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Report on the Year 2021

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Preface

In the Swedish eHealth Agency's appropriation directions for 2020, the agency was tasked with monitoring the development of digitalisation within Swedish healthcare and social services and submitting an annual follow-up report to the Swedish Government. Each report is to utilise the indicator-based framework developed by the agency for the specific purpose of following up Vision for eHealth 2025. This work is to be carried out in collaboration with the governance and cooperation organisation for Vision for eHealth 2025. This is the second follow-up report pursuant to this assignment, which will continue until 2025.

The work of preparing indicators and reporting associated data has involved representatives of the Swedish eHealth Agency, the Swedish Medical Products Agency, Inera, the Swedish Association of Local Authorities and Regions (SALAR) and the National Board of Health and Welfare. The conclusions presented in this report are those of the Swedish eHealth Agency.

Decisions regarding this report have been made by Director General Janna Valik. Investigator Gustaf Hedström is the rapporteur. Åke Nilsson (investigator), Morine Kalulanga (investigator), Dick Lindberg (eHealth strategist, National Board of Health and Welfare), Julia Lindström (eHealth strategist, National Board of Health and Welfare), Karin Gårdmark Östh (coordinator/eHealth strategist, Swedish Medical Products Agency), Helena Henriksson (team leader, Swedish Medical Products Agency), Andreas Leifsson (analyst, Inera), Björn Hultgren (IT strategist, SALAR) och Lars Kolmodin (economist, SALAR) have participated in this work. Head of unit Susanna Wahlberg and responsible head of department Annemieke Ålenius took part in the final preparation of the report.

Janna Valik

Director General

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Summary

In 2020, the Swedish eHealth Agency was tasked with monitoring the development of digitalisation within Swedish healthcare and social services. Each year, the agency shall submit a report to the Government, based on the indicator-based framework developed by the agency for the specific purpose of following up Vision for eHealth 2025. This work is to be carried out in collaboration with the governance and cooperation organisation for Vision for eHealth 2025.

The first report, presented in April 2021, covered developments up until the end of 2020. This report presents developments in the digitalisation of Swedish healthcare and social services up until the end of 2021. In accordance with the agency's assignment, the report has been prepared in collaboration with the members of the governance and cooperation organisation for Vision for eHealth 2025.

The report is based on data provided by government agencies and other national and international organisations.

Developments in digitalisation

One vital precondition for the implementation of Vision for eHealth 2025 is that the Swedish population has access to, and is willing to use, digital equipment and digital services. Sweden has relatively high internet usage compared to many other European Union Member States. The percentage of the population with an electronic identity card (e-ID) has increased in all age groups, especially among the youngest and oldest, even if the majority of those aged over 80 still do not have valid e-ID.

One way of describing the development of digitalisation within healthcare and social services is to link it to the three fundamental conditions and four objectives described in the document *A Strategy for Implementing Vision for eHealth 2025: The Next Step*.

Until recently there were no indicators to monitor the development of the fundamental conditions established in the strategy. In October 2021, the introduction of the Swedish eHealth Agency's joint national specifications provided one such indicator.

The first objective established in the strategy is *the individual as co-creator*. When this objective is followed up, it is notable that some categories of municipal welfare technology have increased in ordinary homes and sheltered accommodation while others have decreased; however, these figures are

difficult to interpret due to the large number of test and pilot schemes and it is unclear how many people actually use these technologies.

Several surveys of the public show that more people are positively disposed to the development of digital healthcare and social services than are negative. That said, the use of digital services varies greatly from one service to the next and there is insufficient data to assess what causes low usage.

There are fewer indicators to monitor progress towards the second objective, *the right information and knowledge*. One indicator that is available is the amount of data made available by regional health authorities in the National Patient Overview (NPO). As of the end of 2021, regional health authorities made available approximately 64 per cent of the data that is technically possible to display. The number of municipalities that produce data for the NPO increased by eight during the year, to a total of 41. This addition represents 3 per cent of Sweden's 290 municipalities.

There are even fewer indicators for the third and fourth objectives, *safe and secure information processing* and *development and digital transformation hand in hand*. New indicators have been identified in the monitoring of medical technology; however, the Swedish Medical Products Agency considers underreporting to be so significant that no relevant statistics are available. Several indicators used in previous years have also been omitted as they are no longer followed. This suggests that it is unclear who should be responsible for the data collection necessary to monitoring the development of eHealth in Sweden over time.

The Swedish eHealth Agency's situation summary

The pandemic has both accelerated and slowed development. Digital contact channels have begun to be used to a greater extent. Meanwhile, IT projects and IT implementations have slowed as resources have been redirected to clinical operations. This is reflected in that fact that, in 2021, some welfare technologies were offered by fewer municipalities than during the previous year. Generally speaking, in our assessment the introduction of welfare technology and e-services by municipalities is proceeding slowly.

As the population ages, digital competence will increase in upper age groups. It is anticipated that the use of digital services among the elderly will increase further, especially e-services offered by the 1177 national healthcare hub, which have already seen an increase during 2021. However, a relatively large percentage of the population has relatively little confidence in information security within healthcare and social services.

The amount of data made available between healthcare providers is expected to continue to increase slowly. The amount of information and which e-services regions and municipalities make available varies. There are various reasons for this. In the end, there is clearly a risk that access to healthcare will be inequitable and dependent on location. Joint national investments should reduce these disparities.

As things stand, it is impossible to make international comparisons. Which indicators are monitored varies from one country to another. Cooperation initiatives over the years have not enjoyed the support of all countries involved and so have not yielded concrete results. This work is also been complicated by the lack of indicators within a large number of areas, making it difficult to make comparisons.

Two major international surveys presenting statistics are the European Commission's Digital Economy and Society Index (DESI), which summarises indicators on digital performance in EU Member States, and a survey by the Organisation for Economic Co-operation and Development (OECD). Sweden slipped from second to third place in DESI, not because of any backsliding on Sweden's part but due to other countries developing more rapidly. The OECD looks at the accessibility of health datasets for healthcare providers and other stakeholders. Sweden is among the five worst of 22 countries surveyed. Neither of these surveys shed any light on the extent to which the possibilities offered by digitalisation and eHealth actually contribute to good and equitable health.

It is readily apparent that we lack statistics in this area to facilitate quality-assured time series and create the conditions for continuity in following up the objectives of the Vision for eHealth 2025. Even if this situation changes by the time of the 2023 report, time is short until 2025. This being the case, in the opinion of the Swedish eHealth Agency there is little chance of establishing and seeing results from international cooperation. This means that the possibility of being able to evaluate the Vision work in 2025 based on the overall objectives of the vision is considered limited.

1 Introduction

The purpose of this report is to offer an overview of developments in the digitalisation of Swedish healthcare and social services. The report is primarily intended for national, regional and municipal policymakers.

In 2016, the Swedish Government and the Swedish Association of Local Authorities and Regions (SALAR) presented a joint vision for eHealth in Sweden: the *Vision for eHealth 2025*.[1] The vision is that: *"In 2025, Sweden will be best in the world at using the opportunities offered by digitalisation and eHealth to make it easier for people to achieve good and equitable health and welfare, and to develop and strengthen their own resources for increased independence and participation in the life of society".*

To make it possible to monitor development towards the vision's goal, a framework for follow-up was produced in 2017/2018, which included proposed initial indicators.[2] This framework has formed the basis of follow-ups in respect of the years 2018 and 2019.[3,4]

In order to implement the Vision for eHealth 2025, an action plan was drawn up for the period 2017–2019.[5] This action plan was followed by a strategy for implementation for the period 2020–2022.[6] This strategy establishes three fundamental conditions and four objectives for achieving the vision (Figure 1).

[1] Ministry of Health and Social Affairs and SALAR. *Vision for eHealth 2025*. Stockholm, 2016.
[2] Swedish Government and SALAR. *Uppföljningsmodell för e-hälsa och en första testmätning – ett diskussionsunderlag* [Follow-up model for eHealth and an initial test measurement: A basis for discussion]. Stockholm, April 2018.
[3] Vision for eHealth 2025. *Follow-up report 2018, Vision for eHealth 2025.* Stockholm, 2018.
[4] Vision for eHealth 2025. *Vision for eHealth 2025: Follow-up 2019.* Stockholm, April 2020.
[5] Ministry of Health and Social Affairs and SALAR. *Handlingsplan för samverkan vid implementation av Vision for eHealth 2025 2017–2019* [Action Plan for Cooperation on the Implementation of Vision for eHealth 2025 2017–2019]. Stockholm, 2017.
[6] Ministry of Health and Social Affairs and SALAR. *A Strategy for Implementing Vision for eHealth 2025: The Next Step, 2020–2022.* Stockholm, 2020.

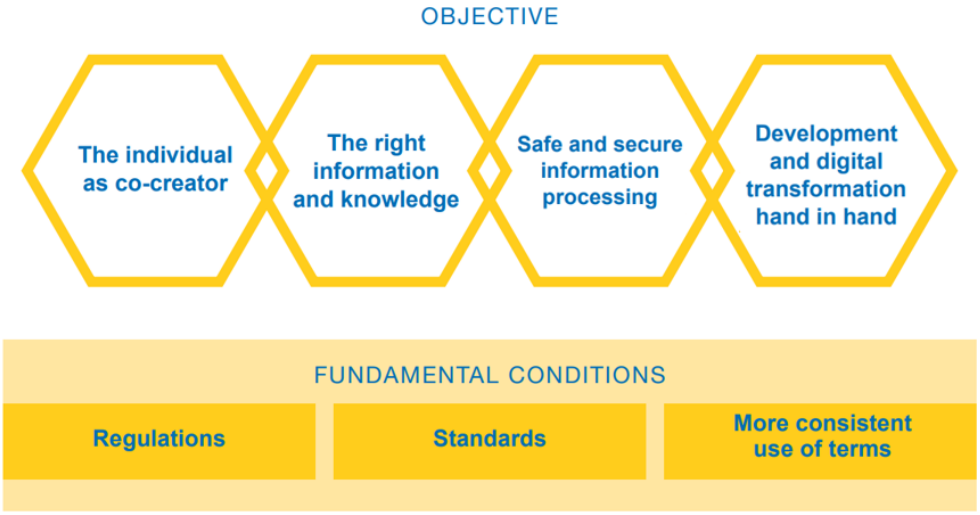

Figure 1. The objectives established in the Strategy for Implementing Vision for eHealth 2025: The Next Step, 2020–2022.[7]

In its appropriation directions for 2020, the Swedish eHealth Agency was tasked with developing an indicator-based framework for following up the Vision for eHealth 2025, based on previously developed frameworks.[8] This work examined existing data as a possible basis for indicators for continued monitoring. During this work, priority areas and indicators were developed for each objective formulated in the strategy for 2020–2022. This framework was revised in autumn 2020. The agency was subsequently tasked with monitoring the development of digitalisation within Swedish healthcare and social services and submitting a follow-up report to the Swedish Government for each year up to and including 2025.

1.1 Assignment

The Swedish eHealth Agency was tasked with the following assignment in its appropriation directions for 2021:

8. Following Up the Vision for eHealth 2025

The Swedish eHealth Agency shall monitor the development of digitalisation within healthcare and social services and submit an annual follow-up report to the Government. The report is to be based on the indicator-based framework developed by the agency for the follow-up of Vision for eHealth 2025. This work is to be conducted in cooperation with the governance and cooperation

[7] Ministry of Health and Social Affairs and SALAR. *A Strategy for Implementing Vision for eHealth 2025: The Next Step, 2020–2022*. Stockholm, 2020.
[8] Swedish eHealth Agency. *Indicator Based Framework for Follow Up of Vision for eHealth 2025*, October 2020.

organisation for Vision for eHealth 2025. The assignment shall be reported on to the Government (Ministry of Health and Social Affairs) no later than 15 April each year until 2025, inclusive.

1.2 Scope and limitations

The Swedish eHealth Agency uses indicators for which data can be retrieved from existing sources at government agencies and other organisations. This implies that, if certain parameters are no longer monitored by these agencies or organisations, they will no longer appear in this report. Some additional indicators have been identified over the course of the year that are now included in the report.

1.3 Cooperation

This work has been carried out in collaboration with the governance and cooperation organisation for Vision for eHealth 2025 and with the participation of and contributions from the National Board of Health and Welfare, the Swedish Association of Local Authorities and Regions (SALAR), Inera and the Swedish Medical Products Agency. The Agency for Digital Government (DIGG) and Swedish Post and Telecom Authority have only been able to assist by answering direct questions.

2 Implementation

The initial work of developing indicators to monitor the development of eHealth in Sweden and the Vision for eHealth 2025 has been implemented within the scope of writing the report *Indicator Based Framework for Follow Up of Vision for eHealth 2025*.[9] Submitted in October 2020, the report was based on the National Board of Health and Welfare's criteria and requirements for developing indicators.[10] The report supplemented the four objectives established in the document *A Strategy for Implementing Vision for eHealth 2025: The Next Step, 2020–2022* by describing a number of priority areas. The indicators developed were all linked to the updated framework objectives and reported based on the specified objectives.[11]

Further information on processes and methods for updating the framework and the development of indicators can be found in the report *Indicator Based Framework for Follow Up of Vision for eHealth 2025.* Detailed descriptions of indicators are included as an appendix to the report.[12] The report also states that several areas lack available indicators to facilitate comprehensive monitoring and evaluation of developments in the area. The choice of indicators in this follow-up report is intended to provide the best possible overall picture of the digitalisation of healthcare and social services given the available indicators.

2.1 Indicators

Certain indicators used in earlier follow ups have been omitted, either because they are no longer recorded or because they have been replaced by other indicators. A number of previously unidentified indicators have been added as they are deemed relevant from a monitoring perspective.

As far as possible, data for the past year is presented for each indicator. In some cases, there is no earlier data, either because the indicator is new or

[9] Swedish eHealth Agency. *Indicator Based Framework for Follow Up of Vision for eHealth 2025*, October 2020.
[10] National Board of Health and Welfare. *Handbok för utveckling av indikatorer: för god vård och omsorg* [Handbook for Developing Indicators: For Good Health and Welfare]. Stockholm, 2017.
[11] Ministry of Health and Social Affairs and SALAR. *A Strategy for Implementing Vision for eHealth 2025: The Next Step, 2020–2022*. Stockholm, 2020. *Implementation Plan 2020–2022*, Appendix to *A Strategy for Implementing Vision for eHealth 2025*, November 2020. Swedish eHealth Agency. *Indicator Based Framework for Follow Up of Vision for eHealth 2025*, October 2020.
[12] Swedish eHealth Agency. *Appendix 1 – Indicator Based Framework for Follow Up of Vision for eHealth 2025*, October 2020.

because the data has been reformulated in a manner that precludes comparison.

Reported indicators can be identified in the indicator-based framework (in the report[13] and appendix[14]) through the same ID shown in figures (ID x.x). Indicators are also presented according to the structure for fundamental conditions and objectives defined in *A Strategy for Implementing Vision for eHealth 2025: The Next Step, 2020–2022*.[15]

Some data sources recur more frequently than others. The National Board of Health and Welfare publishes an annual review, *The Development of eHealth and Welfare Technology in Municipalities*. This includes a survey of the introduction and use of different types of welfare technologies for those living in various forms of accommodation.[16] In the report, the National Board of Health and Welfare points out that its figures should be interpreted with a certain amount of caution; while more municipalities report using various types of welfare technology, most of this is still in a test or pilot phase. It remains unclear how many people actually use these technologies.

SALAR conducts *the National Healthcare Barometer*, an annual survey of public attitudes to, confidence in and perceptions of healthcare in Sweden. Like Inera, SALAR also supplies additional data necessary for monitoring a number of indicators.[17]

National Board of Health and Welfare, SALAR and Inera also contribute compiled data specifically for this follow-up report.

An annual report has also been published for a number of years on *eHealth and IT in regional health authorities*.[18] This report is based on survey data collected from regional health authorities in the same year, as well as economic data from the previous year. A number of questions in the survey on which the report is based have been changed between 2020 and 2021, meaning that only a few datasets used as indicators by the Swedish eHealth Agency remain this year.

[13] Swedish eHealth Agency. *Indicator Based Framework for Follow Up of Vision for eHealth 2025*, October 2020.
[14] Swedish eHealth Agency. *Appendix 1 – Indicator Based Framework for Follow Up of Vision for eHealth 2025*, October 2020.
[15] Ministry of Health and Social Affairs and SALAR. *A Strategy for Implementing Vision for eHealth 2025: The Next Step, 2020–2022*. Stockholm, 2020.
[16] National Board of Health and Welfare. *E-hälsa och välfärdsteknik i kommunerna 2020* [E-Health and Welfare Technology in Municipalities 2020]. Stockholm, 2020.
[17] SALAR. *National Healthcare Barometer 2020*. Stockholm, 2021.
[18] Jerlvall, Pehrsson. *eHälsa och IT i regionerna*. [eHealth and IT in the Regions], May 2020.

The Swedish eHealth Agency conducts a survey, *Invånarundersökningen,* every other year, of residents' use of and attitudes to digital health and welfare services. The first survey, the results of which were published in 2019, focused on healthcare. The survey has since been revised and expanded with questions about social services. To the extent that comparisons have been made between the 2019 and 2021 surveys, figures should be interpreted with a certain amount of caution, as some questions were reformulated n the most recent survey.

3 Results

3.1 Background factors

The vision states that Sweden will be best in the world "at using the opportunities offered by digitalisation and eHealth to make it easier for people to achieve good and equitable health and welfare, and to develop and strengthen their own resources for increased independence and participation in the life of society".[19] How well we succeed will depend on both the development of relevant digital solutions and the ability to create the conditions to utilise these solutions.

3.1.1 International comparison

In an international comparison of digitalisation, Sweden was in third place with 6.61 points in the Digital Economy and Society Index (DESI) (Figure 2). By way of comparison, Denmark was awarded 7.00 points and Finland 6.71 points. Only Finland received more points that Sweden in DESI Key Area human capital.[20] In other DESI Key Areas, Sweden finished in the following places: connectivity[21], 5th; integration of digital technology, 3rd after Finland and Denmark; and digital public services, 5th.[22]

[19] Ministry of Health and Social Affairs and SALAR. *Vision for eHealth 2025*. Stockholm, 2016.
[20] Digital competence in the population and workforce.
[21] Coverage, performance and cost of broadband.
[22] European Commission. *Digital Economy and Society Index (DESI) 2021: Thematic chapters*. EU, 2021. https://digital-strategy.ec.europa.eu/en/policies/desi

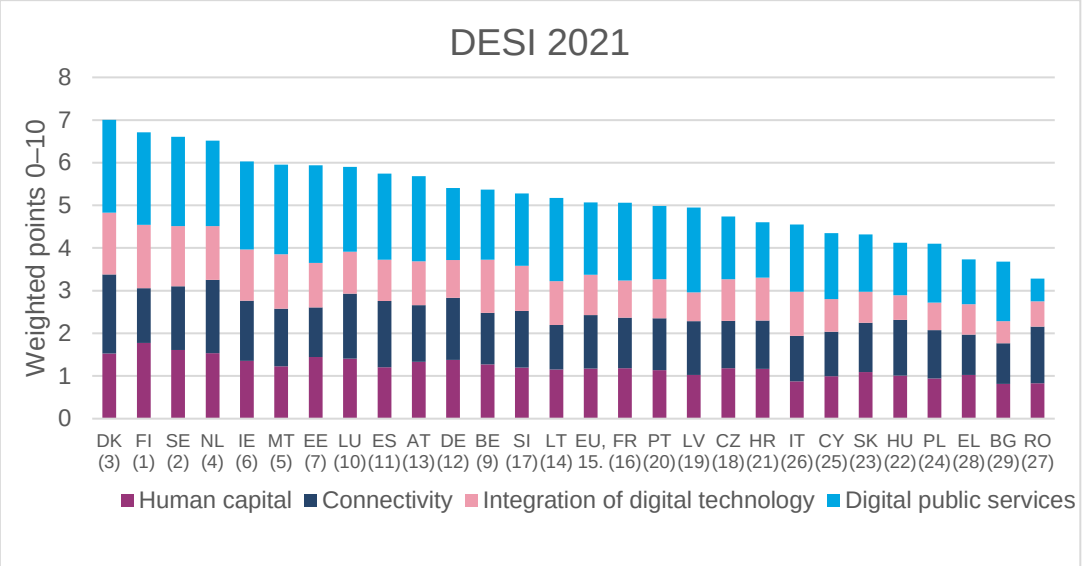

Figure 2. Figure in brackets shows last year's position. The UK was included in last year's ranking, finishing in 8th place. Source: DESI 2020 and 2021.

