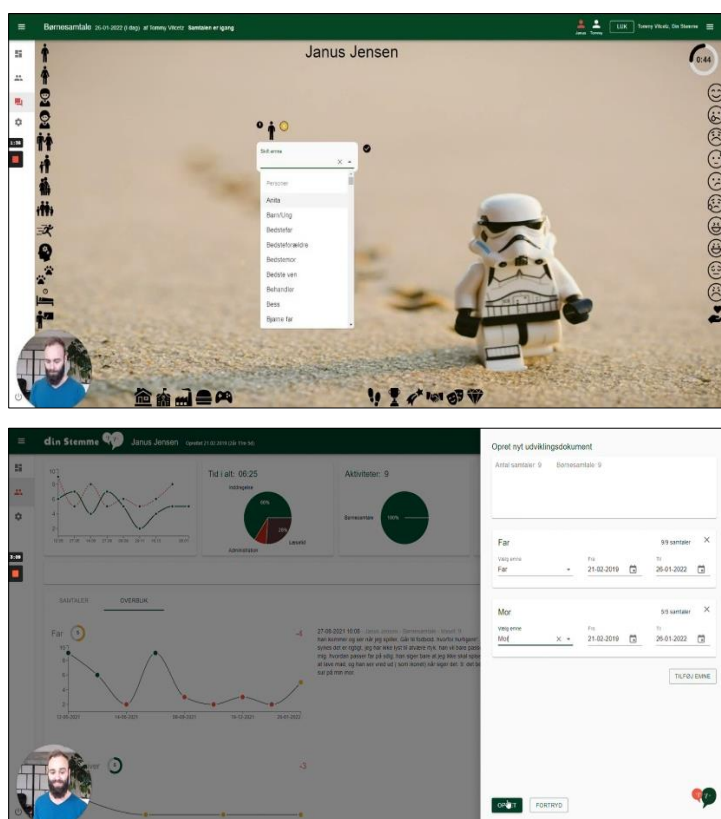
documenting the child's account and their interpretation of events, the tool helps to minimise misunderstandings among different welfare professionals in cases where interpretations differ. The system documents child conversations, thereby providing an overview of the child's situation. Data can be collected, reused, recombined and copy-pasted into action plans, status reports and child investigation reports, thus lessening the workload and time spent on double administration.

To date, no research has been conducted investigating the use or the effects of *Your Voice*. Thus, important questions remain unanswered. For example, does the system reduce or, on the contrary, amplify dilemmas inherent in conversations with children in general and in conversations with children during child investigations in particular? Conversations with children unfold in a context characterised by unequal power relations and they involve normative doxa about what constitutes behaviour considered as disturbing, disconcerting, problematic, inappropriate or generally not conducive to the child's development and well-being. The social worker is a representative of the organisation in which he or she is employed, and the organisation's culture and norms are represented in the way in which the conversation between case manager and child unfolds. It remains a challenge to incorporate various stakeholders' observations and interpretations and balance these against the child's points of view, and, at the same time, reflect on one's own preconceptions (Rask, 2011).

7.4 Baby robots

In recent years there has been growing concern about the parental competencies of so-called 'problematic' and 'vulnerable' young adults, which has led to the establishment of parent education programmes (Søgaard, 2021). In some of these programmes, baby robots are used as pedagogical tools to guide and train expecting parents or young people desiring to have a child, but who are believed to be at risk of becoming incompetent parents. Baby robots simulate real babies by displaying infants' needs and behaviour. The baby robot records the young people's care efforts, and the data is used to evaluate the participants' parenting skills and serves as a foundation for family planning counselling. Unlike in the digitalisation efforts presented above, feedback data is not based on self-reporting or negotiated assessments, but on recorded behaviour. According to The National Board of Social Services (2017b), the objective of the baby robot scheme is not to discourage young and disadvantaged people from having a baby, but rather to make them reflect upon their desire to have a child. In principle, participation is voluntary, but research shows that this is not necessarily straightforwardly the case. Participants' willingness to take part is influenced by their vulnerability, their current

social circumstances, their self-perception and fears about negative repercussions if they do not participate (Søgaard, 2021). Moreover, participants use various tactics to resist and respond to institutional discourse about appropriate parenthood and the perceived imputation of potentially incompetent parents. While their resistance can, somewhat counterintuitively, increase prospective parents' confidence in their ability to parent and provide them with a sense of empowerment, such tactics may not fundamentally alter how they are categorised and treated by the social services departments. Thus, successful completion of the baby robot programme does not necessarily alter the social workers' view of the parents-to-be (Søgaard, 2021).

7.5 TeleDialogue

TeleDialogue was a research project which explored the possibilities for, potentials of and issues connected with digital communication with young people placed in out-of-home care (Andersen et al., 2018; Ballegaard et al., 2018). The project lasted from 2013 to 2018 and involved 7 municipalities, 50 children and young people and 39 caseworkers. The evaluation of *TeleDialogue* shows that digital video communication can contribute positively to the development of conversation and trusted relationships between placed children or adolescents and their statutory social worker and case manager. When video platforms are used to carry on communication over a longer period of time, the children and young people feel that they are being seen, heard and acknowledged by their case managers to a greater degree than would otherwise be the case. In addition, online video communication allows for greater disclosure, and conversations tend to gravitate to a greater extent towards issues of importance to the young people and the children involved. On their part, the case managers find that they gain more knowledge about, and better insights into, the children and young people and their circumstances and aspirations. This in turn improves the quality of the decision-making knowledge base, the quality of meetings of the professional network involved in the child's or young person's life and the physical meetings between social workers and the child placed in out-of-home care. (Ballegaard et al., 2018). The findings resonate with experience with online video supported family treatment during the Covid-19 lockdown. Experience shows that it can be easier to involve the children and young peoples' family network via video supported treatment. In addition, the relationship between the children and young people and the statutory social worker may improve, as it becomes possible to hold conversations more frequently and when there is an actual need for discussion. For some families, it has also been easier to discuss difficult and

personal matters online and to deal with strong feelings towards authoritative representatives (Hjelmar, Pedersen & Jensen, 2021).