The Organisation for Economic Co-operation and Development (OECD) monitors the development of a number of societal sectors, including healthcare and digitalisation. One indicator measured by the OECD is the extent to which national health data can be shared with national and international stakeholders. At an indicator value of 100 per cent, all available[23] national health data can be shared with all interest groups.[24] It is worth noting that, in this context, the OECD does not equate sharing with open access to data. Generally speaking, data sharing requires measures to protect privacy, such as anonymisation, and that stakeholders must apply for and be approved to gain access to a dataset. Sweden is way down the list of countries in the OECD comparison, with 42 per cent of health datasets potentially available for sharing (Figure 3). By way of comparison, neighbours Denmark, Finland and Norway can all share 100 per cent of health datasets.[25]

[23] The data reported by the OECD does not reveal how many health datasets are potentially available in each country.
[24] National health datasets studied by the OECD contain data on patients admitted to hospital, treated in accident and emergency departments and primary healthcare and under long-term care, data on prescription medicines, register data on cancer, diabetes and cardiovascular disease, and mortality data. Not all countries have national health datasets covering all of these areas. The percentage of datasets that can potentially be shared is calculated based on the number of datasets in relation to accessible datasets in each country. A percentage of potentially sharable datasets below 100% indicates that the sharing of one or more of the health datasets held in the country is not permitted with one or more stakeholders.
[25] OECD Going Digital Toolkit, based on the OECD Questionnaire on Health Data Development and Governance. https://goingdigital.oecd.org/indicator/64 retrieved 31.01.2022.

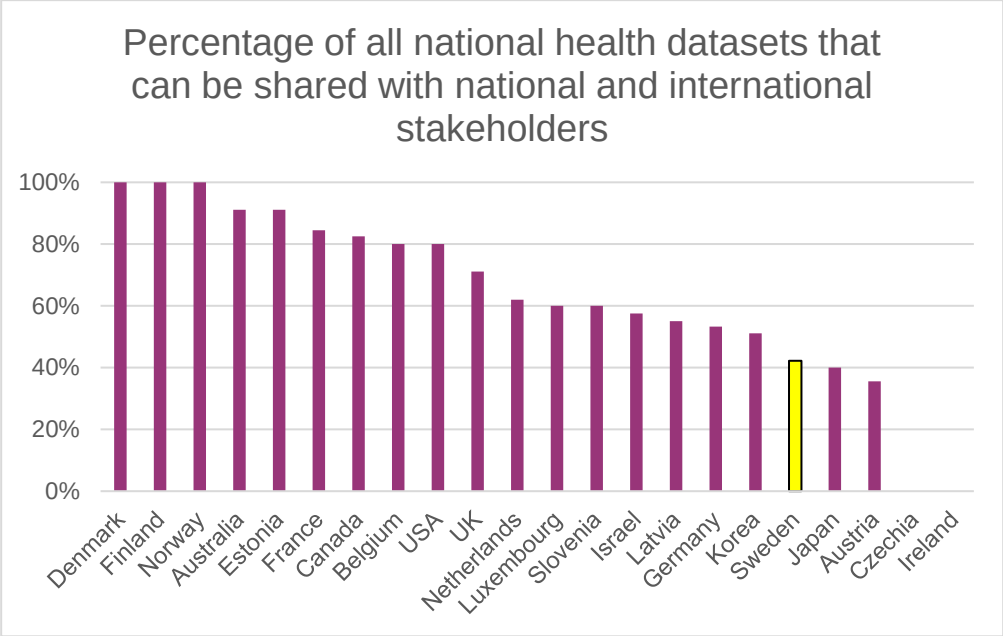

Figure 3. Percentage of existing health datasets that can be shared with national and international stakeholders. Not all countries have all health datasets. Source: OECD Going Digital Toolkit, based on the OECD Questionnaire on Health Data Development and Governance. https://goingdigital.oecd.org/indicator/64 retrieved 31.01.2022.

Another indicator measured by the OECD is the percentage of national health datasets that can be shared nationally with healthcare providers. Here too, Sweden is way down the list of countries, with 11 per cent of health datasets potentially available for sharing (Figure 4). By way of comparison, neighbours Denmark, Finland and Norway are top of the list at 100 per cent.[26]

[26] OECD Going Digital Toolkit, based on the OECD Questionnaire on Health Data Development and Governance. https://goingdigital.oecd.org/indicator/64 retrieved 31.01.2022
National health datasets studied by the OECD contain data on patients admitted to hospital, treated in accident and emergency departments and primary healthcare and under long-term care, data on prescription medicines, register data on cancer, diabetes and cardiovascular disease, and mortality data. Not all countries have national health datasets covering all of these areas. The percentage of datasets that can potentially be shared is calculated based on the number of datasets in relation to accessible datasets in each country. A percentage of potentially sharable datasets below 100% indicates that the sharing of one or more of the health datasets held in the country is not permitted with one or more stakeholders.

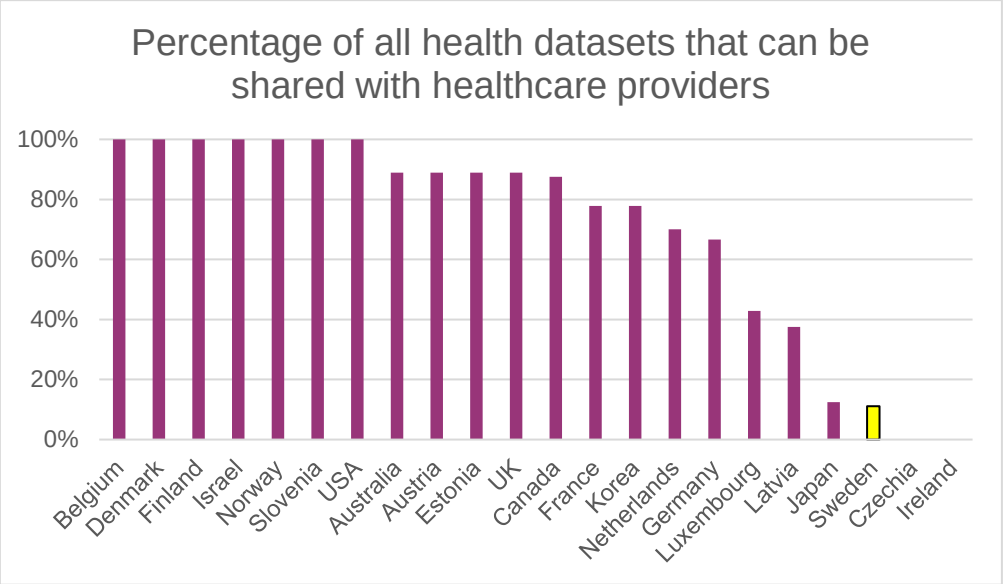

Figure 4. Percentage of existing health datasets that can be shared with healthcare providers. Not all countries have all health datasets. Source: OECD Going Digital Toolkit, based on the OECD Questionnaire on Health Data Development and Governance. https://goingdigital.oecd.org/indicator/64 retrieved 31.01.2022.

3.1.2 Internet access and usage

Many eHealth solutions are dependent on a functioning broadband connection in the home. Access to broadband varies depending on geographical location. Generally speaking, broadband coverage is good in urban areas but more variable in rural areas. (Figure 5).[27]

[27] bredbandskartan.se, 10.01.2022.

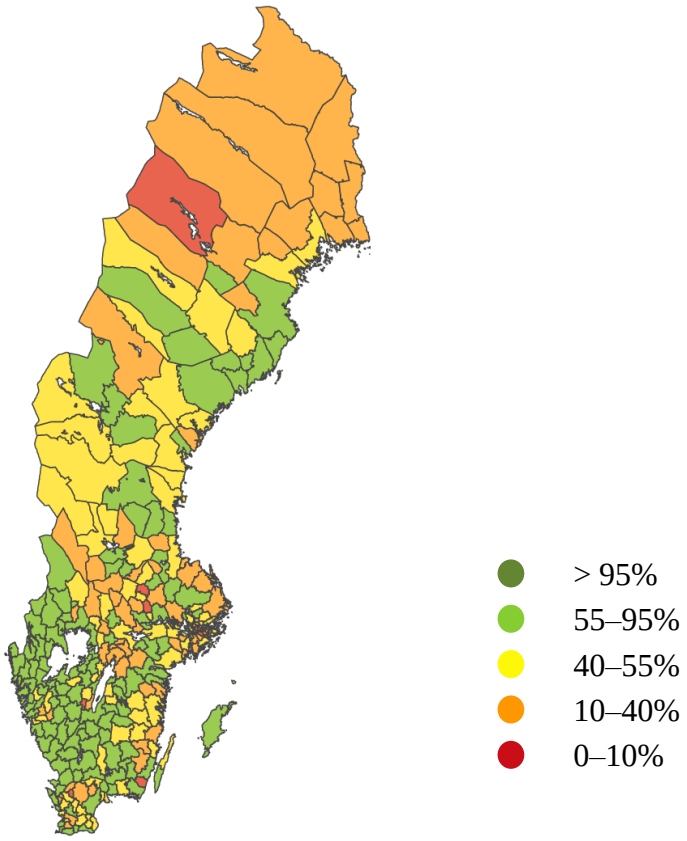

Figure 5. Broadband coverage outside towns and cities. Source: Bredbandskartan, 10.01.2022.

In line with the Swedish Government's vision of "a completely connected Sweden", today almost all Swede's have internet access. Approximately 93 per cent of those between 16 and 85 years of age have an internet connection in the home.[28]

While this figure is steadily increasing, some people still do not use or only rarely use the internet. According to 2021 measurements, 9 of 10 Swedes use the internet on a daily basis. In total, 6 per cent never used the internet and 4 per cent used it occasionally but not daily.[29] There is significant variation within the EU; according to the same survey, 20 per cent of Bulgarians and Greeks have never used the internet compared to only 1 per cent of Swedes.[30]

[28] Percentage of people between 16 and 85 years of age with an internet connection in the home. Data from Statistics Sweden, last updated 18.11.2021.
[29] Swedish Internet Foundation. *The Swedes and the Internet 2021*.
[30] European Commission. *Digital Economy and Society Index (DESI) 2021: Thematic chapters*. EU, 2021.

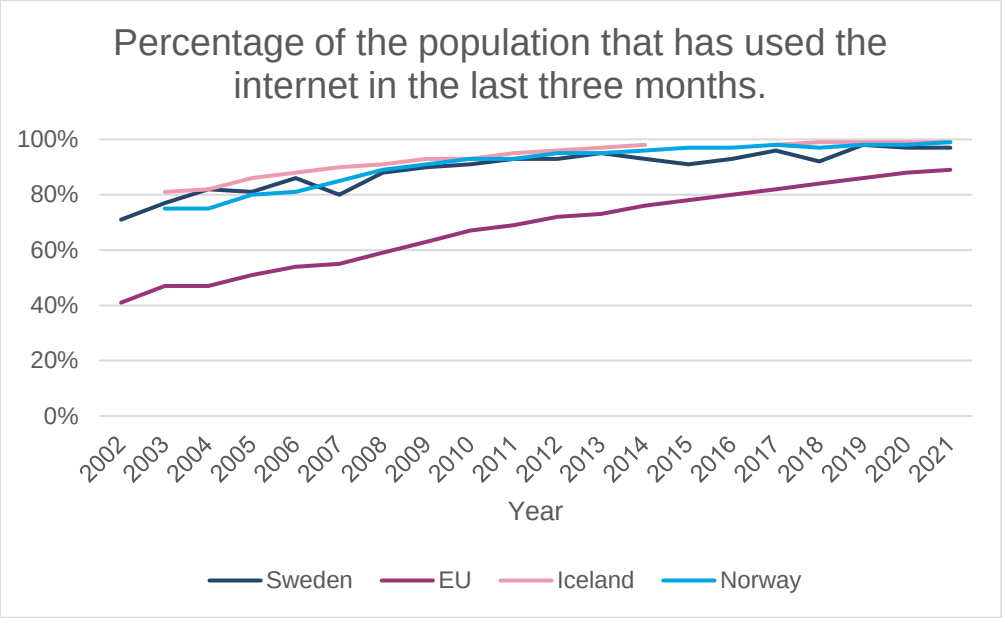

Figure 6. No data is available for Iceland for the period 2015–2016. Source: Eurostat, data code ISOC_CI_IFP_IU. Data last updated 16.12.2021, retrieved 10.01.2022.

Access to a digital device such as a smartphone, computer or tablet is a prerequisite for being able to use digital health and welfare services. According to the Swedish Internet Foundation report *Digital Exclusion 2020*, there is currently no major shortage of digital devices among the population. In 2020, 3 per cent of the Swedish population stated the lack of a digital device as an obstacle to using the internet.[31]

3.1.3 Electronic identification

Many digital services require the user to identify themselves, placing demands on secure solutions for digital identification. There are currently three e-IDs approved by the quality label Swedish e-Identification that private individuals with a Swedish personal identity number can obtain: BankID, Freja eID Plus and AB Svenska Pass.[32] BankID has been in existence for a number of years and has just over 8 million users.[33] Freja eID Plus is a more recent alternative with 476,000 uses as of the end of 2021.[34] Introduced in

[31] Swedish Internet Foundation. *Digitalt utanförskap 2020* [Digital Exclusion]. June 2020.
[32] Agency for Digital Government. https://www.digg.se/digital-identitet/e-legitimering. 11.01.2022
[33] Statistics from Finansiell ID-Teknik AB, BankID.
[34] Statistics from Freja eID Group AB.

September 2017, AB Svenska Pass is issued on the Swedish Tax Agency's ID card and currently has around 670,000 users.[35]

The percentage of people with a BankID who can use the system to identify themselves and log in to various services has increased in all age groups. Older adults are still underrepresented among users (Figure 7).[36]

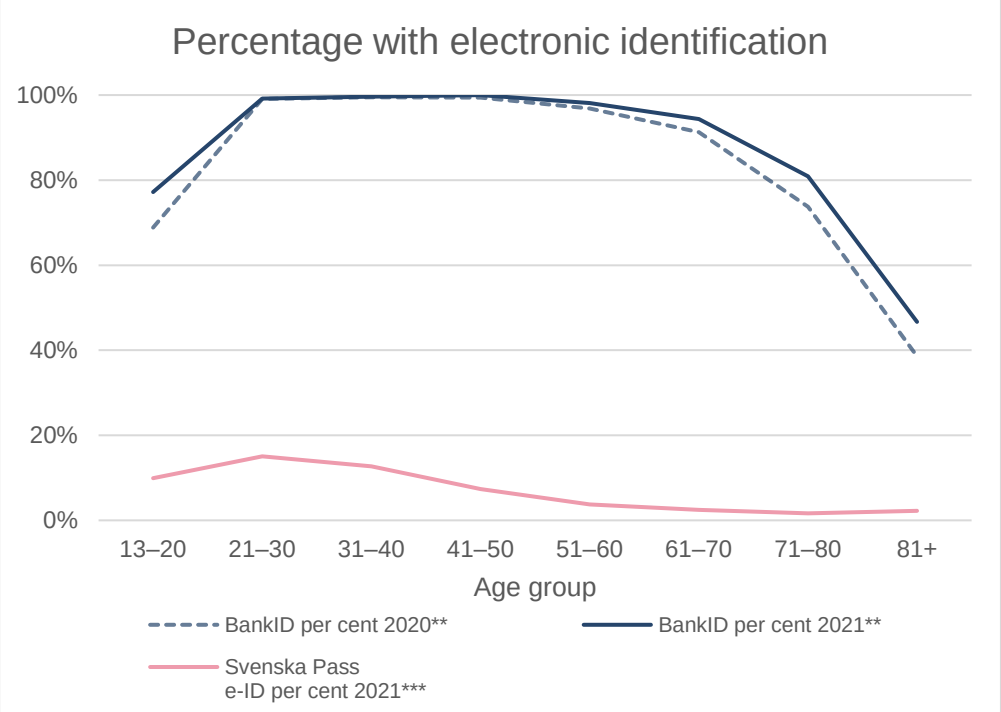

*Figure 7. Percentage based on number of people in the Swedish Population Register on 1 November 2021. **Percentage in November 2020 and November 2021 respectively. ***Percentage on 31.12.2021. There are no statistics divided by age for Freja eID. Source: Finansiell ID-Teknik AB, BankID. Swedish Tax Agency.*

3.2 Fundamental conditions for the Vision for eHealth 2025

The Vision for eHealth 2025 rests on three fundamental conditions: *Regulations*, *Standards*, and *More consistent use of terms*. These are prerequisites for a uniform semantic interpretation, exchange and transfer of information and for interaction between different digital solutions in a standardised ecosystem. These conditions demand cooperation, farsightedness, perseverance and predictability. According to a report by the Swedish Agency for Public Management, cooperation *"is still not effective enough to achieve the vision. Thus far, joint efforts have yielded few clear*

[35] Statistics from the Swedish Tax Agency.
[36] Statistics from Finansiell ID-Teknik AB, BankID.

results in the form of, for example, a more coordinated digitalisation of the health and welfare sector." The Swedish Agency for Public Management goes on to say that: *"In our opinion, in their work the parties have not placed sufficient emphasis on the fundamental conditions that should exist..."*.[37]

At the time of last year's report, no quantifiable indicators had been identified that could be used to follow the development of the fundamental conditions. One possible indicator for future use is the Swedish eHealth Agency's joint national eHealth specifications, which were launched in autumn 2021. Thus far, only one region, one municipality and three government agencies have contributed. None of the 200 or so registered specifications, most of which come from the Swedish eHealth Agency, yet have the status of joint national eHealth specifications.

3.3 Objective 1 – The individual as co-creator

One prerequisite for person-centred care is to begin with the patient's and user's needs and conditions for being an informed and active co-creator. This objective considers the possibility that those who can and wish to should be able to contribute to their own care, health or support. Using various forms of digital support, the individual's resources can be utilised and health and welfare infrastructure and services made more cohesive. Among other things, this involves moving healthcare and social services closer to citizens and being more location-dependent.

One goal is to ensure that welfare technology and digital support in the home is offered to patients, users and families outside of traditional care environments, thus increasing safety, independence and participation. Another goal is to make healthcare and social services accessible and present through digital services that facilitate contact and individual information management, so that citizens feel confident in and positive about eHealth.[38]

3.3.1 Welfare technology in various types of accommodation

The percentage of municipalities that use digital technology for night-time supervision in ordinary housing for the elderly and/or people with disabilities

[37] Swedish Agency for Public Management. 2021:17 *Vision E-hälsa 2025 – att försöka styra genom samverkan.* [Vision for eHealth 2025: Attempting to Steer by Cooperation]. Reg. no.: 2020/167-5
[38] Ministry of Health and Social Affairs and SALAR. *A Strategy for Implementing Vision for eHealth 2025: The Next Step, 2020–2022.* Stockholm, 2020.

has increased from 37 per cent in 2017 to 76 per cent in 2021.[39,40] This technology includes security cameras and thermal imaging cameras that allow care staff to monitor users remotely. The percentage of municipalities where it is possible to plan care in ordinary homes using video calls on discharge from hospital is 81 per cent and on other occasions 84 per cent. The percentage of municipalities that report the use of passive alarms or sensors[41] has decreased from 93 per cent in 2020 to 82 per cent in 2021 (Figure 8).[42]

Municipalities also use various types of welfare technology in sheltered accommodation for the elderly (Figure 9) and support and service accommodation for people with disabilities (Figure 10).[43] In sheltered accommodation for the elderly, night-time camera supervision has increased from 11 per cent in 2017 to 44 per cent in 2021, while in support and service accommodation for people with disabilities, the reported figure in 2021 was lower than in 2020. In 2021, the percentage of municipalities offering video care planning in sheltered accommodation for the elderly was 74 per cent on discharge from hospital and 78 per cent on other occasions. The corresponding figures for support and service accommodation for people with disabilities were 69 and 73 per cent.

[39] The figures presented here for the percentage of municipalities offering a given type of welfare technology in different forms of accommodation should be interpreted with a certain amount of caution; while more municipalities report using various types of welfare technology, it is still much about test or pilot phase. It remains unclear how many people actually use these technologies.
[40] In the 2021 survey of eHealth and welfare in municipalities, welfare technology in ordinary homes has been divided into home care of the elderly and home care of people with disabilities.
[41] Alarms that do not need to be activated by the user, such as motion sensors or floor alarm mats, as opposed to active alarms such as personal alarms activated by pressing a button.
[42] National Board of Health and Welfare. *E-hälsa och välfärdsteknik i kommunerna* [E-Health and Welfare Technology in Municipalities], years 2017–2021 Stockholm, 2017 to 2021.
[43] National Board of Health and Welfare. *E-hälsa och välfärdsteknik i kommunerna* [E-Health and Welfare Technology in Municipalities], years 2017–2021 Stockholm, 2017 to 2021.

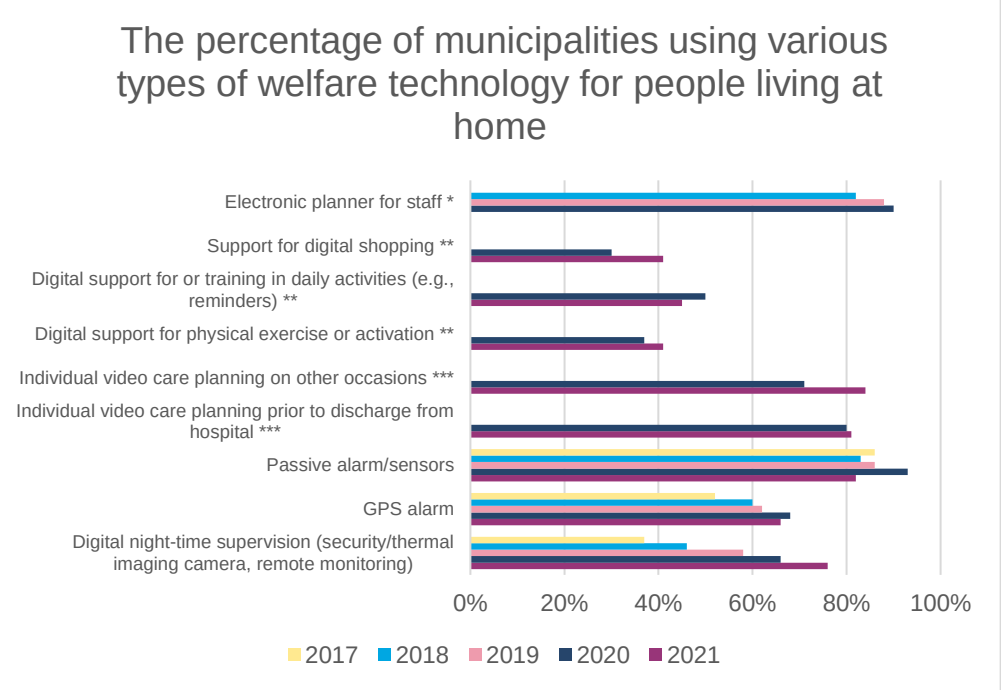

*Figure 8. The percentage of municipalities using various types of welfare technology for elderly people and/or people with disabilities living in ordinary accommodation, 2017–2021. *This question was not asked in 2017 or 2021. **This question was first asked in 2020. ***These questions were combined from 2019 onwards. Sources: National Board of Health and Welfare. E-hälsa och välfärdsteknik i kommunerna* [E-Health and Welfare Technology in Municipalities], years 2017–2021. (ID 1.1–1.4)

While an internet connection is not in itself classed as welfare technology, it does make it possible to use welfare technology and digital health and welfare services. In sheltered accommodation for the elderly, 57 per cent of municipalities offer all residents the opportunity to connect to the internet in their individual accommodation. The corresponding figure for support and service accommodation for people with disabilities is 49 per cent.[44]

[44] National Board of Health and Welfare. *E-hälsa och välfärdsteknik i kommunerna* [E-Health and Welfare Technology in Municipalities], years 2017–2021 Stockholm, 2017 to 2021.

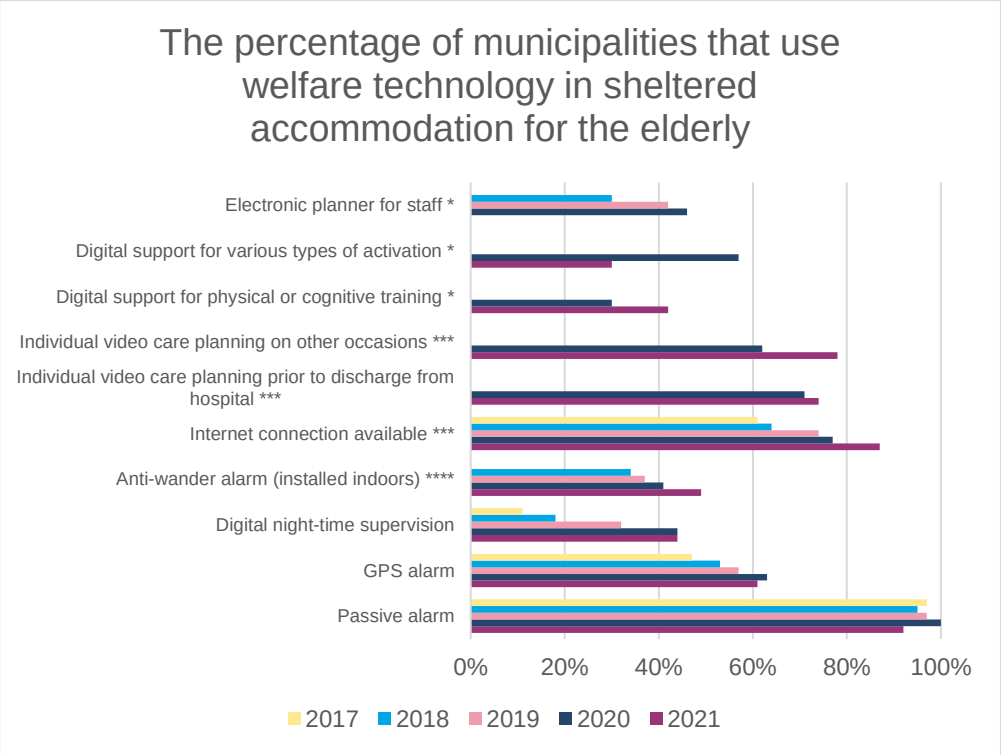

*Figure 9. The percentage of municipalities using various types of welfare technology for elderly people in sheltered accommodation, 2017–2021. ˣ This question was not asked in 2017 or 2021. * This question was first asked in 2020. ** These questions were combined until 2019. *** Refers to internet connection via cable or Wi-Fi. **** This question was not asked in 2017. Sources:* National Board of Health and Welfare *E-hälsa och välfärdsteknik i kommunerna* [E-Health and Welfare Technology in Municipalities], years 2017–2021 (ID 1.1–1.4)

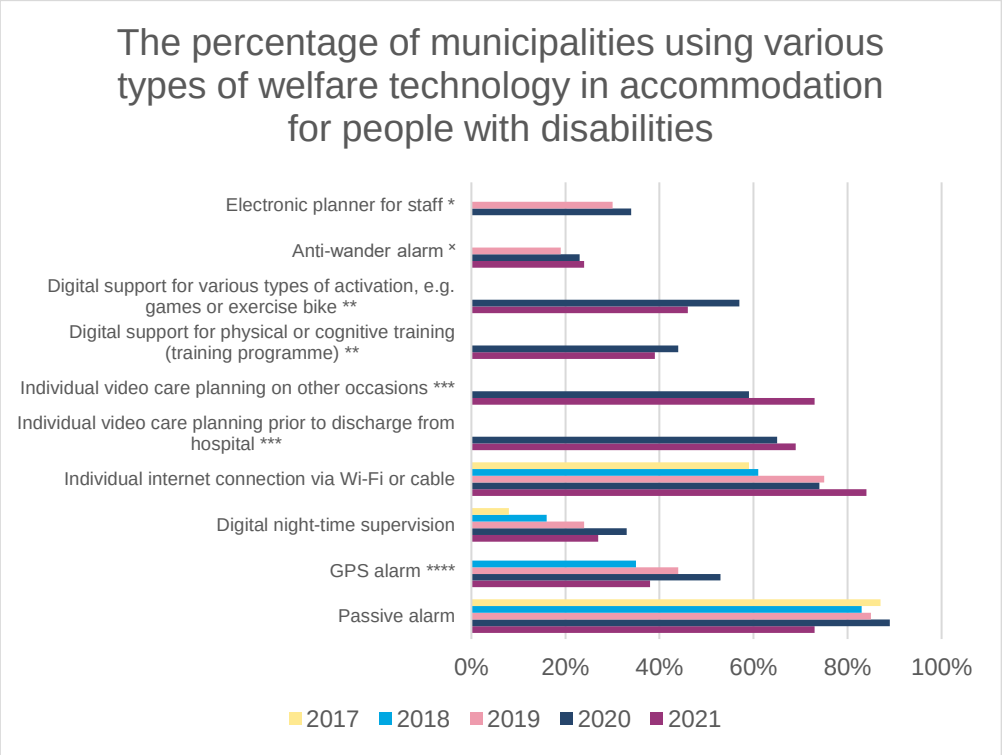

*Figure 10. The percentage of municipalities using various types of welfare technology in accommodation for people with disabilities, 2017–2021. * This question was not asked in 2017, 2018 or 2021. ˣ This question was not asked in 2017 or 2018. ** This question was first asked in 2020. *** These questions were combined until 2019. **** This question was not asked in 2017. Sources: National Board of Health and Welfare.* E-*hälsa och välfärdsteknik i kommunerna* [E-Health and Welfare Technology in Municipalities], years 2017–2021 (ID 1.1–1.4)

3.3.2 Welfare technology in municipal healthcare

To some extent, municipal health services use different welfare technology solutions than social services. The most common is individual video care planning, which is used by between 78 and 79 per cent of municipalities. Passive alarms are used by 75 per cent and digital medicine cabinets by 59 per cent of municipalities (Figure 11).[45]

[45] The figures presented here for the percentage of municipalities offering a given type of welfare technology in different forms of accommodation should be interpreted with a certain amount of caution; while more municipalities report using various types of welfare technology, it is still much about test or pilot phase. It remains unclear how many people actually use these technologies.
National Board of Health and Welfare. *E-hälsa och välfärdsteknik i kommunerna* [E-Health and Welfare Technology in Municipalities], years 2017–2021 Stockholm, 2017–2021.

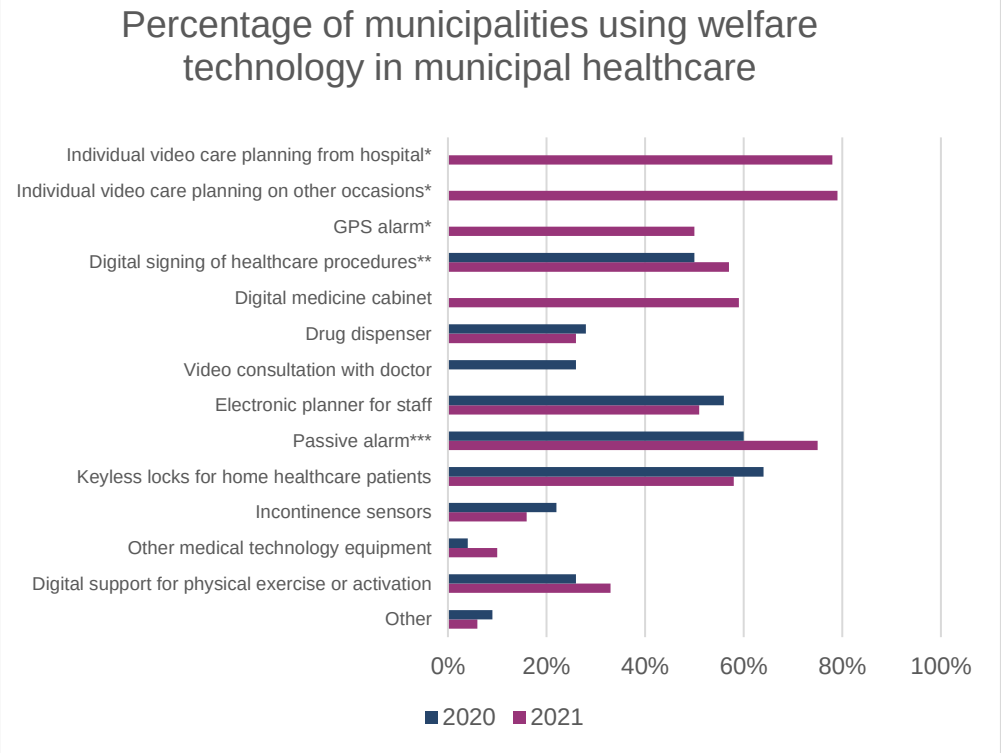

*Figure 11. Percentage of municipalities using welfare technology in municipal healthcare, 2021. * This question was asked in 2021. ** For example, signing prescriptions. *** For example, epilepsy alarm. Source: National Board of Health and Welfare. E-hälsa och välfärdsteknik i kommunerna* [E-Health and Welfare Technology in Municipalities], 2020–2021
(ID 1.1—1.4)

The survey of welfare technology use by municipalities in various types of accommodation and within healthcare only covered which municipalities use a given solution, not how widespread it is within the municipality or how many users have access to it. While more municipalities report using various types of welfare technology, most of this is still in a test or pilot phase and figures should therefore be interpreted with a certain amount of caution.[46]

3.3.3 Municipalities are increasingly accepting digital applications for assistance

An increasing percentage of municipalities (48 per cent) have e-services for applying for assistance, especially financial assistance. Digital applications for various types of assistance and initiatives for the elderly were accepted by 29 per cent of municipalities and for people with disabilities by 23 per cent of municipalities. Other examples of e-services include booking appointments

[46] National Board of Health and Welfare. *E-hälsa och välfärdsteknik i kommunerna 2020* [E-Health and Welfare Technology in Municipalities 2020]. Stockholm, 2020.

with case officers, chat forums and expressions of interest. The percentage of municipalities with no e-services decreased between 2019 and 2021 (Table 1). In total, 23 per cent of municipalities stated that they did not offer e-services in any area of social services, while 16 per cent stated that they offer e-services in all areas.[47]

The percentage of municipalities with at least one e-service within social services, by operational area and type of e-service, 2021.

Operational area	Appointment (%)	Digital Applications (%)	Chat (%)	Expressions of interest (%)	No e-services (%)
Children and young people	4 (2;1)	6 (2;4)	7 (6;6)	36 (38;33)	49 (48;59)
Financial assistance	4 (2;1)	48 (40;29)	7 (3;3)	4 (3;4)	41 (48;63)
Family law	6 (6;5)	2 (3;3)	2 (2;3)	5 (4;5)	71 (74;82)
Family counselling	5 (8;6)	. (1;3)	2 (2;2)	2 (2;2)	78 (74;86)
Adult addiction	1 (1;1)	5 (3;2)	3 (3;3)	6 (8;5)	73 (71;84)
Disabilities	0 (1;0)	23 (25;23)	1 (2;2)	18 (21;14)	60 (53;58)
Elderly care	1 (1;3)	29 (31;29)	. (2;2)	1 (9;8)	60 (54;90)

Table 1. Percentage of municipalities stating that they have e-services for applying for various types of assistance or initiatives. The figures in parentheses are for 2020 and 2019 (2020;2019).
Sources: National Board of Health and Welfare. E-*hälsa och välfärdsteknik i kommunerna* [E-Health and Welfare Technology in Municipalities], years 2019–2021 *(ID 2.8)*

3.3.4 Digital healthcare contacts

This report uses SALAR's compilation of data on digital healthcare contacts to describe developments in this area. The compilation covers data from private, mainly digital, healthcare providers operating in two regions, Region Jönköping and Region Sörmland. These healthcare providers operate nationally rather than regionally, offering healthcare services to everyone in Sweden. The private healthcare providers included in the report are either contracted directly to the region or are subcontractors to another healthcare provider who is. This data represents most of the major private healthcare providers operating digital healthcare services in Sweden. These services are readily accessible and available to everyone via computer or mobile applications.

The compilation only covers publicly financed healthcare. If a healthcare provider also offers private healthcare, this is not included. Nor does it include digital services provided by the regional health authority itself or

[47] National Board of Health and Welfare. E-*hälsa och välfärdsteknik i kommunerna* [E-Health and Welfare Technology in Municipalities], years 2019–2020 Stockholm, 2019 to 2020.

private providers operating local health centres that provide services to registered patients under the patient choice scheme.

The reported volumes include residents of the region and patients living elsewhere in Sweden. The volume of care provided by these actors in Region Sörmland decreased by 8 per cent during 2021. This does not, however, reflect the real development as two major healthcare providers now report care provided to other regions, data from whom we do not have access to and therefore cannot report in this compilation.

Two major actors in this segment have established physical health centres in Region Stockholm and Region Skåne and therefore report care provided to these regions' residents directly to the regional health authority in question. During the period 2016–2020, residents of these two regions accounted for 50 per cent of the digital healthcare contacts reported via Region Sörmland.

In the interests of making a fair comparison that actually reflects the development over time, SALAR has also performed an analysis of healthcare contacts that excludes patients registered as residents of Region Stockholm or Region Skåne across the entire time series (Figure 12).

Developments up to 2021

The trend that saw an annual volume growth of 100 per cent has been broken. Based on the consumption of digital healthcare by the residents of 19 Swedish regions (all regions except Stockholm and Skåne), we can confirm that the exponential growth seen in previous years has tailed off. Volume is still increasing, but only by around 19 per cent. During the year, further healthcare providers have begun to offer online care, not least those aimed at niche markets of specific patient groups with specific conditions such as arthritis, high blood pressure, overweight and obesity, mental illness and migraine.

The slower growth during 2021 compared to previous years is probably explained by the introduction of patient fees for certain healthcare contacts with doctors and psychologists in Sörmland. Although patient fees for video consultations with doctors and psychologists were introduced in 2020, a large percentage of such contacts were then transferred to a chat tool, which remained free of charge until 1 July 2021. Although contacts with healthcare professionals other than doctors and psychologists remain free in Sörmland, it is reasonable to assume that the introduction of patient fees has had a deterrent and dampening effect on healthcare consumption. A number of studies have shown that demand declines when patient fees are introduced or

increased.[48] In Sörmland, the volume of digital healthcare decreased by 14 per cent between June and July 2021, when patient fees were introduced. While this might admittedly be a normal effect of lower demand for care or reduced supply (availability) during the summer, a comparison with changes between June and July 2019 and 2020 (+2 and 5 per cent respectively) suggest that the reduced demand during July 2021 can be put down to patient fees.[49]

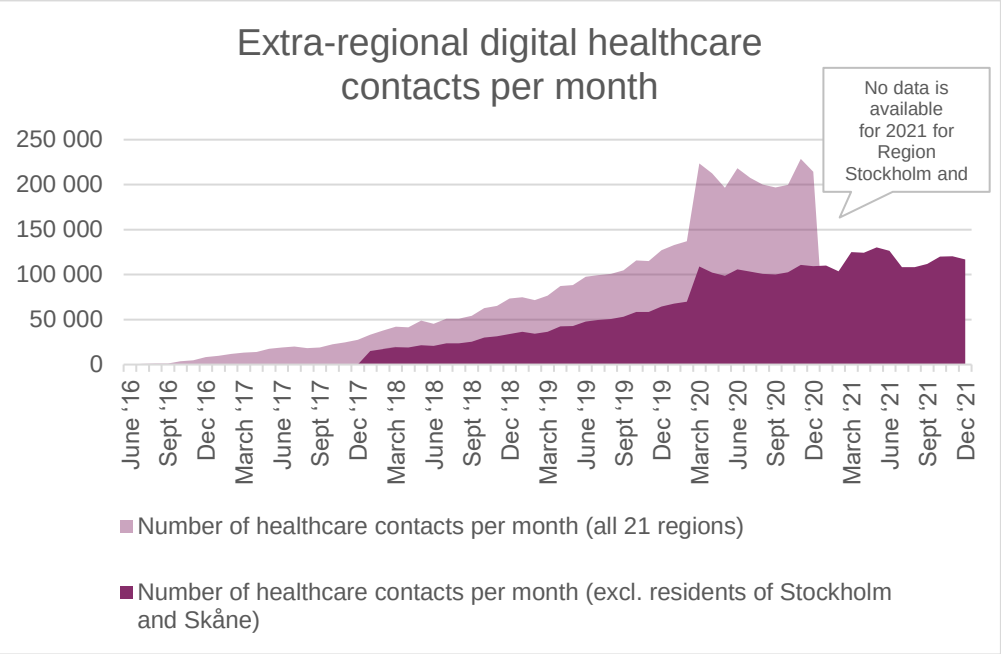

Figure 12. Development of extra-regional digital healthcare contacts in Jönköping and Sörmland 2016–2021. These regions were chosen because the majority of actors offering such services nationally initially chose to establish themselves in Region Jönköping and Region Sörmland while taking advantage of patients' freedom to choose from all providers in Sweden. No data is available for 2021 for Region Stockholm and Region Skåne. Source: Swedish Association of Local Authorities and Regions (SKR). (ID 2.3)

Digital healthcare contacts with different professions

There has been a relatively large change over time as more and more professions offer services online. Initially, digital healthcare contacts were primarily with doctors. This was followed by other professions who deal with mental illness and then other specialist actors (Figure 13). This is exemplified by a healthcare provider that established itself in Sörmland in 2020 to offer

[48] For example, Johansson, N., Jakobsson, N. & Svensson, M. *Effects of primary care cost-sharing among young adults: varying impact across income groups and gender*. The European Journal of Health Economics, 2019, 20(8):1271–1280
[49] Statistics from SALAR. *Extra-region digital healthcare contacts.*

long, comprehensive series of therapy for patients diagnosed with arthritis, a patient group found largely in the 55–75 age bracket.