The *TeleDialogue* project, however, also shows that it can be difficult to establish, implement and use digital communication with children and young people placed in out-of-home care and that success depends on the children and adolescents, the social workers, the placement facility and the municipality. It is essential that the children and young people are motivated to participate and are encouraged to do so by their foster family or placement facility and by their biological parents. Naturally, these factors may vary from case to case. Cancellations, no-shows and technical problems can be frustrating to both social workers and children and young people. Therefore, technical support and coordination with the children and young persons as well as with the foster family or placement facility is a key element for success. This, however, requires additional resources and may also contribute to a reproduction of structural inequalities, insofar as it is the professionals at the placement facility who coordinate the contact and communication between the children and the statutory case worker. Broad support and coordination are required to establish the necessary technical, organisational and social work infrastructure. The establishment of an organisational framework that acknowledges the need for managerial support for social work professionals and for cooperation between social services and the IT-departments is paramount and should be part of the municipality's strategy for social services. By virtue of its potential to create closer relationships between the caseworker and children or young people, digital communication may also change the division of roles between the caseworker and the placement facility, thus causing a dispute about professional boundaries and duties. As digital communication is implemented in an already existing collaboration between the case managers and the placement facility, and existing conflicts and challenges can be reinforced (Ballegaard et al., 2018).

7.6 Strengths and Difficulties Questionnaire in out of home care

When a child is placed in out-of-home care, society assumes a special statutory responsibility for the child's care and well-being and a moral responsibility to protect its interests. However, both Danish and international research have demonstrated that children who are placed in out-of-home care have worse health and well-being than children in general (Egelund & Lausten 2009), and that the children will retain more physical and mental health problems throughout their lives than other children. From 2020 to 2022, the research project *Me and My Foster Family* (Mig og min plejefamilie in Danish) tested

a measuring tool to evaluate the well-being of children living in foster families, compared with the well-being of the average child Denmark. In total, eight municipalities participated in the research project. Two of these municipalities participated in an initial test[2], in which seven think-aloud interviews and eight follow-up interviews were conducted with family care consultants and case managers and five interviews were conducted with foster parents.

The tool is based on the *Strengths and Difficulties Questionnaire*[3], which can be used to measure children's psychological and social well-being and can be answered by both adults and children aged 11 and above. The questionnaire consists of 25 questions dealing with five dimensions of psychological well-being. Responses are used to calculate an overall measure of well-being and compare this with the median for children of the same sex and age. The median stems from an extensive survey conducted in 2015 with 9.953 responses from students, parents, pedagogues and teachers (Arnfred et al., 2019). The assessments and comparison should not be used on their own but are intended as a professional tool for an interdisciplinary dialogue between social workers, foster and biological family and the child. Children, foster parents, schoolteachers and other relevant adults can answer the questionnaire by phone, tablet or computer and calculated results are colour coded in green, yellow and red. In addition to being able to access the results via a digital platform and using these in subsequent conversations with the child, the foster parents and other relevant adults, family care consultants and case managers can also use the platform to perform case management related tasks, such as obtaining consent from the child's parents, sending invitations to informants and printing out results (Danneskiold-Samsøe, Baviskar & Bergström, 2020).

Preliminary testing shows that a systematic and investigative use of the measurement tool has the potential to support social work with children placed in foster families and the involvement of additional relevant actors. It also shows that there are several challenges that must be dealt with. Comparing a child's well-being with that of other children can be problematic because the well-being of a child placed in out-of-home care will typically be assumed to be poor and may merely confirm the poor well-being rather than provide additional knowledge. The measurements and comparative evaluations cannot be used on their own but need to be interpreted within the context of the case of the child. This requires knowledge of the questionnaire, the system and how it operates, an exploratory approach to the answers, as well as professional consideration and

---

[2] Tests with all eight participating municipalities have been concluded. The results have not been published yet.

[3] For more information about the Danish Strengths and Difficulties Questionnaire see http://sdq.dk/

interpretation of the results. The tool, therefore, presupposes rather than replaces professionalism as well as a sound knowledge base and organisational framework allowing thorough deliberations and conversations. However, the simplicity of the tool and especially the colour coded presentation of results risks leading to simple solutions that replace conversations and professional skills (Danneskiold-Samsøe, Baviskar & Bergström, 2020).

8. Data sharing between administrative units

Data sharing between administrative units can be defined as exchange of information that an administrative unit obtained for one specific purpose and where the information may simultaneously be relevant for other administrative units in processing other cases (KL, 2015). The possibilities for and the potential of data sharing have been a political and strategic focus of attention since the first Danish national digitalisation strategies announced in the new millennium. For example, the 2002 national digitalisation strategy (The Digital Task Force, 2002) recommends that workflows and processes that extend across administrative boundaries are organised and managed in close collaboration and through data sharing. To support this, the Digital Task Force further recommends the establishment of a suitable IT infrastructure and common public data standards. Regarding social services for children and families, the objective at the time and still today is to simplify and streamline coordination and cooperation across government agencies, so that employees work under the best possible conditions for understanding the situation of vulnerable children, adolescents and parents. Cooperation between government agencies must be effective, it is argued, and data must be shared whenever possible, to lessen the burden from the clients of having to provide identical information to different government agencies. This is especially problematic when cases or problems are exchanged between different government departments and even more so, when cases travel between municipalities or regions. This is also borne out by the public's attitude towards data sharing. Approximately 82% of the population completely or partially agree that public authorities, to a greater extent than today, should share information with each other. At the same time, it is important that citizens have access to their data to increase confidence and trust. Thus, approximately 20% of the population believes that incorrect data is shared between public authorities (Statistics Denmark, 2020).