The decline in the percentage of doctor's appointments may also be a reflection of the loss of data described above, as physical clinics were established in Stockholm and Skåne, requiring digital healthcare contacts to be directly reported to these regional health authorities. The healthcare providers in question had a strong focus on GPs (75 per cent) and their exclusion has halved the volume of healthcare reported to Region Sörmland.[50]

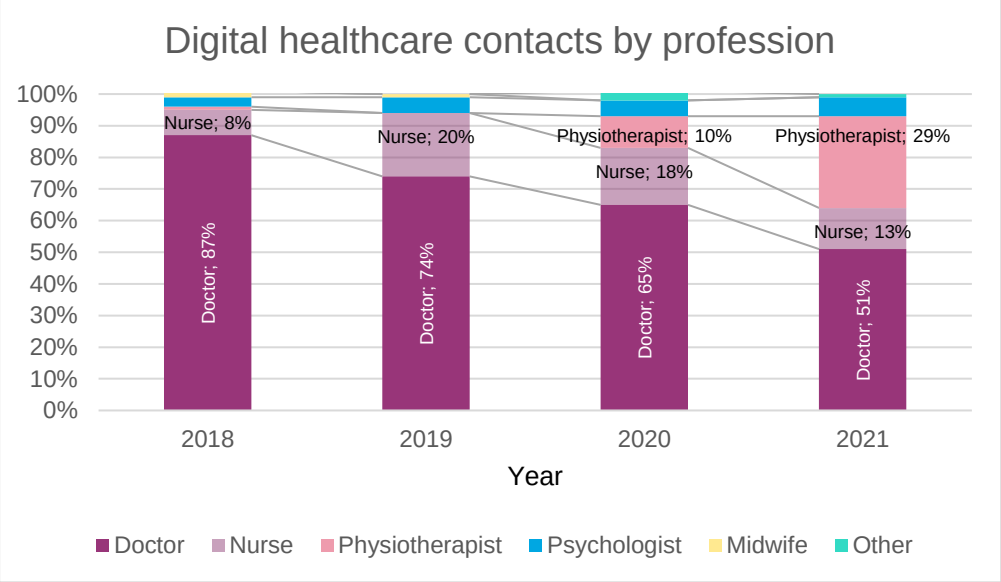

Figure 13. Digital healthcare contacts by profession with private providers via Region Jönköping and Region Sörmland. Source: SALAR. Extra-region digital healthcare contacts. (ID 2.6)

Demographics of digital healthcare contacts

Online healthcare via a computer or mobile device is most likely to be used by women in their 20s (21-year-old women accounted for just over 2 per cent of all digital healthcare contacts in 2021). Parents of small children are also frequent users of these services, peaking when the child is one year old (Figure 14).[51]

[50] Statistics from SALAR.
[51] Statistics from SALAR.

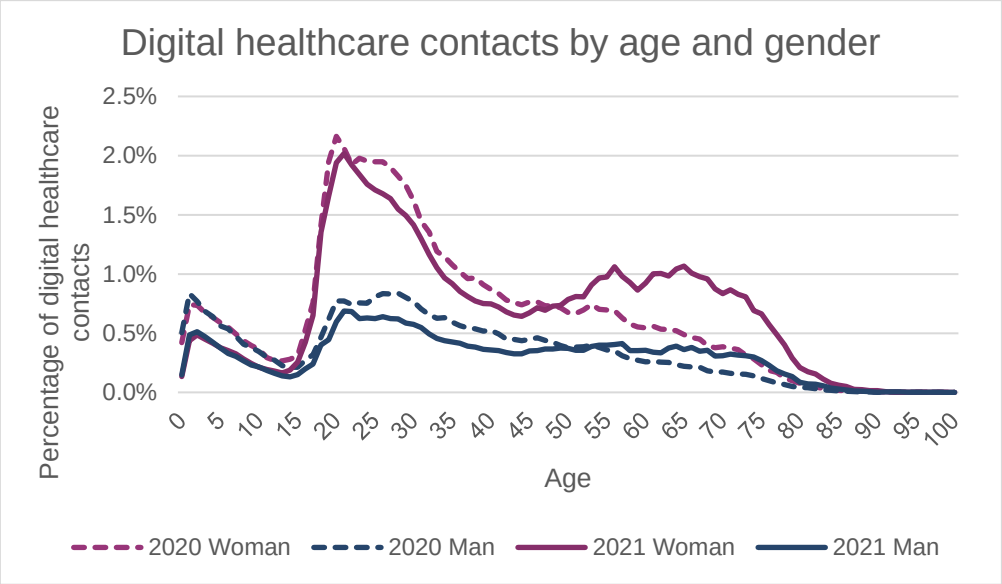

Figure 14. Digital contacts with private healthcare providers in Region Sörmland by age and gender (percentage of all digital healthcare contacts. All annual digital healthcare contacts by men and women constitute 100 per cent of digital healthcare contacts during that year). Source: SALAR. Extra-region digital healthcare contacts. (ID 2.4)

The increase in healthcare providers offering specialist care for aging-related diseases has had an effect on which age groups seek care online. Diagnoses for which there are services targeted at an older patient group include high blood pressure and arthritis. Specialist services aimed at multiple age groups include migraine, mental illness, overweight and obesity. Total number of digital healthcare contacts has increased greatly among the over-50s as patients join treatment programmes that require frequent online visits. Women are the largest patient group and growing. In 2020, women accounted for 65 per cent of all digital healthcare contacts. In 2021, this figure increased to 70 per cent.

3.3.5 1177 national healthcare hub e-services

Organisations affiliated to a regional health authority may offer residents access to 1177 national healthcare hub e-services. Exactly which functions and services residents can use differs from region to region.

In total, just over 260 million visits were made to 1177.se during 2021. Women use 1177 e-services more than men up to approximately 70 years of age (Figure 15). The total number of logins to 1177 e-services increased by 67 per cent for women and 89 per cent for men compared to 2020. The average woman in the age group 30–39 logged in 33.1 times during 2020, compared to 16.6 times for a women in the age group 70–79. The average for

men in different age groups has remained more stable. Increasing numbers of people over 70 years of age use 1177 e-services. During 2021, the site was visited by people over 100 years of age on 2,342 occasions. The corresponding figure for 2020 was 1,430.[52]

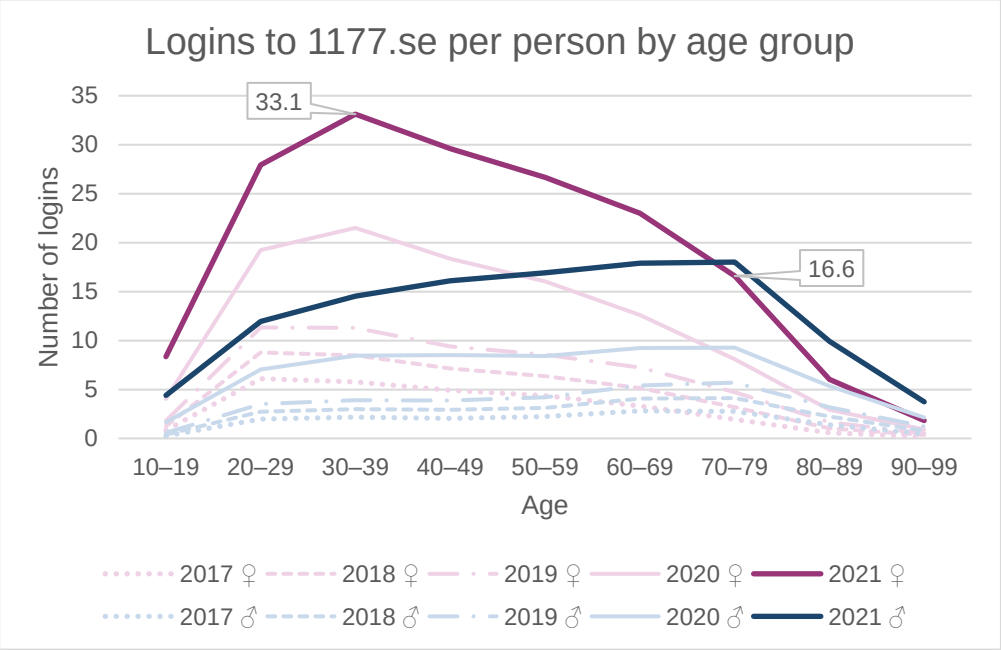

Figure 15. Average number of logins to 1177.se per person by gender and age group. Source: Inera. (ID 2.10)

Online appointment booking

The e-service *Webbtidboken* allows people to book, reschedule or cancel healthcare appointments online. The number of appointments booked via the service increased from barely 1.8 million in 2020 to just over 5.8 million in 2021. The number of appointments rescheduled or cancelled also increased by approximately 1 million between 2020 and 2021 (Figure 16).[53]

Online medical records

The e-service *Journalen* allows patients to access their medical records online, including notes from healthcare appointments and information on vaccinations, referrals, diagnoses, dental care, medication and test results. Parents and guardians can also obtain information about their children until they turn 13 years of age. Although the amount of information made available

[52] Statistics from Inera.
[53] Statistics from Inera.

online differs between regional health authorities, most provide information on diagnoses, test results, healthcare contacts, notes and restrictions on access to the patient's medical records (Figure 17).[54]

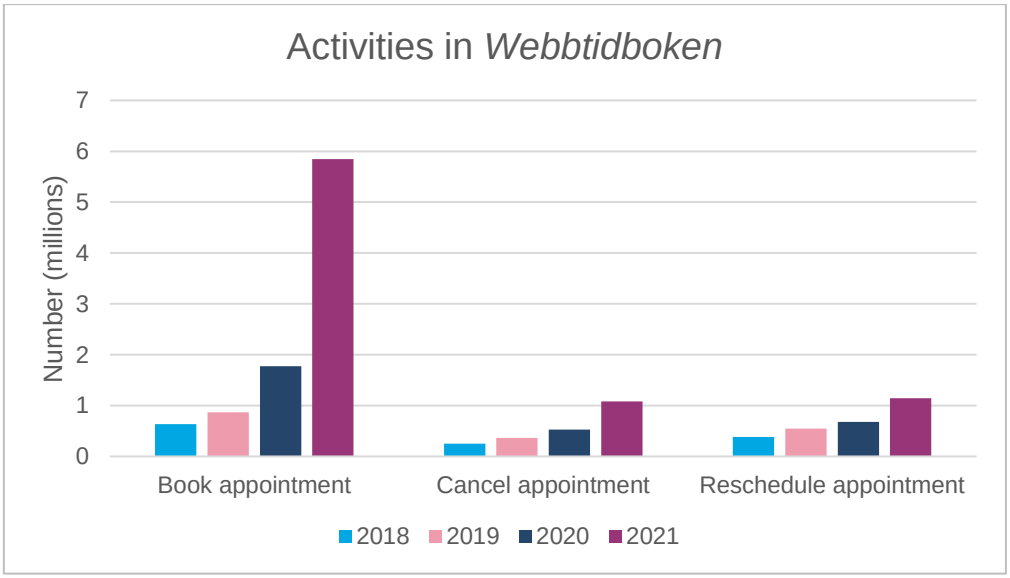

Figure 16. Activities in Webbtidboken 2018–2021. Source: Inera. (ID 2.2)

[54] Statistics from Inera.

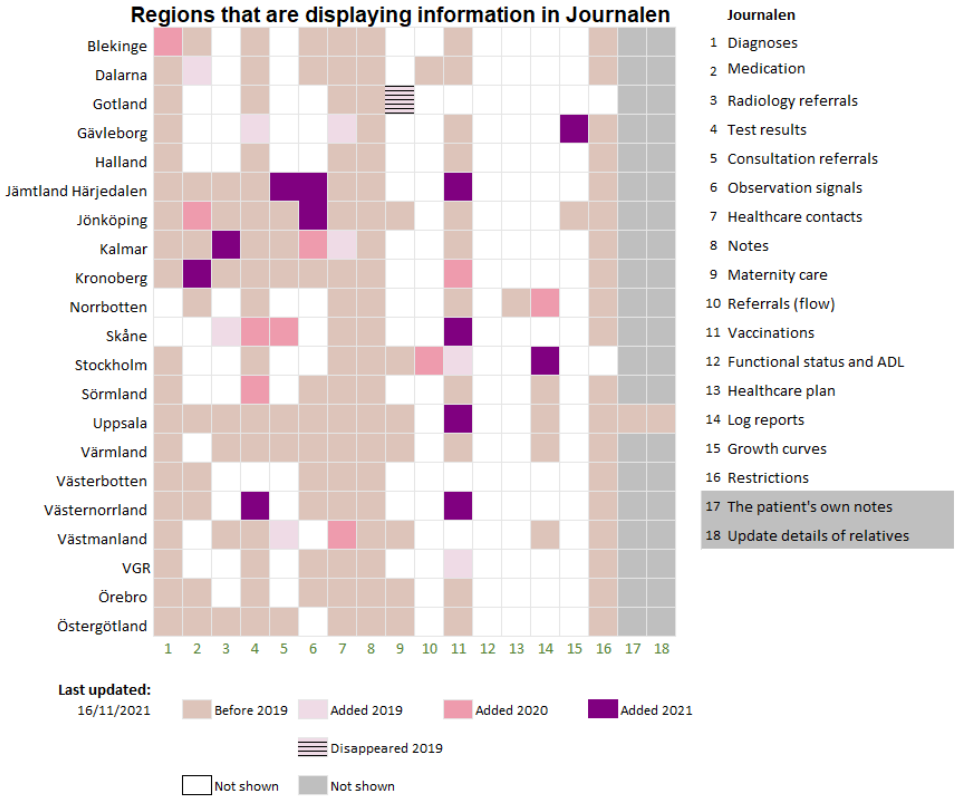

Figure 17. Information patients can access in the e-service Journalen. All regions can permit access to points 1–16, while points 17 and 18 are only available under specific conditions. Source: Inera. (ID 2.11)

Support and Treatment platform

The Support and Treatment platform allows regional health authorities and private healthcare providers contracted to a region to offer residents online support and treatment programmes, known as elements. An element might be an alcohol-abuse programme, sleep-disorder programme, stress-management programme or online therapy for depression. The Support and Treatment function has been operational since 2015 and all regions are now connected to the service via 1177.se.[55]

The number of commenced and completed elements on Ineras Support and Treatment platform has been increasing since 2016. This trend has accelerated in 2021, with 103,676 elements commencing and 85,564

[55] SALAR. Användning av program i Stöd och behandling: intervju med regioner 2020 [Use of Support and Treatment programmes: Interviewss with regions 2020]. Stockholm, April 2020.

completed. This increase is proportionally larger than the increase in the number of therapists (Figure 18).[56]

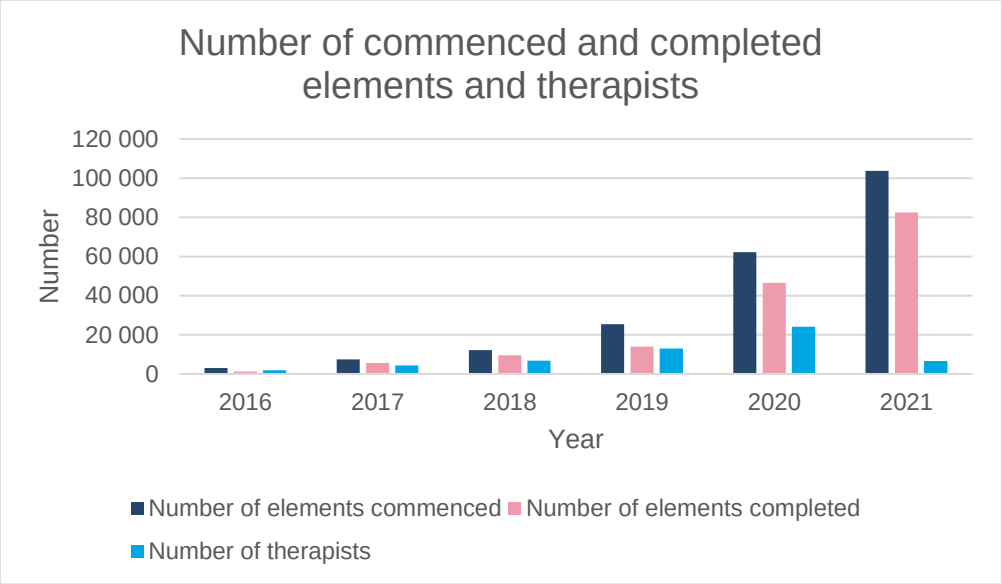

Figure 18. Number of elements (commenced and completed) and number of therapists on Inera's Support and Treatment platform, 2016–2021. Source: Inera. (ID 2.12)

3.3.6 Digital registration and payment

Digital registration and payment services saves time and reduces administration for staff. The number of regions that have, or plan to, introduce the service has not changed since 2020. Two regions offer, and six regions are in the process of introducing, the solution for payment via a terminal, while six regions state that they have introduced registration on arrival via a terminal (Figure 19).[57]

[56] Statistics from Inera.
[57] Jerlvall, Pehrsson. *eHälsa och IT i regionerna*. [eHealth and IT in the Regions], May 2020.

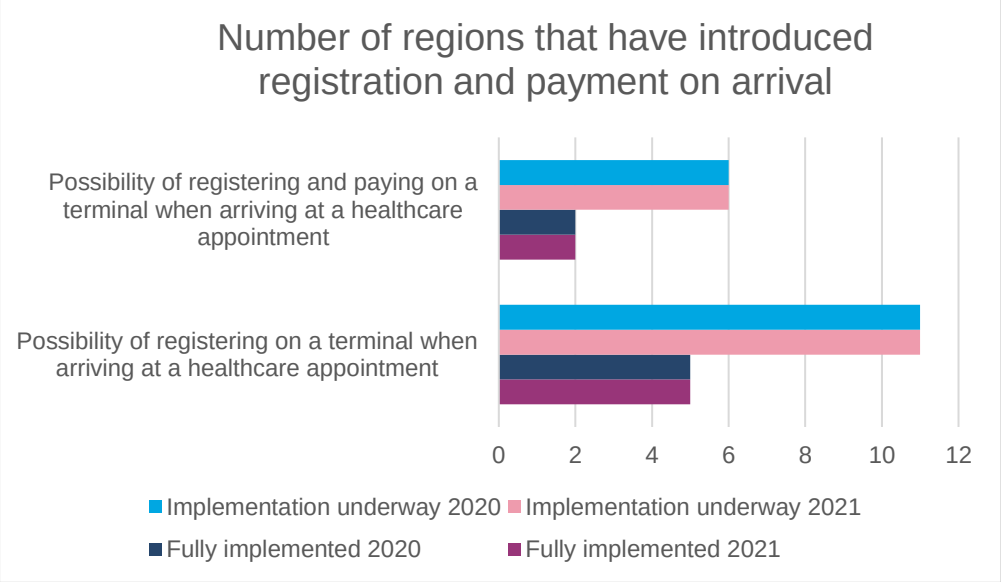

Figure 19. Number of regions that have introduced registration and payment on arrival, 2021. In 2020, this question was framed in another way. 19 regions responded to the question. Data collected at the beginning of the year.
Source: eHälsa och IT i regionerna [eHealth and IT in the Regions]. 2020 and 2021. (ID 2.1)

3.3.7 Attitudes to, confidence in and experiences of eHealth

If the objectives of Vision for eHealth 2025 are to be achieved, it will not be enough to simply introduce the necessary technology; residents of Sweden must also choose to use digital services. It is vital that people have confidence in the system and enjoy positive experiences when using the services.

The use of digital health and welfare services

With a total of around 60 million logins, Journalen is the most widely used e-service on 1177.se. The other popular e-services on the site have considerably fewer logins: prescription renewals are applied for by some 3 million users, while around 2 million users submit contact requests. The use of all of the most widely used e-services increased between 2019 and 2021 (Figure 20).[58]

[58] Statistics from Inera.

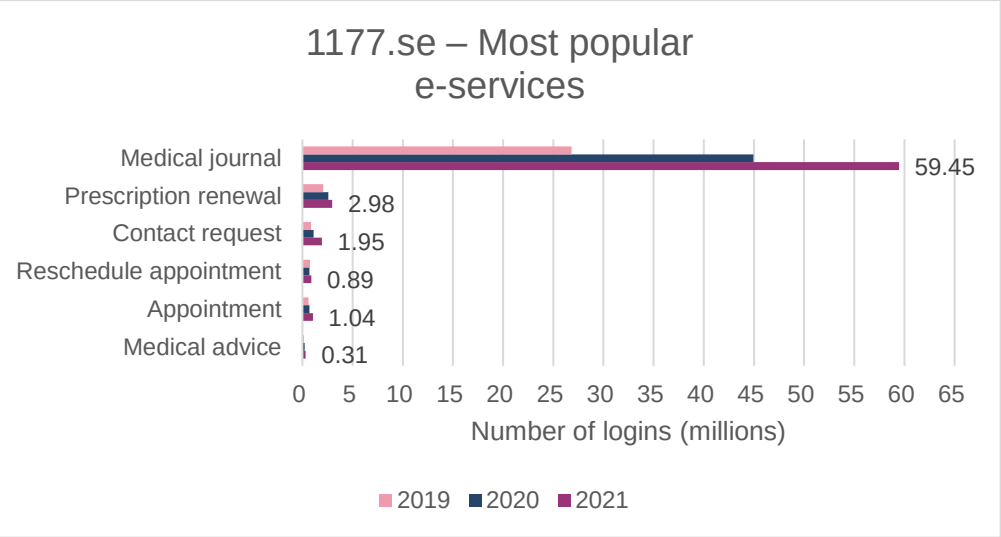

Figure 20. Rounded up or down to the nearest 1,000. Source: Nordic Health Portal Analysis. 2021.

People have a positive attitude to the e-services on 1177.se

Just over three out of four people have a positive attitude to the e-services on 1177.se. This is true in all regions, but confidence is especially high in Region Halland, Region Värmland, Region Kalmar and Region Uppsala. Generally speaking, the number of people with a positive attitude has increased in all regions.

While all age groups have a positive attitude to using the e-services offered on 1177.se, it is clear that negative attitudes are more prevalent among the over-80s than under-80s. It is worth noting that approximately three out of four people in the 60–79 age group have a positive attitude and that the percentage of over-80s with a positive attitude has increased by 8 percentage points since 2020.

People have a positive attitude to the e-services on 1177.se regardless of their self-rated general health. Those who rate their general health as good or very good are more positive than others, with 84 per cent expressing a positive attitude compared to 72 per cent of those who rate their general health as poor or very poor.[59]

Attitudes to care, consultation and treatment using digital technology

Almost half of respondents (47 per cent) express a positive attitude to care, consultation and treatment using digital technology, while 29 per cent have a

[59] Statistics from SALAR.

negative attitude (Figure 21). Only in Region Stockholm and Region Västerbotten do a bare majority of residents express a positive attitude on this question. The lowest percentage of residents with a positive attitude is found in Region Blekinge, where 41 per cent are positive. Comparing the results of the 2020 survey, the percentage of residents with a positive attitude has increased in most regions.[60]

Attitudes to increased possibilities for care in the home

The majority of respondents have a positive attitude to the use of digital technology for care in the home: 59 per cent have a positive attitude to the use of digital technology to support visits by care staff (Figure 21). The percentage with a positive attitude is highest in Region Stockholm and lowest in Region Jönköping. Attitudes to using digital technology to increase the possibility of providing care in the home have not changed to any great extent since the 2020 survey.[61]

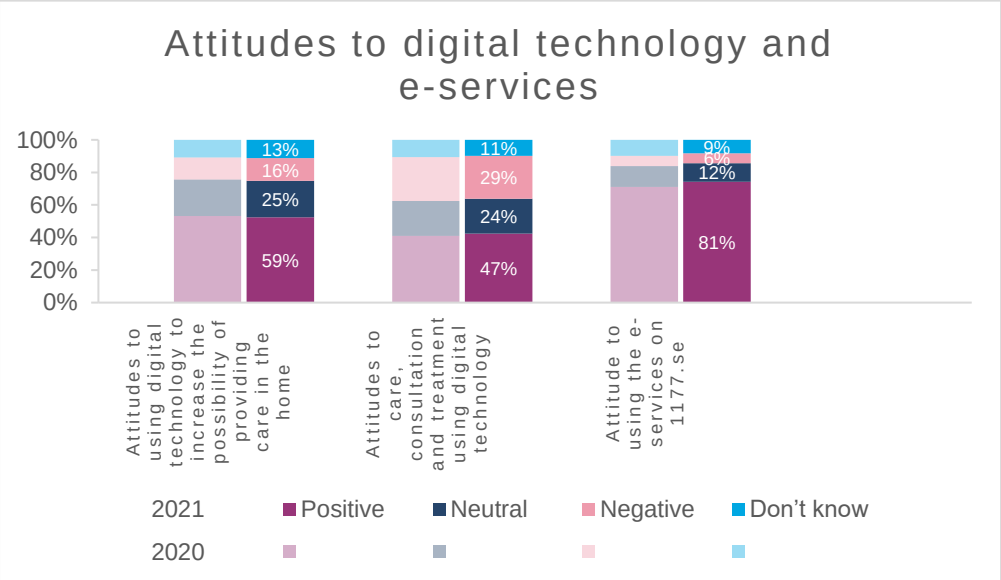

Figure 21. Attitudes to digital technology and e-services. New question in the 2020 survey. Source: SALAR. (ID 3.2)

3.3.8 The use of digital health and welfare services

In its survey, the Swedish eHealth Agency asked about the use of a selection of digital health and welfare services (Figure 22). The survey reveals that the most common uses of the internet or an e-service is to search for information

[60] Statistics from SALAR.
[61] Statistics from SALAR.

about a disease or treatment followed, by booking or rescheduling a healthcare appointment, services that were used by 74 and 58 per cent of respondents respectively during the past 12 months.

Since 2019, the use of some digital health and welfare services has increased while the use of others has declined; for example, searches for information about diseases and treatments and video consultations with healthcare professionals increased by 13 and 7 percentage points respectively, while the use of health, exercise or diet diaries declined by over 10 percentage points.[62]

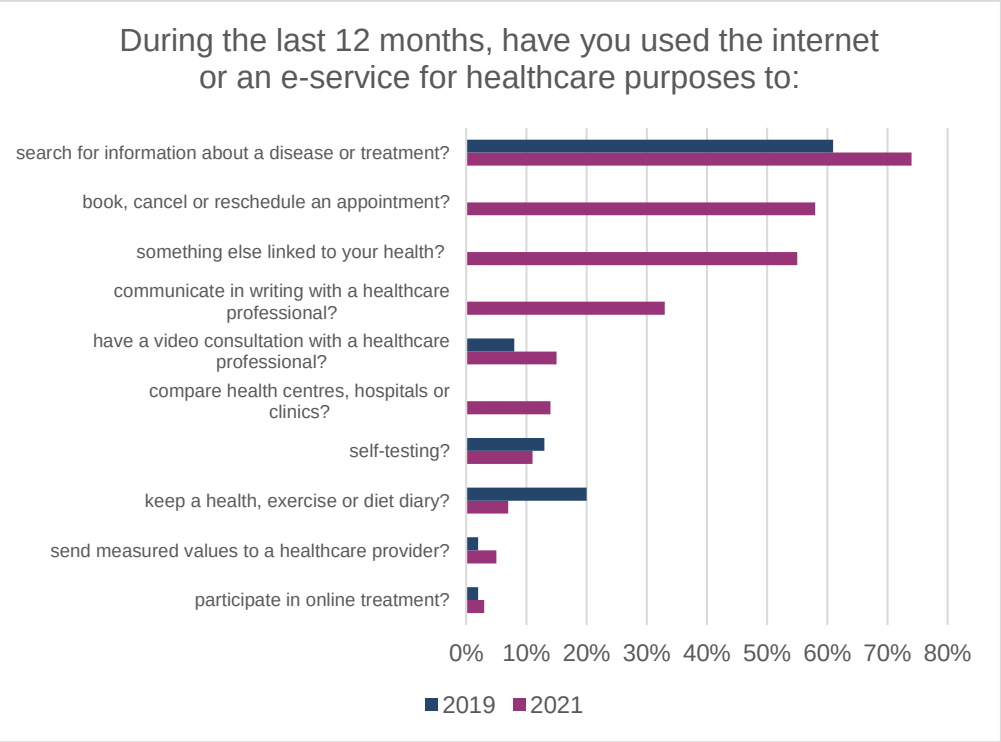

Figure 22. Percentage of the population that has used the internet or an e-service for healthcare purposes during the last 12 months to perform any of the listed functions. Some questions have been somewhat reframed between surveys.
Source: Swedish eHealth Agency, general population survey 2021. (ID new)

3.3.9 The use of digital welfare services

E-services provided by social services[63] are used by a small percentage of the population, varying between 1 and 11 per cent (Figure 23). The majority of

[62] Swedish eHealth Agency. *General population survey.* 2021.
[63] The term *social services* refers to care of the elderly, support and services for people with disabilities and support for individuals and families (such as financial assistance, addiction support or support for children and adolescents).

these services are used by less than 4 per cent of the population. The most common uses are to monitor the status of one's case followed by searching for information about social services in the municipality where one lives. These e-services are used by 11 per cent and 8 per cent respectively.[64]

Figure 23. Percentage of the population that has used a website or e-service provided by social services during the last 12 months to perform any of the listed functions.
Source: Swedish eHealth Agency, general population survey 2021. (ID new)

3.3.10 Perceptions of digital healthcare services

Over half of the population (56 per cent) feels that the range of digital healthcare services meets their needs to a relatively large or great extent. Just under a quarter (24 per cent) of the population feels that the range of services offered meets their needs to a relatively small or very small extent or not at all (Figure 24).[65]

[64] Swedish eHealth Agency. *General population survey*. 2021.
[65] Swedish eHealth Agency. *General population survey*. 2021.

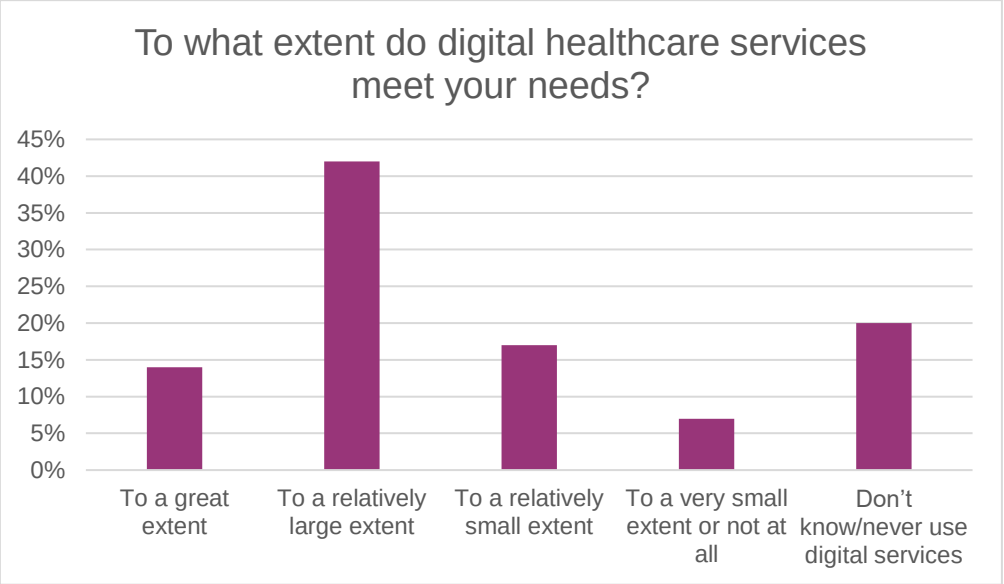

Figure 24. Percentage of the population that feels to varying extents that the range of digital healthcare services meets their needs. Source: Swedish eHealth Agency, general population survey 2021. (ID new)

Over half of the population (64 per cent) feels that it is very easy or relatively easy to use digital healthcare services, compared to 14 per cent who find it relatively difficult. Only 3 per cent of the population find digital healthcare services very difficult to use (Figure 25).[66]

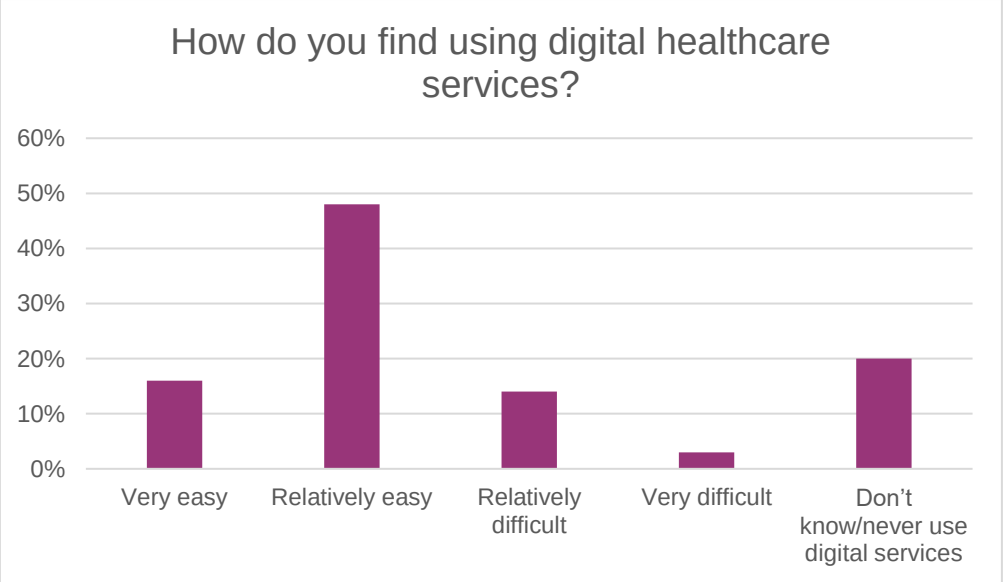

Figure 25. Percentage of the population that finds it easy or difficult to use digital healthcare services. Source: Swedish eHealth Agency, general population survey 2021. (ID new)

[66] Swedish eHealth Agency. *General population survey. 2021.*

3.3.11 Perceptions of digital welfare services

Of those who used digital welfare services[67], 30 per cent feel that the range of digital services meets their needs to a relatively large or great extent, while over a fifth (22 per cent) feel that the services meets their needs to a relatively small or very small extent (Figure 26).[68]

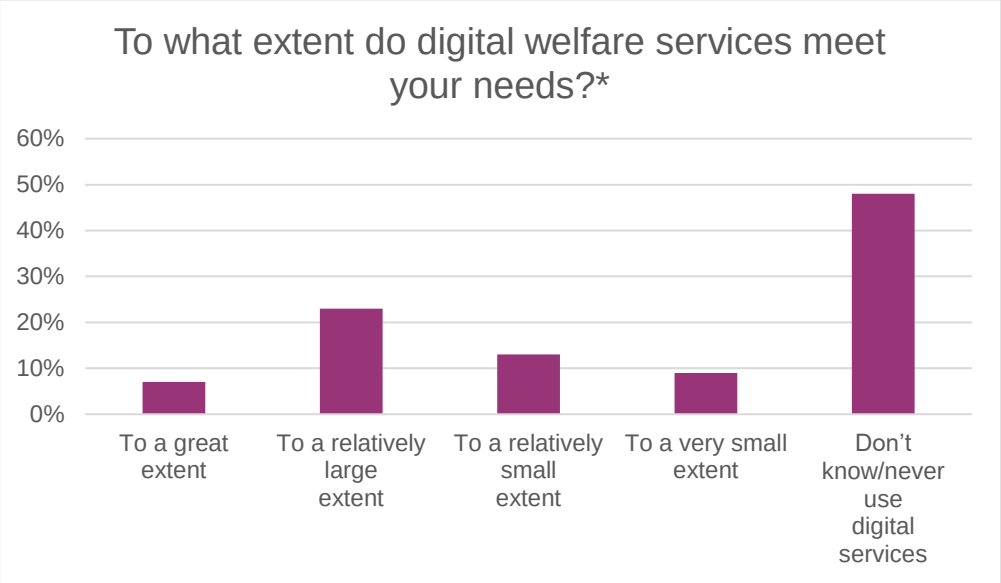

*Figure 26. The percentage of the population that to various extents considers the range of digital services offered by social services to meet their needs. *Of those who have used any of the listed digital welfare services (Figure 23) (with the exception of searching for information about social services in their municipality and comparing home care services or sheltered accommodation for the elderly or people with disabilities in the municipality). Source: Swedish eHealth Agency, general population survey 2021. (ID new)*

Of those who used digital welfare services, 35 per cent feel that it is very easy or relatively easy to use those services, while 10 per cent find it very difficult or relatively difficult (Figure 27).[69]

[67] Of those who have used any of the digital welfare services listed in Figure 23.
[68] Swedish eHealth Agency. *General population survey.* 2021.
[69] Swedish eHealth Agency. *General population survey*. 2021.

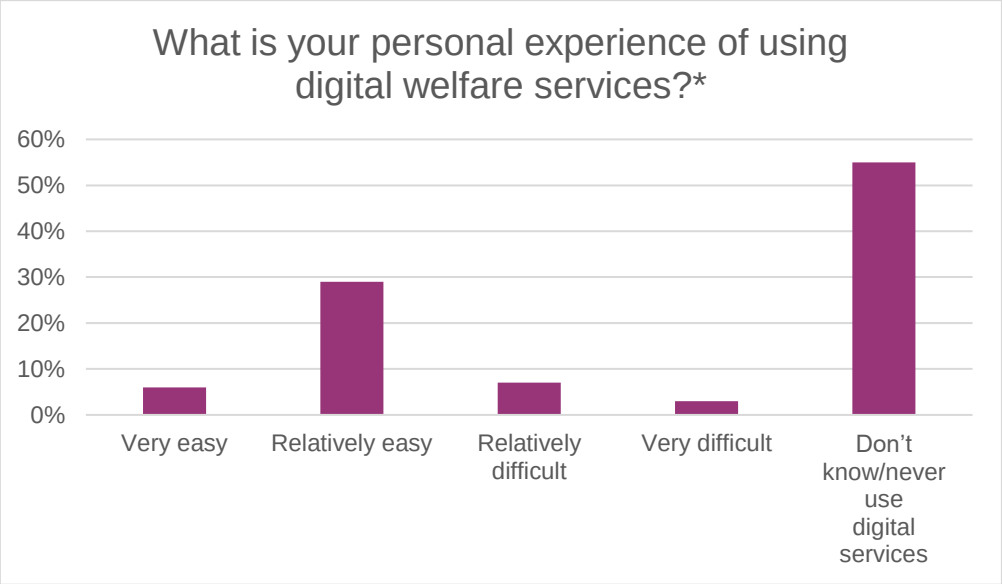

*Figure 27. The percentage of the population that finds it easy or difficult to use digital welfare services. *Of those who have used any of the listed digital welfare services (Figure 23) (with the exception of searching for information about social services in their municipality never use digital services and comparing home care services or sheltered accommodation for the elderly or people with disabilities in the municipality). Source: Swedish eHealth Agency, general population survey 2021. (ID new)*

3.3.12 Attitudes to the increasing digitalisation of health and welfare services

A majority of the population are either relatively positive (43 per cent) or very positive (20 per cent) to the increasing digitalisation of health and welfare services. Around 25 per cent are not very positive or negative to the development (Figure 28).[70]

[70] Swedish eHealth Agency. *General population survey*. 2021.