In 2015, KL investigated the challenges of and need for technological solutions for data sharing specifically in relation to child protection investigations (KL – Local Government

Denmark, 2015). In order to holistically investigate a child's or adolescent's 's situation, social workers need to obtain information from many different sources. The child or young person and their parents are the primary sources, but they are complemented by relevant professionals such as psychologists, health nurses, dentists, caregivers, pedagogues, schoolteachers, general practitioners, psychiatrists and others. Moreover, according to the *Integrated Children's System* the parents' situation is an important environmental factor for the child's well-being and welfare. As transitions and connections between the respective worlds of children and adolescents on the one side and of adults on the other grow, the data needs of different government departments may interfere with each other. The report identified a series of obstacles for data sharing:

1) Lack of overview of other departments' data and cases about citizens.

2) Lack of clarity about when consent for data sharing is required.

3) Lack of clarity about who uses shared data and for what purposes.

4) Lack of data and classification standards with regard to both case descriptions and descriptions of treatment and its effects. This can, to some degree, be explained by the fact that different professional groups and disciplines employ different jargon.

5) Lack of trust in data quality.

In order to address this, digital solutions are supposed to help create coherent processes as well as improve communication and coordination between government agencies. In recent years, there has been a focus on data quality, data standards and record-keeping practices through common professional concepts, methods and IT-systems supporting interaction between government agencies in complex processes. The most recent national digitalisation strategy explicitly emphasises the need for a coherent process for vulnerable children and young people:

> *We need to ensure greater coherence and coordination regarding vulnerable children and adolescents and their families with cases spanning healthcare, municipal and other government agencies. It necessitates that the involved government agencies and sectors have better opportunity to share data between them. The legal and technical aspects for effective and responsible data sharing must be clarified and solutions to challenges that complicate data sharing must be identified.*
>
> (The Danish Government, KL & The Danish Regions, 2022. Translated by the author)

The Agency for Digital Governance promotes efforts to create more structured data for social work practice, so that data can be shared more easily and can form a better basis for assessing the outcomes of social work treatment. Since the case management system, *DUBU*, conditions social services for children and families by structuring the administrative processes and by guiding the social worker's interpretations of social problems (Høybye-Mortensen, 2020), the widespread use of *DUBU* can further the alignment of and consistency between social services provided across different municipalities. Yet, despite having been a strategic focal point for decades and despite its widespread use, the data sharing of *DUBU* remains challenging. A possible explanation for this is that different social workers do not necessarily use case management systems all in the same way and that systemic categorisations are interpreted and employed differently, leading to incomparable data (Petersen et al., 2020).

DUBU is used only by municipal governments and only by child protection services. Thus, *DUBU* cannot easily support data sharing beyond municipal social services departments nor different levels of government (i.e. municipal, regional and central government). In a collaboration between Aalborg municipality and North Jutland Region, a pilot test of improved data sharing practices across government agencies was carried out. The pilot test focused on measures for vulnerable children and young people and used the joint municipal framework architecture to share data across the social and health sector. One of the aims was to enable employees to save time on administrative processes and instead focus on contact with citizens. The citizens found that the proposed solutions gave them a better overview of agreements and contact persons. At the same time, the employees found that they could more easily obtain up-to-date information about what services the citizens received from other government agencies. This pilot project is regarded as a first step towards creating more coherence between sectors via data sharing (The Danish Government, KL & The Danish Regions, 2022).

9. Lessons learned and future key challenges

The preceding chapters and sections presented different efforts to digitally support social welfare services in general and, in particular, the interrelated dimensions or aspects of social work with children, adolescents and families, including prevention, early intervention, risk assessment, counselling, communication, guidance and advice, case management, treatment and intervention and collaboration. As emphasised above, it is not an exhaustive list of digitalisation efforts and measures. Rather, the efforts at digitalisation described here have been chosen to exemplify and illustrate the breadth of digitalisation efforts and their key lessons for social work with children, adolescents and families. This section recapitulates and summarises these lessons, focusing on obstacles and positive aspects.

Although Denmark is internationally at the forefront of digitalisation of the public sector, social work with children, adolescents and families is still in the midst of a digital transformation and new challenges and issues are expected to emerge as new digital technologies are introduced, while old and well-known dilemmas may well reappear in a different guise.

It is often said that, to understand digitalisation and digital technologies, we need to understand these in context. Effects do not transpire from the digital technologies in a vacuum but are always and necessarily shaped by different contexts. In this respect, the context comprises the development, the implementation and the use of various digital technologies. Each of these contextual dimensions are shaped and conditioned by rules and regulations, politics, norms, organisational cultures, structures and guidelines, professional knowledge and aspirations, as well as relations of power between disciplines and between professional social workers and children, adolescents and families. Thus, understanding digitalisation in social work with children and families brings to light important mechanisms inherent in the welfare system, which the digital efforts are part of (Eubanks, 2018). For example, systems designed to identify people at risk of exclusion reveal important information not only about the technology but also of the norms and logic underlying the welfare system, such as for whom it is designed, how it is implement and how it is used in social welfare services.