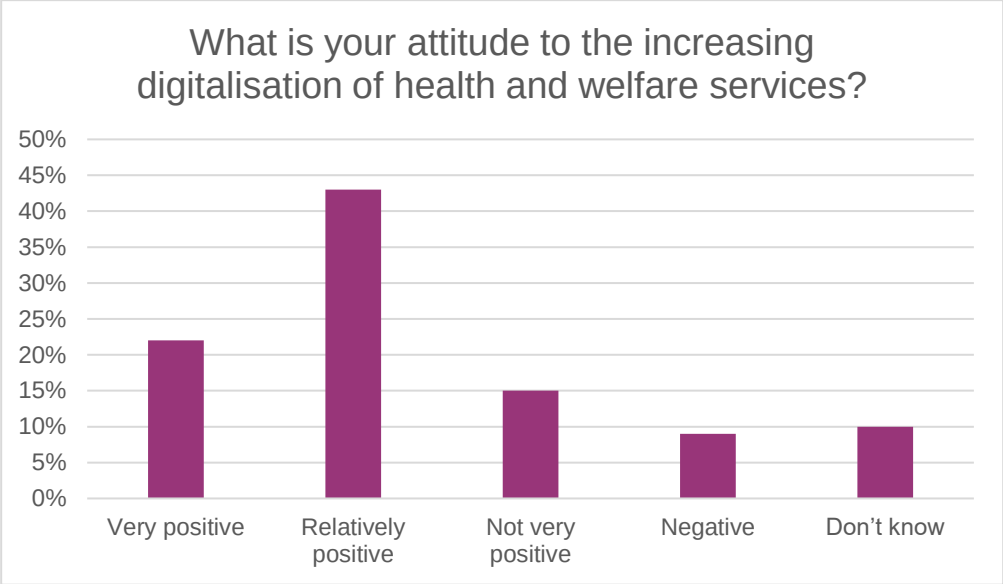

Figure 28. The percentage of the population with a positive attitude to the increasing digitalisation of health and welfare services. Source: Swedish eHealth Agency, general population survey 2021. (ID new)

3.3.13 Attitudes to AI in healthcare

A survey presented in *The Swedish People and AI* looks at the attitudes of Swedish people to the use of artificial intelligence (AI) in various areas of healthcare (Figure 29). The percentage of respondents who are positive about the use of AI to remind people to take medication (58 per cent) or refer people to the correct hospital or department (53 per cent) has decreased by 14 and 16 percentage points respectively since last year. There has been no comparable change to attitudes to the use of AI to analyse and interpret test results, as a diagnostic tool and a predictor of future disease.[71]

[71] Insight Intelligence. *Svenska folket och AI. Svenska folkets attityder till Artificiell Intelligens 2020 and 2021 [The Swedish People and AI: Attitudes of the Swedish Population to Artificial Intelligence 2020 and 2021].* Stockholm, 2020 and 2021.

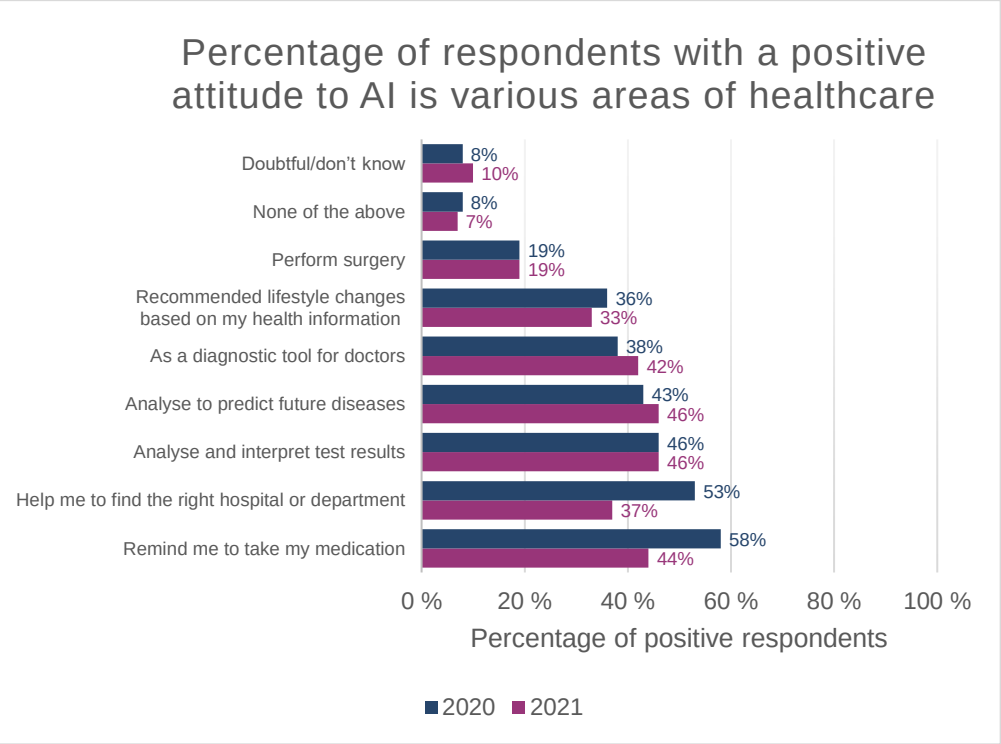

Figure 29. Percentage positive to the use of AI in various areas of healthcare, 2020 and 2021. Source: Insight Intelligence. Svenska folket och AI. 2020 and 2021. (ID new)

3.3.14 Trust in healthcare providers and social services to process data correctly

When it comes to trust in healthcare providers or social services to process data concerning them securely, 44 per cent of respondents feel that they can be trusted to a large extent. Barely 20 per cent of respondents feel that they can be trusted completely, while 20 per cent trust in them to a certain extent and 4 per cent not at all (Figure 30).[72]

[72] Swedish eHealth Agency. *General population survey*. 2021.

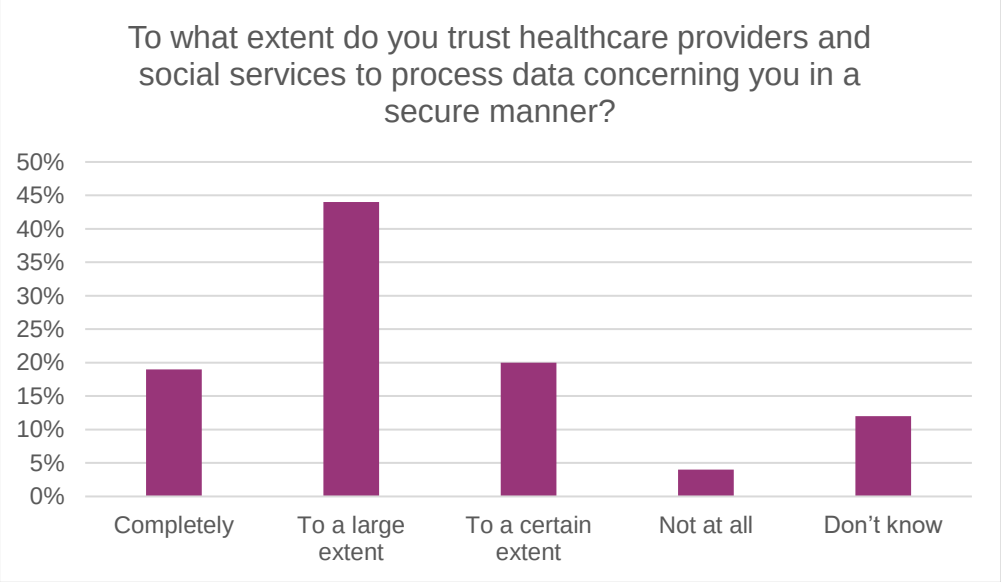

Figure 30. Percentage of the population that trusts healthcare providers and social services to process data concerning them in a secure manner.
Source: Swedish eHealth Agency, general population survey 2021. (ID new)

3.3.15 The most important digital health and welfare services

Respondents consider it most important to be able to obtain a summary of their vaccination status and that healthcare professionals (including pharmacists) have access to the same information about prescription drugs. The percentage that considers these services to be very important is 84 per cent. Almost as many (81 per cent) consider it very or fairly important for healthcare professionals to have access to information concerning them from other healthcare providers, and that they can view booked appointments with healthcare professionals or social services (Figure 31).[73]

According to respondents, the two least important digital services are being able to contact others in the same life situation as themselves and access to their own documentation held by social services. The percentage that considers these services to be very important or fairly important is 30 and 43 per cent respectively.

[73] Swedish eHealth Agency. *General population survey*. 2021.

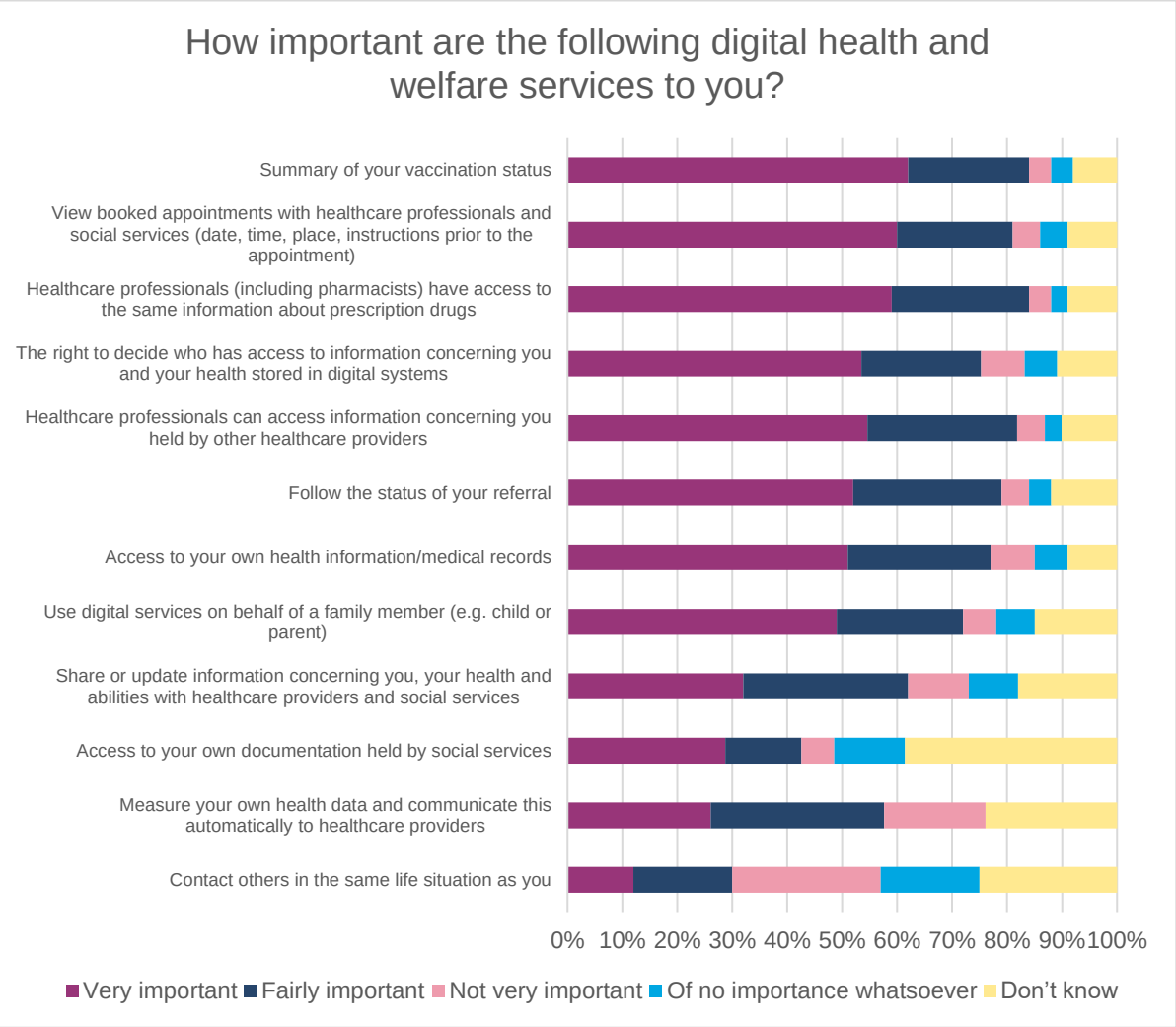

Figure 31. Percentage of the population that thinks the listed digital services or functionality are or are not important. Source: Swedish eHealth Agency, general population survey 2021. (ID new)

3.4 Objective 2 – The right information and knowledge

One prerequisite for providing high-quality, equitable and gender-equal healthcare and social services is that staff have the right information and knowledge whenever they encounter patients and clients. This objective encompasses access to fit-for-purpose, accurate documentation about the patient or client and their contacts with healthcare and social services and to decision-making support and the best available knowledge at all stages of the organisation's processes. This presupposes structured documentation and efficient information management in healthcare and social services

organisations so that the results of data processing can be applied in practice to improve operations.[74]

3.4.1 The use of Inera's national services

Inera's national services can be measured in the number of the call offs from producers to the National Service Platform.[75] The National Service Platform is a technical solution for the exchange of information between various IT systems operating in healthcare and social services, such as the National Patient Overview (NPO) and systems operated by regional health authorities. When an organisation wishes to retrieve a certain type of information from one or more other organisations, it can call off the information via the National Service Platform. The number of such call offs reflects the use of the platform and this has increased at a stable rate over recent years (Figure 32). In 2019, there was a year-over-year increase in producer call offs of 41 per cent; in 2020, the increase was 59 per cent; and in 2021, 63 per cent.[76]

The NPO is one of the services that can be accessed via the National Service Platform. The NPO makes certain medical records available to authorised healthcare professionals other than those who originally documented them. It is also possible for regional health authorities to integrate such information into their own digital medical record systems. Although all regions make some medical records available on the NPO, some disclose more information than others (Figure 33). No region discloses all information. During 2021, 10 regions made between one and three additional data sets available via the NPO.[77]

[74] Ministry of Health and Social Affairs and SALAR. *A Strategy for Implementing Vision for eHealth 2025: The Next Step, 2020–2022.* Stockholm, 2020.
[75] The National Service Platform is a technical solution that simplifies, secures and streamlines the exchange of information between various IT systems operating in healthcare and social services, such as the NPO and systems operated by regional health authorities. When an organisation wishes to retrieve a certain type of information from one or more other organisations, it can call off the information from the National Service Platform. Total producer call offs is the sum of such call offs. Source: Inera.
[76] Statistics from Inera.
[77] Statistics from Inera.

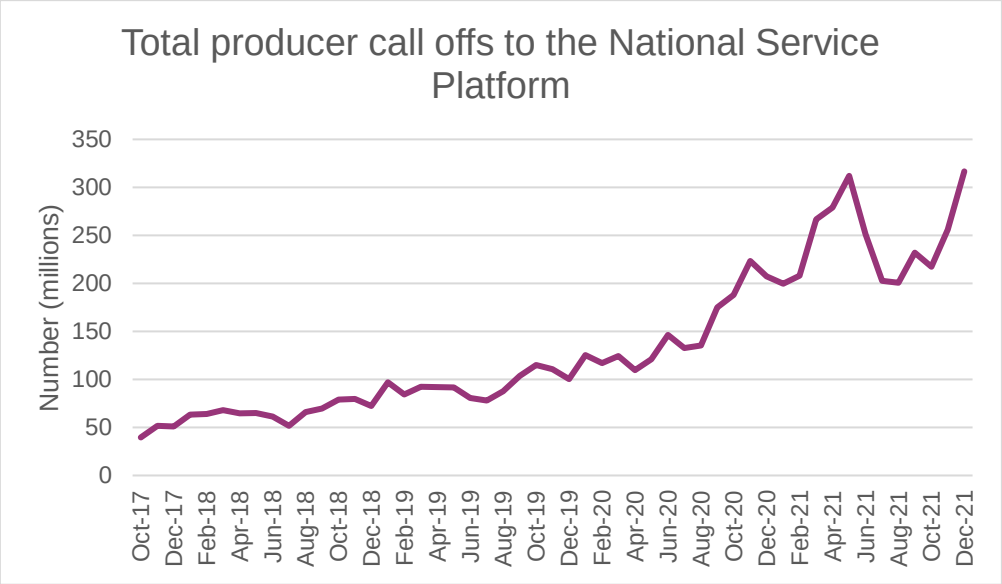

Figure 32. The National Service Platform is a technical solution that simplifies, secures and streamlines the exchange of information between various IT systems operating in healthcare and social services, such as the NPO and systems operated by regional health authorities. When an organisation wishes to retrieve a certain type of information from one or more other organisations, it can call off the information via the National Service Platform. Total producer call offs is the sum of such call offs. Source: Inera. (ID 4.1)

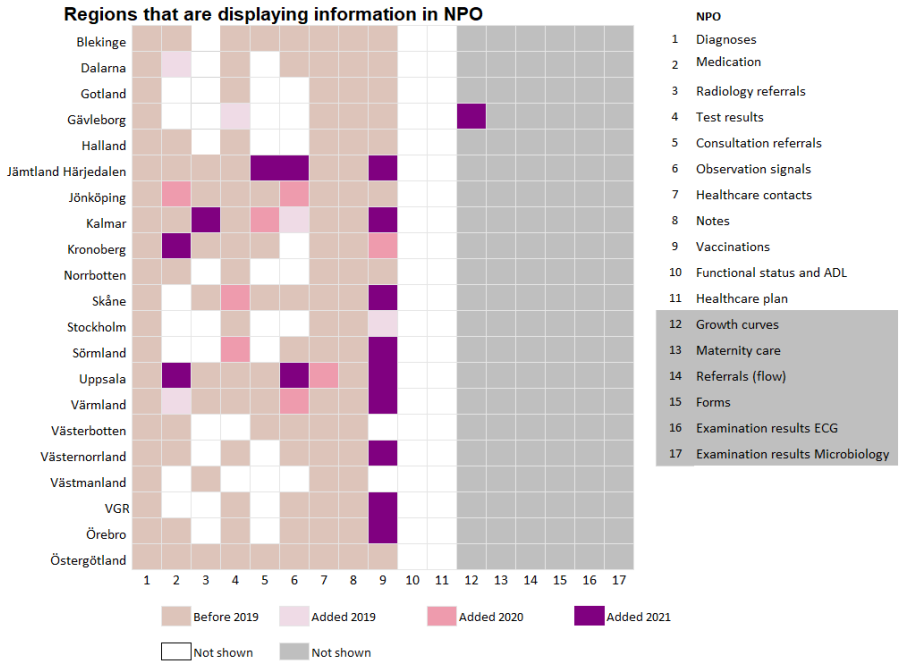

Figure 33. Data sets made available by producers in the National Patient Overview (NPO). The dark grey area indicate data sets for which not all preconditions for displaying the information are yet met but where work is ongoing. Source: Inera. (ID 4.2)

A small number of private healthcare providers are NPO producers. Figure 34 shows which data sets these healthcare providers can display.