The Danish experience shows that digitalisation has the potential to improve efficiency of case management, to make it structurally leaner and to reduce the risk of errors. This is especially true for administrative processes supported by digital case management systems and automation. Digital efforts, such as online conversation by text or video,

moreover, can lead to more involvement of relevant actors and facilitate closer relation-ships between social workers and children, adolescents and families. This can encour-age a greater willingness to disclose background information, which can lead to new and valuable insights on issues at hand. By providing feedback on service users' self-reported assessments of their status quo in real time and in a simplified, visual and comprehensible manner, digital tools can provide comparative insights into develop-ments over time and provide a basis upon which social workers may interact with chil-dren, young people and parents as well as with other relevant actors, such as school-teachers and foster families.

The Danish experience shows that no technology can be used by itself and that it needs to be employed thoughtfully by professionals who understand the technologies, how they operate and what their theoretical foundations are. For example, analytical calcu-lations based upon self-reports, reports by other actors or behaviour recorded other-wise need to be interpreted and used by social workers in context. This requires knowledge of and reflections about how data is created, who creates it, for what pur-poses and under which conditions. For example, a child may report significant progress within the family for fear of being placed out-of-home and parents may paint a positive picture of their experience for social workers for fear of repercussions. In a similar vein, behaviour that is recorded may also have been created under specific and sometimes artificial circumstances. For example, it is questionable whether behaviour towards a robot baby is comparable to behaviour towards a real baby and whether the former can be used as a proxy for the latter. Thus, the Danish experience goes to show that digi-talisation cannot and should not substitute or reduce the role of the social worker nor their practical skills and expertise, their theoretical knowledge or their ethically and value-based approach to people in vulnerable positions. On the contrary, digitalisation presupposes competent social workers and strong welfare organisations who support a critical and reasoned use of digital tools in practice.

Digital technologies are implemented in a context of existing power relations and can impact these in various ways. For example, technologies can be used to empower chil-dren and young people, by providing them with an avenue for disclosure and for raising concerns. However, the very same technologies can also be used to control and surveil children, adolescents and parents who may feel that social workers intrude into their private lives unnecessarily and without adequate reasons. Surveillance and the risk of overexposure are also pertinent issues in relation to machine learning with its capacity for analysing enormous amounts of data. In recent years, the Danish public sector has begun developing predictive algorithms to identify children at risk of maltreatment.

Very few of these efforts have been implemented, though. Therefore, the Danish experience tell us very little about how predictive algorithms impact on social work, social workers' discretionary powers and the possibilities for carrying out early and pre-emptive measures. Nonetheless, serious concerns have been raised regarding the risk of reproducing systemic bias and social inequalities inherent in the data being used to train predictive models. In relation to this, it is questionable if predictive models are or, indeed, can be more precise and accurate than the data which it is based upon, and which may be of poor quality, fraught with errors or represent the dynamic complexities inherent in social work, which may be influenced by subjectivity on the part of the decision-makers. Thus, a data scientist might very well understand quality in terms of comparability and judge data, which is not comparable to be of poor quality, necessitating improved organisational conditions for better data stewardship. Social workers, on the other hand, might very well regard the very same incomparable data as characteristic of the complex and dynamic reality of social work, where social problems and people are perceived as processes, rather than data points or variables impacting on each other.

The Danish experience shows that, when developing predictive risk models, it is possible to check the training data for unfounded distinctions made based on correlations rather than causation and thereby reduce bias (Rosholm, Bodilsen & Villumsen, 2021). When it comes to dealing with the unknown risk of potential bias, however, professional discretion is considered to constitute a guarantee of fairness (Meilvang & Dahler, 2022). In other words, when bias or insecurities cannot be managed algorithmically, professional social workers are called upon to ensure fairness. This is sometimes referred to as the human in the loop, making sure that expertise, quality, reason and human values prevail (Pasquale, 2020). Critical voices, however, argue that this is close to impossible and that it places the ethical and legal responsibility firmly on the individual human being interacting with a digital system. By framing and using predictive algorithms as decision *support* systems rather than as decision *making* systems, professional legitimacy and integrity are reinstated. However, it does not necessarily reduce the complexities, obscurities and insecurities inherent in decision-making nor does it reduce the workload, the professional competencies required of, or the responsibilities placed upon social workers.

In addition to addressing the critical issues discussed above, future challenges include finding ways to involve those who use or those for whom digitalisation is intended in the digitalisation processes. If digital systems reflect the policies, norms and preferences inherent in the welfare services and systems they are part of, we need to reflect upon and decide which kind of welfare system we want to build. Do we strive for soli-

darity with vulnerable and marginalised parts of the population and democratic involve-ment and participation, or do we strive for a system that is suspicious of people already on the fringes of society? If the former is the case, we need to find ways in which to engage vulnerable and marginalised people as well as the social workers tasked with, and devoted to, helping such people, when we digitalise parts of social work. The Dan-ish Association of Social Workers has repeatedly voiced concern about the critical and often unnoticed side effects of digitalisation, and social workers are increasingly invited to participate in the development of digitalisation efforts. However, it is striking how the voice of marginalised people are excluded in the overall digitalisation effort and especially with regards to developments in artificial intelligence and big data.