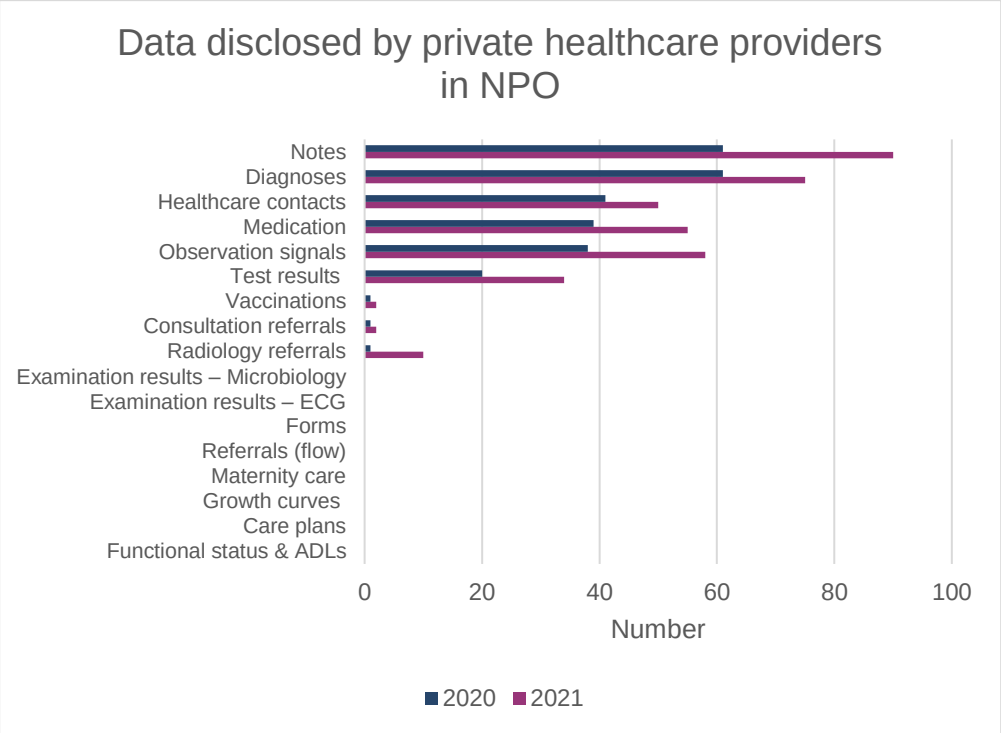

Figure 34. National Patient Overview (NPO). Source: Inera. (ID 4.4)

During the past year, a further eight municipalities have joined the NPO as producers. This means that there are now 41 municipalities making data from their own systems available via the NPO (Figure 35) compared to 13 in 2018.[78]

[78] Statistics from Inera.

Figure 35. National Patient Overview (NPO). The dark grey area indicate data sets for which not all preconditions for displaying the information are yet met but where work is ongoing. Source: Inera. (ID 4.17)

Medical record linkage makes it possible to share information with other healthcare providers, as long as the requirements of the Swedish Patient Data Act (SFS 2008:355) are met.[79] Over recent years, regional health authorities have primarily used medical record linkage in relation to private healthcare providers contracted to the region, although they also link to municipalities and other regions (Figure 36). Only one regional health authority links to private healthcare providers with whom they do not have a healthcare supplier contract. Of the 19 regions that responded to the question, 10 stated that they have included all operations in linked medical records, an increase on the 5 regions in the previous year. The other regions all make exception

[79] SFS 2008:355 in the wording according to SFS 2020:1042. Patient Data Act.

for certain operations, the most common being sexually transmitted infections, dental care and obstetrics.[80]

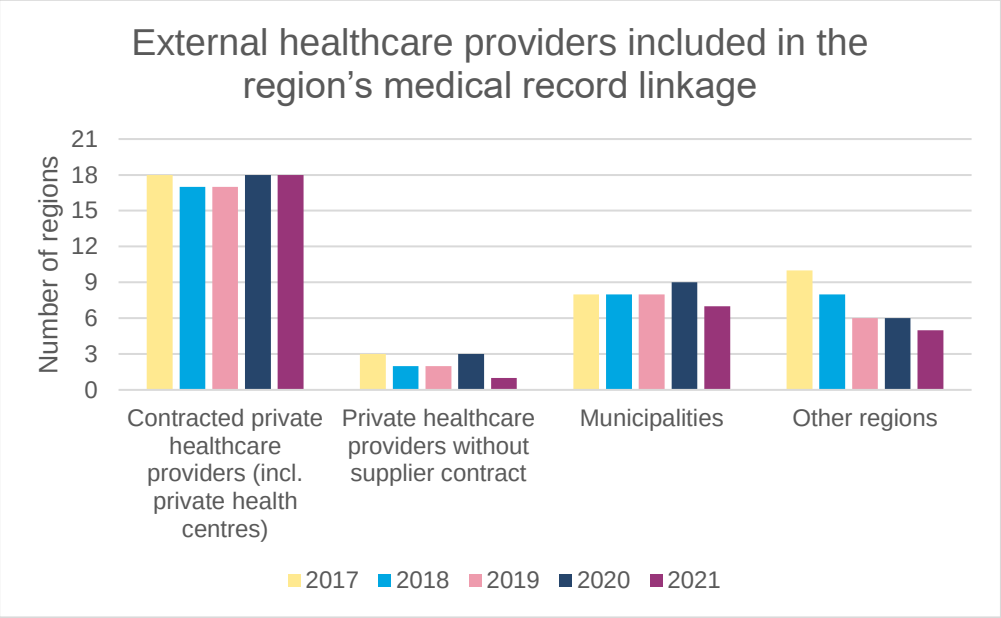

Figure 36. In 2017, 20 regions answered the question, in 2019, 18 regions and in 2020 and 2021, 19 regions. Data collected during Q1 of each year.
Source: *eHälsa och IT i regionerna* [eHealth and IT in the Regions]. 2017–2021. *(ID 4.6)*

3.4.2 Possibility for mobile working

More and more groups of staff can now read and document information digitally on mobile devices. This development is most obvious in municipal healthcare and home care services. When mobile staff visit individuals at home, they may need to access information from the municipality's IT system. They may also need to digitally document information obtained during their visit.

There are a number of different solutions on the market for reading and editing documents using mobile phones, tablets, digital pens and laptops. Between 2015 and 2018, the percentage of municipalities stating that all staff are able to digitally document their visits while in the field increased from 5 to 12 per cent. From 2019 onwards, municipalities were asked to report mobile digital documentation by operational area. The results of the 2021 survey are shown in Figure 37. All home care staff have the ability to document information digitally while in the field in 56 per cent of

[80] Jerlvall, Pehrsson. *eHälsa och IT i regionerna*. [eHealth and IT in the Regions], May 2020.

municipalities, compared to 48 per cent in 2020 and 43 per cent in 2019. The percentage is significantly lower in other areas of operation, varying between 16 and 34 per cent. There has been an increase since 2020.[81]

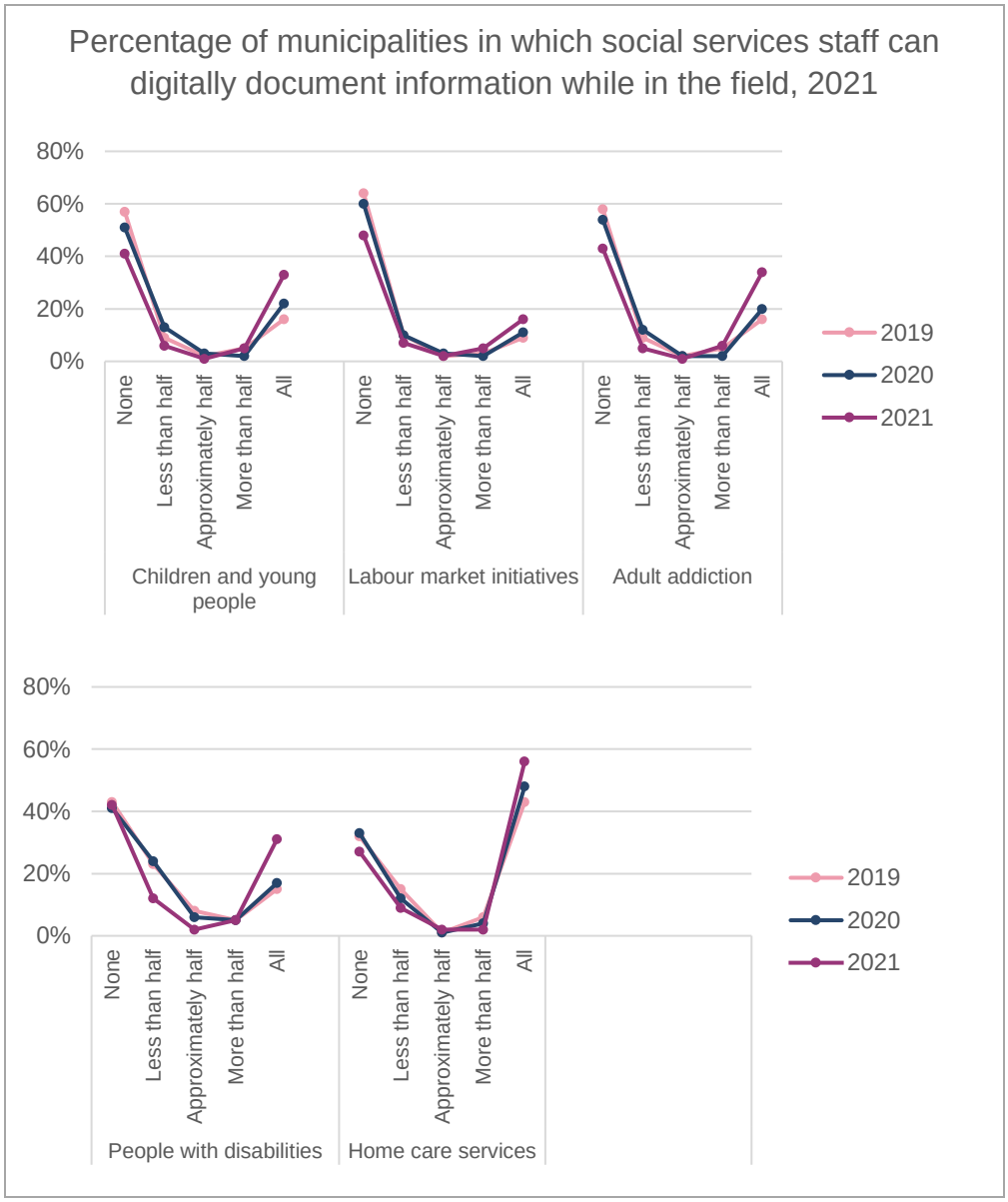

Figure 37. *Percentage of municipalities in which social services staff can digitally document information while in the field, by operational area*
Source: National Board of Health and Welfare. E-hälsa och välfärdsteknik i kommunerna [E-Health and Welfare Technology in Municipalities], 2019–2021 *(ID new)*

[81] National Board of Health and Welfare. *E-hälsa och välfärdsteknik i kommunerna* [E-Health and Welfare Technology in Municipalities], 2019–2021 Stockholm, 2019 to 2021.

The percentage of municipalities in which licensed healthcare professionals can document information in the local IT system while outside the workplace increased from 16 to 45 per cent between 2017 and 2021. In 30 per cent of municipalities, no licensed healthcare professionals have the facility to document information while in the field (Figure 38).[82]

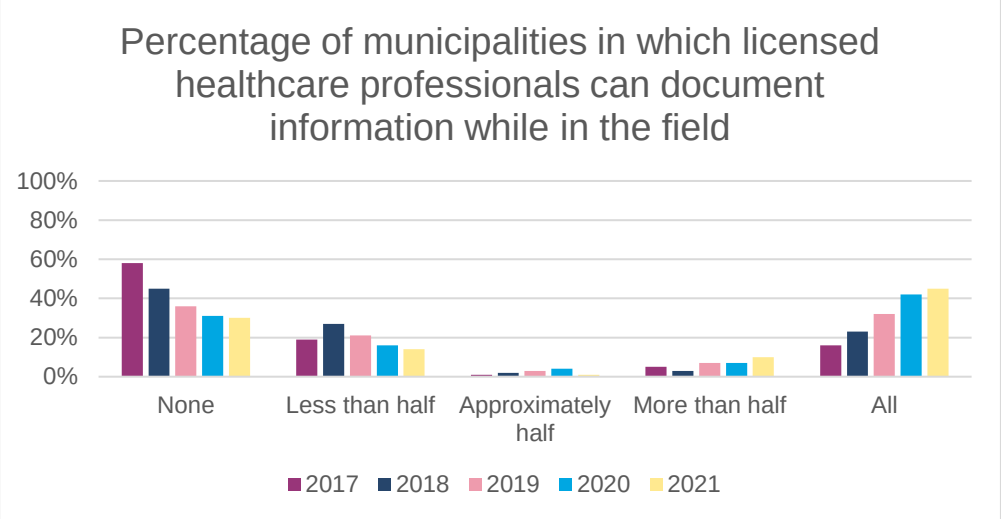

Figure 38. Percentage of municipalities in which licensed healthcare professionals have access to equipment to document information in the municipality's IT system while in the field.
Sources: National Board of Health and Welfare. E-*hälsa och välfärdsteknik i kommunerna* [E-Health and Welfare Technology in Municipalities], years 2017–2021 *(ID 4.26)*

There is also a development in regional health authorities towards being able to access and document information in IT systems using mobile devices. The number of tablets issued to staff by regions increased by 18 per cent between 2019 and 2020. That said, the survey does not differentiate between tablets used in direct healthcare and those used in other situations.[83]

3.4.3 Electronic prescriptions and decision-support for pharmacies

Appropriate and efficient information management improves the conditions for healthcare and social services staff to do their jobs. If staff receive decision-making support in the form of the best available knowledge in any given situation, the chance of every patient and client receiving optimal care and support naturally increases. Such a decision-making support is available to pharmacists.

[82] National Board of Health and Welfare. *E-hälsa och välfärdsteknik i kommunerna* [E-Health and Welfare Technology in Municipalities], 2019–2021 Stockholm, 2019 to 2021.
[83] Jerlvall, Pehrsson. *eHälsa och IT i regionerna* [eHealth and IT in the Regions]. 2021.

In Sweden, almost all prescriptions are now electronic (> 99 per cent). This means that prescription information is available on demand to all pharmacists, helping them to better utilise decision support systems such as the Electronic Expert Support (EES) decision support. Whenever a prescription is dispensed, the pharmacist will make a general assessment of the recipient's drug therapy in relation to their age, gender and other drugs they are taking. EES is a decision-support tool that helps pharmacists check for potential drug interactions, inappropriate prescriptions or incorrect dosages. It is available to all outpatient pharmacies in Sweden. The use of EES increased during 2021, from an initial level of approximately 40 per cent of all dispensed prescriptions to approximately 55 per cent by the end of the year (Figure 39).[84]

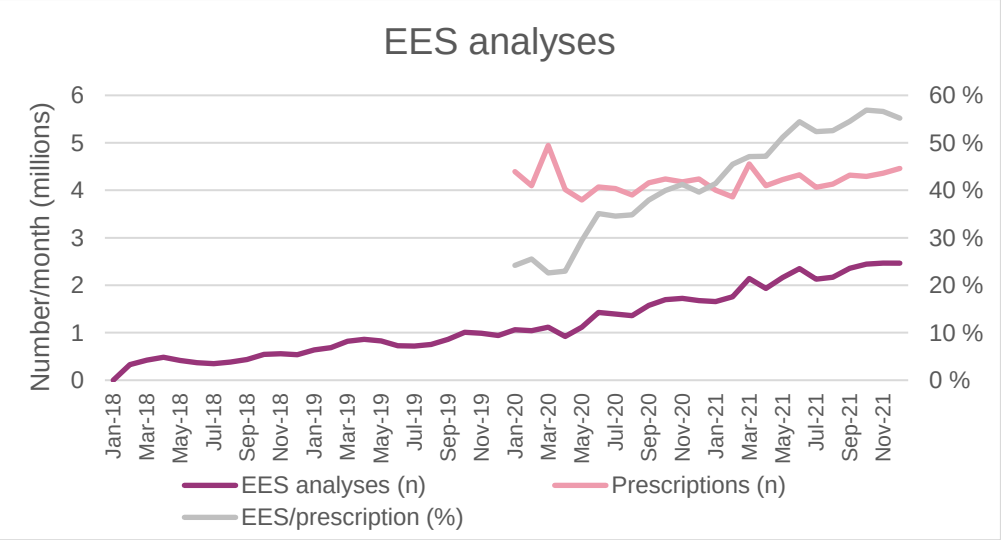

Figure 39. Electronic Expert Support (EES) is used by pharmacies. The diagram shows the number of users over time. Data on the number of prescriptions dispensed begins in 2020.
Source: Swedish eHealth Agency. (ID 5.1)

3.4.4 Information across borders

Within the framework of eHDSI[85], the EU works to successively introduce digital services to facilitate the exchange of health data between Member States in a secure, efficient and interoperable way, thus ensuring the continuity of care for European citizens while they are travelling abroad in the EU. The European Commission provides infrastructure for Member States so that they can then set up 'generic services' to connect national eHealth

[84] Statistics from Swedish eHealth Agency.
[85] eHealth Digital Service Infrastructure.

systems through “National Contact Points for eHealth”. The aim is for these services to be up and running by 2025. As of the end of 2021, Sweden was not yet connected to this infrastructure in a manner that permits the exchange of health data. Connected countries are shown in Table2.[86]

Doctor from countries:	**can access health data from citizens of:**	
Croatia	Czechia[1] Malta[2]	Portugal[2]
Luxembourg	Czechia[1] Malta[1]	Portugal[2] Croatia[2]
Malta	Portugal[2]	Croatia[2]
Portugal (SNS and SPMS websites)	Malta[2] Croatia[2]	Czechia[3] Spain[3]
Czechia	Croatia[2] Malta[3]	Portugal[3]
France	Czechia[3] Malta[3]	Portugal[3] Croatia[3]
Spain	Portugal[3]	
Health data from citizens of the following countries:	**can be consulted by doctors from the following countries, through the Patient Summary:**	
Czechia	Luxembourg[1] Croatia[1]	Portugal[3] France[3]
Malta	Luxembourg[1] Portugal[2] Croatia[2]	Czechia[3] France[3]
Portugal	Malta[2] Croatia[2] Luxembourg[2]	France[3] Czechia[3] Spain[3]
Croatia	Malta[2] Portugal[2] Czechia[2]	Luxembourg[3] France[3]
Spain	Portugal[3]	
ePrescriptions from:	**can be dispensed by pharmacies in:**	
Croatia	Finland[2] Portugal[2]	Estonia[3]
Estonia	Finland[2]	Croatia[2]
Finland	Estonia[1] Croatia[1]	Portugal[2]
Portugal (SNS and SPMS websites)	Estonia[2] Finland[2]	Croatia[2]
Pharmacies in:	**can dispense ePrescriptions for citizens of:**	
Croatia	Finland[1] Estonia[2]	Portugal[2]
Estonia	Finland[1] Croatia[2]	Portugal[2]
Finland	Estonia[2] Portugal[2]	Croatia[2]
Portugal	Finland[2]	Croatia[2]

Table2. [1]added to the list in 2019; [2]added to the list in 2020; [3]added to the list in 2021. Source: EU electronic cross-border health services. 12.01.2022.[87]

[86] Electronic cross-border health services | Public Health (europa.eu), https://ec.europa.eu/health/ehealth/electronic_crossborder_healthservices_en. 12.01.2022

[87] Electronic cross-border health services | Public Health (europa.eu), https://ec.europa.eu/health/ehealth/electronic_crossborder_healthservices_en. 12.01.2022

3.5 Objective 3 – Safe and secure information processing

The objective of *safe and secure information processing* is to increase the capacity to process and protect information in an appropriate manner. That said, it is also important that data are accurate, that the individual can influence how personal data concerning them are used and that it is possible to ascertain what data are being processed. To avoid and prevent data breaches and to facilitate digital organisational development, it is therefore necessary to continuously develop the capacity to securely process data in a manner that keeps pace with external changes. Systematic information security management is key to achieving this. This work can be divided into two areas: the security of systems and functions, and the security of the information itself.[88]

It is also crucial that both the producer and the user of information is aware of the regulatory and supervisory framework around the system and that all data breaches and incidents must be reported.