Digitalisation comes with the risk of excluding already marginalised and vulnerable groups of people. Arguments have been made that new technology can shut out client groups who do not have access to the technology, which exacerbates existing inequal-ities and creates digital divides (Goldkind & Wolf, 2015). This is a key criticism of the digitalised Danish welfare state. Online self-service solutions, for example, are meant to ease access to social services and provide easier access to information about rights and duties. However, such solutions require certain IT-skills and literacy, which cannot be expected from all parts of the population. Thus, what may seem easy, or at least not too difficult to the average citizen, can present serious obstacles to people with lower IT-competency and digital access, which tend to correlate with marginalised socio-eco-nomic positions. In July 2022 the think tank Justitia published a report examining the legal rights of digitally excluded citizens and concluded that the increasingly extensive digitalisation of the welfare state and in particular the introduction of digital self-service systems between 2012 and 2015 undermined the legal rights of 17 to 25 per cent of the adult population (Justitia, 2022). The well-developed Danish welfare state with its extensive digital structure risks increasing social inequality, reported in an article series featured in the national Danish newspaper magazine Politiken: "*When more and more services become digital, the digitally vulnerable citizens are excluded more and more. Often, this also affects the very people who need to make a particularly urgent effort to find a job, apply for housing subsidies or other benefits. But they are unable to do so and thus lose the opportunity to reduce the social inequality. It's a big paradox*" (Media sociologist Massimo Ragnedda, cited in Kjær & Ib, 2022). In addition, increased expec-tations vis-à-vis citizens' IT competencies can result in less IT proficient citizens feeling stigmatised and degraded (Pors, 2021). This is very problematic, if the result is that children, adolescents and parents are discouraged from seeking help and their rights are undermined. Solely upskilling citizens and social workers is not sufficient since dig-ital systems are prone to errors. For example, the transition from *NemID* to *MitID* has proved extremely difficult, leaving approximately 300.000 citizens without access to,

among other things, home banking, just five days before the transition terminates, putting immense pressure on the municipalities' citizen services help desks (Kjær, 2022).

In response to a government report showing serious inclusion challenges in the digitalised society (Agency for digital government & KL, 2021), the current national digitalisation strategy plans to further inclusion by redistributing the responsibility for self-management into the private networks of vulnerable people: "*It should be easier to get help from family members and other support persons. Digital powers of attorney must therefore be developed and promoted in the public sector, to make it easier for service users to grant and be granted power of attorney* [...] *It should also be made easier to understand which data you are sharing with the public. A digital infrastructure for consent across the public sector must be established, so citizens can give or revoke permission to how the government agencies may use their personal data*" (The Danish Government, KL & The Danish Regions, 2022).

It is not clear how these initiatives will reduce the lack of competencies and skills which are needed for inclusion in the digitalised society. Quite the opposite, the solutions offered may even further deepen the divide between those who possess the expected and required IT-competencies and skills as well as knowledge of administrative procedures and terminology, and those who do not. The further question is if it is fair to assume that people know what providing consent entails. Just as data is constructed in contexts of power, this can also apply to consent. Either way, easing the possibilities for providing consent for data use, is also a clever way for public authorities to handle ethical data responsibilities by shirking its own responsibilities and increasingly placing the responsibility for making choices concerning data use on the individual, or, as the case may be, on their family network or other support persons. Thus, data ethics is individualised. This is important to all Danish citizens but, perhaps, especially problematic for vulnerable or marginalised groups of the population, including children, adolescents and families in need of public welfare services.

References

Agency for digital government (April 2022). *Tal og statistic* [Statistics]. Updated April 2022. https://digst.dk/tal-og-statistik/

Agency for digital government & KL (2021). *Digital inklusion i det digitaliserede samfund*. Agency for digital government.

Agency for digital government, KL & The Danish Regions (n.d.). *Fælles krav til gode brugeroplevelser* [Common requirements for good user experiences]. Accessed 2022-09-15. https://arkitektur.digst.dk/node/1194

Aguirre, S., & Rodriguez, A. (2017). Automation of a business process using robotic process automation (RPA): A case study. In *Workshop on Engineering Applications* (s. 65-71). Springer, Cham.

Akhtar, M., Thomsen, F. K., Jørgensen, R. F., & Koch, P. B. (2021). *Transparens i og om profileringsmodeller. Når algoritmer sagsbehandler*. Institut for menneskerettigheder.

Andersen, L. B., Bøge, A. R., Danholt, P., & Lauritsen, P. (2018). Privacy encounters in Teledialogue. *Information, Communication & Society, 21*(2), 257-272.

Antczak, H., & Birkholm, K. (2019). Når borgeren bliver til data… fordufter den etiske fordring. *Uden for nummer*, (39), 4-12.

Antczak, H., & Birkholm, K. (2022). Digitalisering af det sociale arbejde. In Posborg, R., Nørrelykke, H., & Antczak, H. (Eds.), *Socialrådgivning og socialt arbejde - En grundbog.* Hans Reitzels Forlag.

Arnfred, J., Svendsen, K., Rask, C., Jeppesen, P., Fensbo, L., Houmann, T., … & Bilenberg, N. (2019). Danish norms for the Strengths and Difficulties Questionnaire. *Dan Med J, 66*(6), A5546.

Ballegaard, S. A., Andersen, L. B., Olsen, L., Danholt, P., & Lauritsen, P. (2018). *Digital kommunikation mellem anbragte børn og unge og deres sagsbehandler: Evaluering af udviklings- og forskningsprojektet Teledialog*. VIVE - Det nationale Forsknings- og Analysecenter for Velfærd.

Bächler, C. M. (2022). Den digitaliserede forvaltning og borgere i udsatte positioner–en forskningsoversigt. *Socialt arbejde og velfærd, SocVe, 2*(1), 3-12.

BEK nr 1584 af 07/07/2021. *Bekendtgørelse om obligatorisk digital selvbetjening vedrørende ansøgninger og meddelelser m.v. om sociale ydelser m.v.* [Decree on mandatory digital self-service regarding applications and notifications etc. on social benefits etc.]. https://www.retsinformation.dk/eli/lta/2021/1584

BEK nr 1778 af 01/09/2021. *Bekendtgørelse om MitID til privatpersoner* [Decree on MitID for private individuals]. https://www.retsinformation.dk/eli/lta/2021/1778

Bini, S. A. (2018). Artificial intelligence, machine learning, deep learning, and cognitive computing: what do these terms mean and how will they impact health care?. *The Journal of arthroplasty, 33*(8), 2358-2361.

Bonnichsen, A. (2019). Feedback i myndighedsarbejdet – Gladsaxe. *The National Board of Social Services*. https://socialstyrelsen.dk/tvaergaende-omrader/Udviklings-og-ln-vesteringsprogrammerne/dokumenterede-metoder-born-og-unge/om-dokumen-terede-metoder-born-og-unge/fit/kommuneinterview-om-fit/feedback-i-myn-dighedsarbejdet-2013-gladsaxe

Chiusi, F., Fischer, S., Kayser-Bril, N., & Spielkamp, M. (2020). *Automating society report 2020.* AlgorithmWatch, Berlin/Gütersloh.

Copenhagen Municipality (2019). Københavns Kommunes digitaliseringsredegørelse 2019.

Danneskiold-Samsøe, S., Baviskar, S., & Bergström, P. M. (2020). "Vi har et ansvar for de børn, der har det allersværest": kan målinger af anbragte børns trivsel understøtte samfundets ansvar? *uden for nummer, 20*(40), 24-33.

Egelund, T., & Lausten, M. (2009). Prevalence of mental health problems among children placed in out-of-home care in Denmark. *Child & Family Social Work 14*(2); 156-165.

Esping-Andersen, G. (1990). The three worlds of welfare capitalism. Princeton University Press.

Eubanks, V. (2018). Automating inequality: How high-tech tools profile, police, and punish the poor. St. Martin's Press.

European Commission's Digital Economy and Society Index (November 2021). *Digital Economy and Society Index 2021: overall progress in digital transition but need for new EU-wide efforts*. Updated November 12th 2021. https://ec.europa.eu/commis-sion/presscorner/detail/en/ip_21_5481

Frederiksen, L. Ø. (2019, March 18). Gladsaxe ønsker trods kritik at samkøre data for at spotte udsatte børn [Despite criticism, Gladsaxe wants to link data to spot vulnerable children]. Socialrådgiveren. https://socialraadgiverne.dk/faglig-artikel/gladsaxe-oensker-trods-kritik-at-samkoere-data-for-at-spotte-udsatte-boern/

Gilbert, N., Parton, N., & Skivenæs, M. (Eds.). (2011). *Child protection systems: international trends and orientations*. New York: Oxford University Press.

Gillingham P (2019) Can Predictive Algorithms Assist Decision-Making in Social Work with Chil-dren and Families? *Child Abuse Review 28*(2): 114-126.

Goldkind, L., & Wolf, L. (2015). A digital environment approach: Four technologies that will disrupt social work practice. *Social work, 60*(1), 85-87.

Henriksen, K. (2015). *Metodiske tilgange i socialt arbejde*. København: Hans Reitzels Forlag.

Hjelmar, U., Pedersen, R. T., & Jensen, D. C. (2021). *Kommunale nyskabelser under covid-19-krisen—En kortlægning af lovende erfaringer omkring nye måder at levere serviceydelser på til borgere i udsatte positioner*. VIVE—The National Center for Social Science Research.

Høybye-Mortensen, M. (2015). Decision-making tools and their influence on caseworkers' room for discretion. *British Journal of Social Work, 45*(2), 600–615.

Høybye-Mortensen, M. (2020). Sagsbehandleres roller i den digitale forvaltning. In Hundebøl, J., Pors, A. S. & Sørensen, L. H. (Eds.), *Digitalisering i offentlig forvaltning* (pp. 165-186). Samfundslitteratur.

Høybye-Mortensen, M., & Ejbye-Ernst, P. (2018). The long road to data-driven decision-making: How do casework registrations become management information? *STS Encounters, 10*(2.2), 7–36.

Justesen, L., & Plesner, U. (2018). Fra skøn til algoritme: Digitaliseringsklar lovgivning og automatisering af administrativ sagsbehandling. *Tidsskrift for Arbejdsliv, 20*(3), 9-23.

Justesen, L., Plesner, U., & Glerup, C. (2020). Arbejdets forandring i digitaliserede offentlige organisationer. I *Digitalisering i offentlig forvaltning* (pp. 151-164). Samfundslitteratur.

Justitia (2022). *Retssikkerhed for digitalt udsatte borgere*. Justitia.

Jæger, B. (2003). *Kommuner på nettet. Roller i den digitale forvaltning* [Municipalities online. Roles in digital government]. København: Jurist- og Økonomiforbundets Forlag.

Jæger, B. (2020). Digitalisering af den offentlige sektor i et historisk perspektiv [Digitalisation of the public sector in a historical perspective]. In Hundebøl, J., Pors, A. S. & Sørensen, L. H. (Eds.), *Digitalisering i offentlig forvaltning* (pp. 51-74). Samfundslitteratur.

Jæger, B., & Löfgren, K. (2010). The history of the future: changes in Danish e-government strategies 1994–2010. *Information Polity*, *15*(4), 253-269.

Jørgensen, A. M. (2020). Beslutningsstøttesystemer på børn- og ungeområdet: Konstruktionen af en ny vidensform. *Tidsskrift for Arbejdsliv, 22*(3), 42-56.

Jørgensen, A. M., & Nissen, M. A. (2021). Automatiseret sagsbehandling: om grænsedragninger og rekonstruktion af socialt arbejde. *Uden for Nummer*, (42), 30-39.

Jørgensen, A. M., & Nissen, M. A. (2022). Making sense of decision support systems in child protection: Rationales, translations and potentials for critical reflections on the reality of child protection. *Big Data & Society, 9*(2). https://doi.org/10.1177/20539517221125163

Jørgensen, A. M., Engen, M., & Nissen, M. A. (2023). Transformative Disruption? Reflections on Care in Social Work under a COVID-19 Pandemic Lockdown. In Adusumalli, M., Harrikari, T., McFadden, P., & Leppiaho, T. (Eds.), *Social Work During COVID-19: Glocal Perspectives and Implications for the Future of Social Work*. Routledge.

Jørgensen, A. M., Webb, C., Keddell, E., & Ballantyne, N. (2022). Three roads to Rome? Comparative policy analysis of predictive tools in child protection services in Aotearoa New Zealand, England, & Denmark. *Nordic Social Work Research, 12*(3), 379-391.

Kjær, J. S. (October, 2022). Tusindvis af danskere mister adgang til egne penge. *Politiken*.

Kjær, J. S., & Ib, K. (July, 2022). Den digitale underklasse: Staten straffer it-svage borgere. *Politiken*.

KL – Local Government Denmark (2015). På vej mod bedre sammenhæng, samarbejde og datadeling på socialområdet.

KL – Local Government Denmark (2018). *Projektkatalog. Overblik over pilotprojekter i initiativet „Kommunernes Teknologispring – velfærdsudvikling gennem ny teknologi"*.

KL – Local Government Denmark (n.d.) *Municipal Responsibilities.*
https://www.kl.dk/english/municipal-responsibilities/

Koch, L. (2006). Eugenic sterilisation in Scandinavia. *The European Legacy, 11*(3), 299-309.

Kombit (2020). *DUBU (Digitalisering - Udsatte Børn og Unge)* https://kombit.dk/dubu

LBK nr 170 af 24/01/2022. *Bekendtgørelse af lov om social service* [Act on Social Service]. https://www.retsinformation.dk/eli/lta/2022/170

LBK nr 686 af 15/04/2021. *Bekendtgørelse af lov om Digital Post fra offentlige afsendere* [Decree on Digital Post from Public Authorities]. https://www.retsinformation.dk/eli/lta/2021/686

Lessel, S. & Houlind, C. (2018). Kommune om dataovervågning af børnefamilier: Det er ikke et pointsystem [Local authorities on data monitoring of families with children: It is not a points system]. *Altinget.* https://www.altinget.dk/digital/artikel/gladsaxe-kommune-dataovervaagning-skal-spotte-udsatte-boern-tidligere

Lund, C. S. (2019). Algoritmer i socialfaglige vurderinger: En undersøgelse af socialarbejderes opfattelse af at anvende algoritmer til vurdering af underretninger. *Uden for Nummer*, (39), 20-31.

Mackrill, T., & Ebsen, F. (2018). Key misconceptions when assessing digital technology for municipal youth social work. *European Journal of Social Work, 21*(6), 942-953.

Mackrill, T., & Ørnbøll, J. K. (2019). The MySocialworker app system–a pilot interview study. *European Journal of Social Work, 22*(1), 134-144.

Meilvang, M. L., & Dahler, A. M. (2022). Decision support and algorithmic support: the construction of algorithms and professional discretion in social work. *European Journal of Social Work*, 1-13.

Ministry for Research (1994). *Info-Samfundet år 2000* [The Info-Society year 2000]. København: Ministry for Research.

Ministry for Research (1999). *Det digitale Danmark – omstilling til netværkssamfundet* [The Digital Denmark - transition to the network society]. København: Ministry for Research.

Motzfeldt, H. M. (2019). Socialrådgivere og fagforeninger: Grib dog redningskransen [Social workers and trade unions: Grab the lifebuoy]. *Uden for Nummer–Tidsskrift for Forskning Og Praksis I Socialt Arbejde*, (39), 32-41.

National Board of Social Services (2018). *Kvalitet i sagsbehandlingen – en håndbog i anvendelse af ICS og udredningsværktøjet*. Socialstyrelsen.

Nissen, M. A. (2017). The impact of neo-liberalism through ideas of productivity–the case of child welfare in Denmark. In K. Høgsbro & I. Shaw (Eds.), *Social work and research in advanced welfare states* (pp. 61–74). Routledge.

OECD (2016). *Denmark UNITARY COUNTRY*. https://www.oecd.org/regional/regional-policy/profile-Denmark.pdf

Pasquale, F. (2020). *New laws of robotics: defending human expertise in the age of AI*. Belknap Press.

Petersen, A. C., Christensen, L. R., Harper, R., & Hildebrandt, T. (2021). "We Would Never Write That Down" Classifications of Unemployed and Data Challenges for AI. *Proceedings of the ACM on Human-Computer Interaction, 5*(CSCW1), 1-26.

Petersen, A. C., Christensen, L. R., & Hildebrandt, T. T. (2020). The role of discretion in the age of automation. *Computer Supported Cooperative Work (CSCW), 29*(3), 303-333.

Pors, A. S. (2021). Hård digital inklusion: når digital politik bliver borgerens byrde. *Social Kritik: Tidsskrift for social analyse & debat, 21*(163), 48-59.

Rask, L. (2011). Børnesamtalen: Inddragelse af barnets perspektiver-dilemmaer i myndighedssagsbehandlerens arbejde. Professionshøjskolen Metropol, Institut for Socialt Arbejde.

Richardson, R., Schultz, J. M., & Crawford, K. (2019). Dirty data, bad predictions: How civil rights violations impact police data, predictive policing systems, and justice. *NYUL Rev. Online, 94*, 15.

Rosholm, M., Bodilsen, S., & Toft, S. D. (2022). *Egenskaber ved den statistiske model i forskningsprojektet Underretninger i fokus*. https://childresearch.au.dk/fileadmin/child-research/dokumenter/Underretninger/20220617_Egenskaber_ved_den_statis-tiske_model_UiF.pdf

Rosholm, M., Bodilsen, S., & Villumsen, A. M. (2021). Ethical considerations in relation to 'Focus on Notifications': A project on the use of predic-tive risk models in social work. https://childresearch.au.dk/fileadmin/childresearch/dokumenter/Underretnin-ger/20220617_Ethical_considerations_Focus_on_Notifications.pdf

Sathya, R., & Abraham, A. (2013). Comparison of supervised and unsupervised learning algorithms for pattern classification. *International Journal of Advanced Research in Artificial Intelligence, 2*(2), 34-38.

Schmith, P. (2022). Notat om mulig "overbelysning" af sager som følge af anvendelse af Beslutningsstøtten. https://childresearch.au.dk/fileadmin/childresearch/doku-menter/Underretninger/Notat_om_mulig_overbelysning.pdf

Søgaard, V. F. (2017). Når Ønsket Om Moderskab Vækker Bekymring. *Kvinde, Køn Og Forskning, 26*(4), 23–37.

Søgaard, V. F. (2019). Babyrobotter og cyborg-forældreskab blandt marginaliserede unge. *Nordisk Udkast, 47*(1), 4–19.

Søgaard, V. F. (2021). Learning to become a parent by means of baby robots: negotiating intensive parenting, *Nordic Social Work Research*, DOI: 10.1080/2156857X.2021.1952103

Statistics Denmark (2020) It-anvendelse i befolkningen – 2020 [The populations' IT-use - 2020]. København: Statistics Denmark.

The Danish Government (2018). Aftale om digitaliseringsklar lovgivning [Agreement on Digitalisation-ready legislation]. https://www.regeringen.dk/aktuelt/publikationer-og-aftaletekster/aftale-om-digitaliseringsklar-lovgivning/

The Danish Government (2019). *National strategi for kunstig intelligens* [National Strategy for Artificial Intelligence]. København: The Government.

The Danish Government, KL & The Danish Regions (2011). *Den digitale vej til fremtidens velfærd. Den fællesoffentlige digitaliseringsstrategi 2011-2015* [The digital path to the welfare of the future. The joint public digitalisation strategy 2011-2015]. København: Økonomistyrelsen.

The Danish Government, KL & The Danish Regions (2022). *DIGITALISERING, DER LØFTER SAMFUNDET: Den fællesoffentlige digitaliseringsstrategi 2022-2025* [DIGITALISATION THAT LIFTS SOCIETY: The joint public digitalisation strategy 2022-2025]. København: Digitaliseringsstyrelsen.

The Digital Task Force (2002). *På vej mod den digitale forvaltning - vision og strategi for den offentlige sektor* [Towards the digital public administration – vision and strategy for the public sector]. Projekt Digital Forvaltning.

The Ministry of Social Affairs and Senior Citizens (2021). *Aftale mellem regeringen og Venstre, Dansk Folkeparti, Socialistisk Folkeparti, Radikale Venstre, Enhedslisten, Det Konservative Folkeparti, Liberal Alliance, Alternativet og Kristendemokraterne om reformen Børnene Først.* https://sm.dk/Media/637583203842999255/Af-taletekst_Boernene_Foerst_maj2021.pdf

The National Board of Social Services (2017a). *Resultater og erfaringer for Feedback Informed Treatment.* https://socialstyrelsen.dk/tvaergaende-omrader/Udviklings-og-Investeringsprogrammerne/dokumenterede-metoder-born-og-unge/om-dokumen-terede-metoder-born-og-unge/fit/resultater-og-erfaringer

The National Board of Social Services (2017b). *Inspirationsmateriale Servicelovens § 11, stk. 3*

Torfing, J. (1999). Workfare with welfare: recent reforms of the Danish welfare state. *Journal of European social policy, 9*(1), 5-28.

United Nations, Department of Economic and Social Affairs (2020). UNITED NATIONS E-GOVERNMENT SURVEY 2020 - DIGITAL GOVERNMENT IN THE DECADE OF AC-TION FOR SUSTAINABLE DEVELOPMENT. New York: United Nations.

Van der Aalst, W. M., Bichler, M. & Heinzl, A. (2018). Robotic process automation. *Business & Information Systems Engineering, 60*, 269–272.

VEJ nr 9590 af 12/07/2018. *Vejledning om digitaliseringsklar lovgivning* [Guidance on digitization-ready legislation]. https://www.retsinformation.dk/eli/retsinfo/2018/9590

List of figures

JAdigital.
Digitalisierung in der Kinder- und
Jugendhilfe konzeptionell gestalten

Projektträger

ism
Institut für
Sozialpädagogische Forschung
Mainz gGmbH

Kooperationspartner

DIJuF

Universität
Hildesheim

Gefördert vom

Bundesministerium
für Familie, Senioren, Frauen
und Jugend

ism gGmbH

Flachsmarktstr. 9

55116 Mainz

www.ism-mz.de

ism@ism-mz.de

06131/24041-10