3.5.1 Information security

The capacity to safely and securely process information is dependent on regional health authorities and municipalities having the necessary resources and expertise for systematic information security management. IT systems must also facilitate the secure exchange of information within and between social services and healthcare, as well as other public-sector organisations. Among other measures, this demands common principles for checking identities and authorisations.[89]

One metric for available resources and expertise within an organisation is whether an informatics manager has been appointed. This is addressed in the Vision 2025 follow-up report for 2020. Since then, the question has been removed from the surveys from which data is sourced, hence the indicator has been deleted.[90]

Classifying data is fundamental to ensuring that information and resources have the necessary protection and that data is accurate and made available to

[88] Ministry of Health and Social Affairs and SALAR. *A Strategy for Implementing Vision for eHealth 2025: The Next Step, 2020–2022*. Stockholm, 2020.
[89] Ministry of Health and Social Affairs and SALAR. *A Strategy for Implementing Vision for eHealth 2025: The Next Step, 2020–2022*. Stockholm, 2020.
[90] Jerlvall, Pehrsson. eHälsa och IT i regionerna [eHealth and IT in the Regions]. 2020 and 2021. National Board of Health and Welfare. *E-hälsa och välfärdsteknik i kommunerna 2020* [E-Health and Welfare Technology in Municipalities 2020]. Stockholm, 2020. National Board of Health and Welfare. *E-hälsa och välfärdsteknik i kommunerna 2021* [E-Health and Welfare Technology in Municipalities 2021]. Stockholm, 2021.

authorised users in the optimal manner. The new digital technology can make information transparent, traceable and legally certain. By classifying data sets, it is also possible to identify which data must be protected pursuant to personal data and secrecy rules.

In 2021, 18 per cent of municipalities had classified all data objects (unchanged from 2020) and 62 per cent (58 per cent in 2020) some of their data objects. The percentage of municipalities without any security classification whatsoever declined to 21 per cent compared to 24 per cent in 2020 (Figure 40).[91]

Among the tools used by municipalities to classify their objects are SALAR's KLASSA[92] and the model developed by the Swedish Civil Contingencies Agency (MSB)[93], as well as classifications developed commercially or by the municipalities themselves.[94]

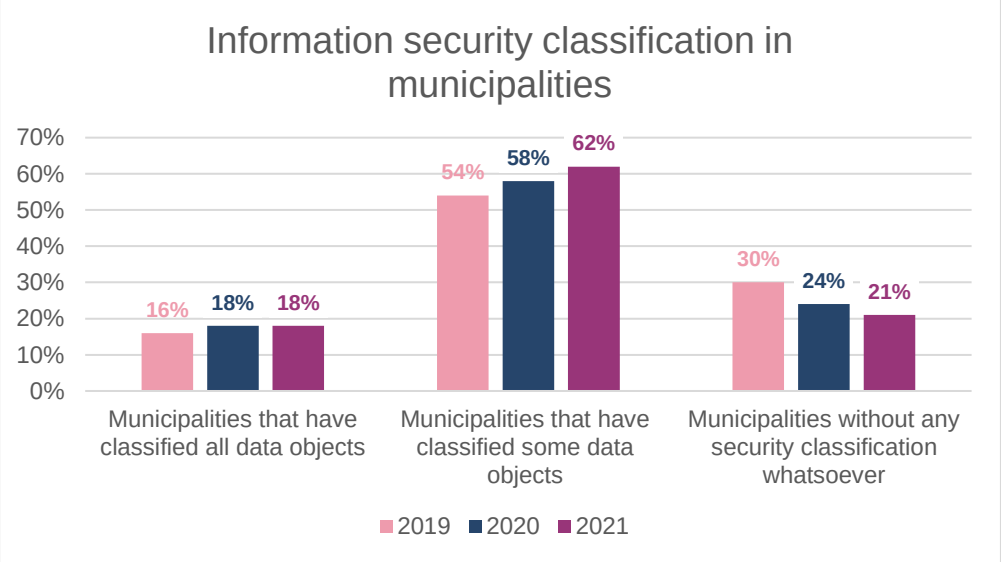

Figure 40. Sources: National Board of Health and Welfare. E-*hälsa och välfärdsteknik i kommunerna* [E-Health and Welfare Technology in Municipalities], years 2019–2021 *(ID 7.3)*

3.5.2 Secure information exchange

One important aspect of systematic information security management is ensuring that only authorised users have access to information classified as

[91] National Board of Health and Welfare. *E-hälsa och välfärdsteknik i kommunerna* [E-Health and Welfare Technology in Municipalities], 2019–2021 Stockholm, 2019 to 2021.
[92] SALAR. KLASSA. https://klassa-info.skr.se. 03.03.2021.
[93] MSB 0040-09. *Model for information classification*. MSB. Stockholm, May 2009.
[94] National Board of Health and Welfare. *E-hälsa och välfärdsteknik i kommunerna 2021* [E-Health and Welfare Technology in Municipalities 2021]. Stockholm, 2021.

secret. Systems must therefore be equipped with login and access procedures. In addition to electronic ID solutions for private individuals, there are also solutions on the market for secure authentication of officials performing their duties, such as the SITHS card or electronic staff ID cards.

In 35 per cent or municipalities, all systems that grant staff access to sensitive personal data require a strong authentication over an open network, while 3 per cent of municipalities have no such requirement for any such systems (Figure 41).[95]

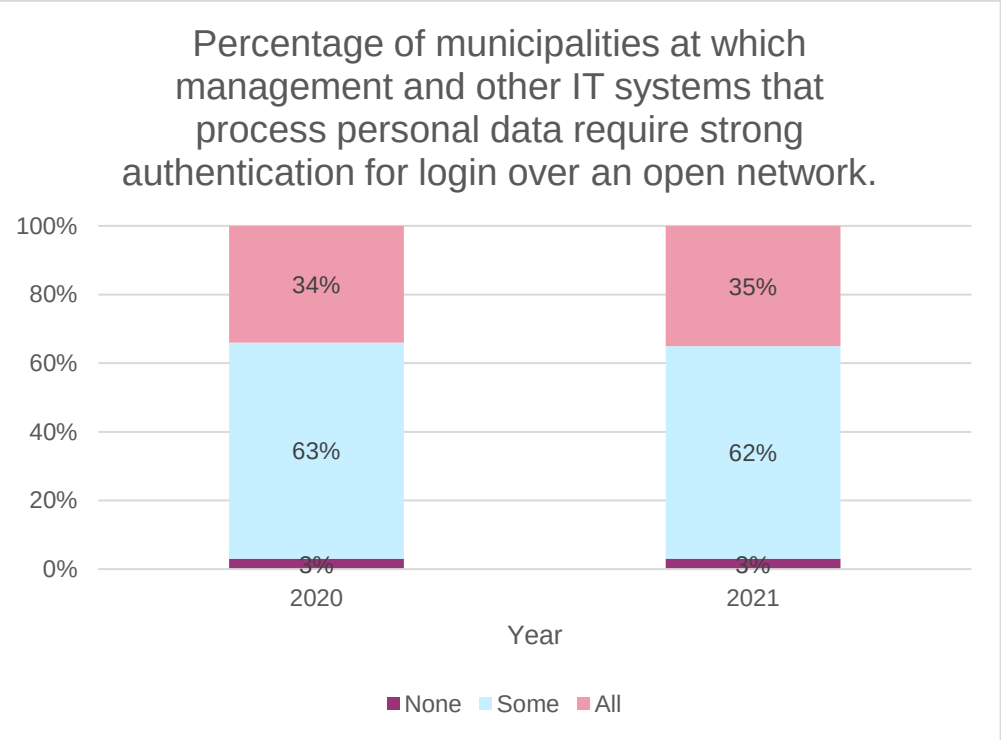

Figure 41. Source: National Board of Health and Welfare. E-hälsa och välfärdsteknik i kommunerna [E-Health and Welfare Technology in Municipalities] 2020 and 2021. *(ID 8.2)*

3.5.3 System security

For the safety and security of patients and clients, high demands are placed on the digital solutions used in healthcare and social services. These include medical technology products and/or health information systems (HISs) used individually or in combination with other solutions. A large proportion of security work is undertaken after the solution has been implemented. This includes monitoring how the system is used and making improvements

[95] National Board of Health and Welfare. *E-hälsa och välfärdsteknik i kommunerna* [E-Health and Welfare Technology in Municipalities] 2020 and 2021. Stockholm, 2020 and 2021.

accordingly. Here, healthcare providers and social services (and individual users) have an important role to play by reporting incidents with medical technical products. It is the responsibility of the manufacturer to monitor the use of their product on the market and continuously evaluate whether new, unforeseen risks are arising. All manufacturers should therefore have a post-market surveillance system in place to manage security-related issues with their products. When the manufacturer becomes aware of any such issues, it must notify the Swedish Medical Products Agency, the supervisory authority tasked with ensuring that the manufacturer investigates the matter and takes appropriate measures.

Analysing the security risks and incidents in IT systems is a complex matter; an incident/report will often affect multiple organisations and a great many users, patients and connected products/systems. In major national or regional systems, a fault may impact millions of patients or consumers and thousands of users, but only generate a single report.

At present there are approximately 16 manufacturers of HISs registered in Sweden. The Swedish Medical Products Agency receives frequent signals suggesting that one would expect more incident reports to be submitted by manufacturers than is actually the case, and that not only is the number of reports received not a true reflection of reality but neither is the number of registered manufacturers. Increased reporting might well contribute to more rapid development and introduction of these products and services while maintaining patient safety. As things stand, however, the Swedish Medical Products Agency does not consider it relevant to present any statistics concerning incoming incident reports. The knowledge among both manufacturers and users regarding responsibilities and obligations in this area needs to be increased.

3.6 Objective 4 – Development and digital transformation hand in hand

Digitalisation is a game changer for all organisations in all sectors. This objective recognises the fact that long-term efforts are demanded to support organisational development and equip individuals and organisations with the necessary capacity and expertise. One crucial aspect of any successful digitalisation project is that directors and management have the knowledge and opportunity to steer the development of the organisation from the board room down, for example through policies and strategies. Developing the requisite expertise in digitalisation must be an immediate priority and

coordinated national support must be offered to introduce new technology and working methods to organisations. One important prerequisite for this is ensuring that the right conditions exist in the form of regulations and technical and semantic standards. Achieving the maximum impact requires new forms of collaboration between government agencies, regional health authorities, municipalities and the private sector.[96]

3.6.1 Finance

Funding is a key consideration when seeking to provide organisations with opportunities to develop through digitalisation and deal with the challenges digitalisation presents. Based on the responses received from 18 regional health authorities, total expenditure on IT for all regions in 2020 was approximately SEK 14 billion. IT costs have risen over recent years, with a larger percentual increase from 2019 to 2020 than previously experienced (Figure 42).[97]

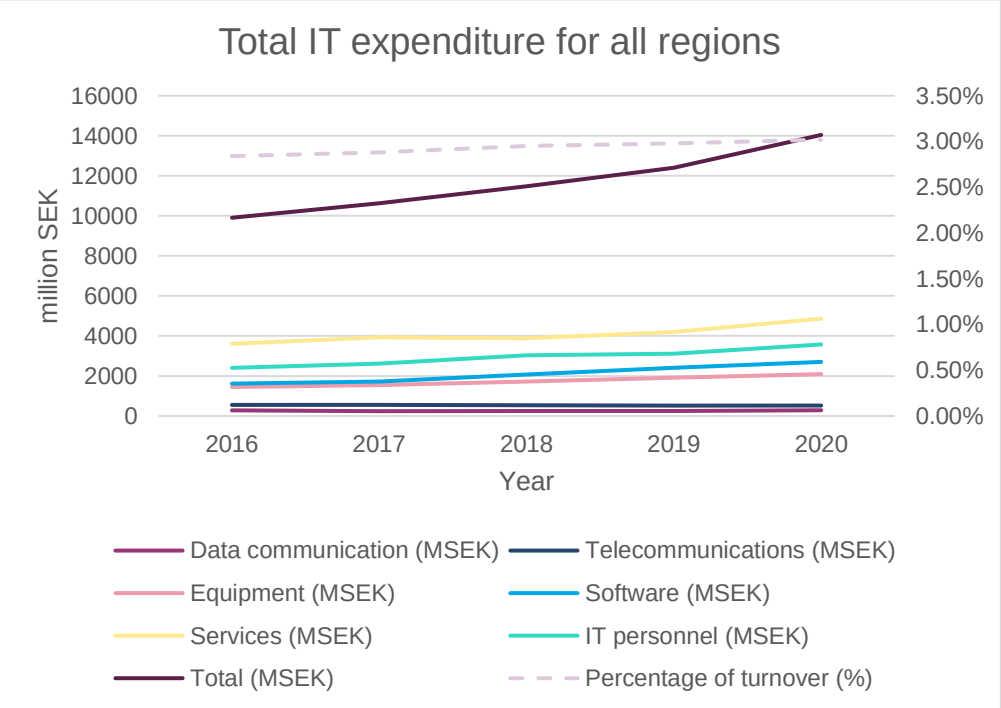

Figure 42. In 2017 and 2018, 20 regions answered the question. In 2019, 2020 and 2021, 18 regions answered the question. Prior to that, the response rate varied. Source: eHälsa och IT i regionerna [eHealth and IT in the Regions] 2017–2021) (Each report contains data for the financial year prior to publication.) *(ID 9.3)*

[96] Ministry of Health and Social Affairs and SALAR. *A Strategy for Implementing Vision for eHealth 2025: The Next Step, 2020–2022*. Stockholm, 2020.
[97] Jerlvall, Pehrsson. eHälsa och IT i regionerna [eHealth and IT in the Regions]. 2017–2021.

3.6.2 Regulations and technical and semantic standards

Digitalisation can both increase access to data and make it easier to transfer data. The ability to do so is dependent on putting in place a legal framework, good information security and uniform semantic and technical standards; i.e., the fundamental conditions established in *A Strategy for Implementing Vision for eHealth 2025*.

Regional health authorities face a number of perceived obstacles to introducing new e-services. In the 2020 survey, 16 regions named a lack of legal clarity as an obstacle to implementing new e-services. An equal number were hindered by their own lack of resources. The question of perceived obstacles was reframed for the 2021 survey, when regions were asked to grade perceptions on a 5-point scale. In the 2021 survey, lack of legal clarity and resources were ranked highest (Figure 43).[98]

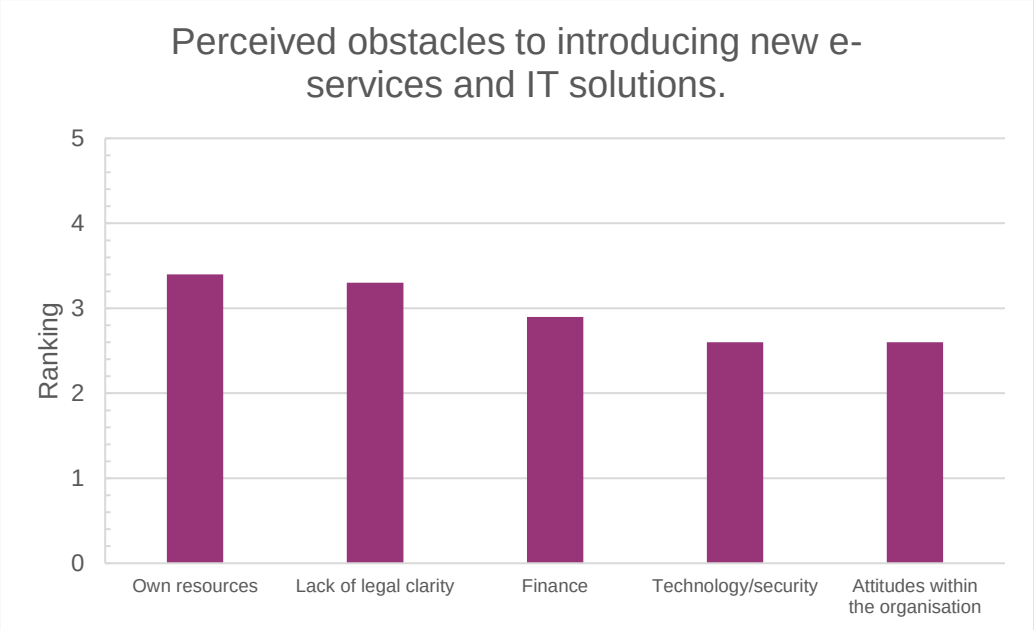

Figure 43. Perceived obstacles to introducing new e-services and IT solutions ranked by the 19 regions that responded to the question. Ranking 1–5. Source: Jerlvall, Pehrsson. eHälsa och IT i regionerna [eHealth and IT in the Regions]. 2021. (ID new)

[98] Jerlvall, Pehrsson. *eHälsa och IT i regionerna* [eHealth and IT in the Regions]. 2021.

4 Conclusion

Unless otherwise stated, the conclusions presented in this section are those of the Swedish eHealth Agency based on reported data.

4.1 The pandemic has both accelerated and slowed development

Since the outbreak of the COVID-19 pandemic, the development of eHealth has accelerated in some areas and slowed in others. The restrictions recommended by the Public Health Agency of Sweden in order to reduce the spread of infection have caused healthcare providers, social services and citizens to use digital contact channels to a greater extent. This is particularly clear in the increased use of video meetings for various purposes in both healthcare and social services.

At the same time, measures to reduce the spread of infection have consumed enormous resources, with many procurements and implementations of IT projects cancelled or postponed in order to secure day-to-day operations. For example, the introduction of the law regulating the National Medication List was proposed to be postponed due to the pandemic.[99]

4.2 The introduction of welfare technology by municipalities is proceeding slowly

Generally speaking, the percentage of municipalities using welfare technology in various forms of housing has increased since 2017. A number of initiatives to stimulate the development and use of welfare technology and other digital solutions by municipalities may well have contributed to this development, including economic stimulus from the National Board of Health and Welfare[100] and the Legal, Financial and Administrative Services Agency.[101] Agreements between the Government and SALAR have also provided economic stimulus, including an investment in digitalisation and welfare technology in elderly care for the period 2020–2022 in the form of targeted central-government funding for municipalities, as well as funding to SALAR for the design and provision of support to all municipalities.[102] There

[99] Government Bill 2019/20:158. *Postponement of the implementation of the National Prescription Drug Register and BT for doctors.* 23.04.2020
[100] Government Resolution. S2018/03799/FST (part). 20.06.2018
[101] Government Resolution. S2020/05407/FS. 17.06.2020
[102] Government Resolution. S2021/08208. 22.12.2021

are, however, no indicators available to evaluate the extent to which these investments have contributed to municipal digital development.

While the percentage of municipalities using welfare technology is increasing, the National Board of Health and Welfare puts much of this increase down to pilot projects, stating that the widespread introduction of welfare technology into regular operations is going slowly.[103] This is confirmed by the fact that from last year it appears that the number of municipalities offering welfare technology in certain areas has decreased. In order to implement this technology operationally, in addition to purchasing products municipalities also need to place greater emphasis on change management to review which procedures and working methods can be replaced by digital methods.[104] If no overarching change occurs, it is likely that the widespread operational introduction of welfare technology will proceed at the same slow pace.

4.3 Partly low use of existing municipal e-services

While an increasing percentage of municipal social services departments offer e-services, around 20 per cent of municipalities state that they lack, or are unaware of, any e-service within one or more areas of social service.

According to the Swedish eHealth Agency's general population survey, municipal e-services are not used to any great extent. This low usage may be due to the limited range of e-services available, that residents have little need of these e-services, or that municipalities find it difficult to operationally implement e-services. In 2021, approximately one third of Swedish municipalities had a quality management system that covered e-services.[105] This implies that the majority lack processes and procedures for systematic change work related to e-services. This is likely to have a negative impact on the implementation of e-services.

Although a relatively large percentage of available indicators deal with social services and municipal healthcare, they reveal a low level of use of e-services in these areas. Conclusion of the Swedish Agency for Public Management in the report *Vision E-hälsa 2025 – att försöka styra genom samverkan* [Vision

[103] National Board of Health and Welfare. *E-hälsa och välfärdsteknik i kommunerna 2021* [E-Health and Welfare Technology in Municipalities 2021]. Stockholm: 2021.
[104] National Board of Health and Welfare. *E-hälsa och välfärdsteknik i kommunerna 2021* [E-Health and Welfare Technology in Municipalities 2021]. Stockholm: 2021.
[105] National Board of Health and Welfare. *E-hälsa och välfärdsteknik i kommunerna 2021* [E-Health and Welfare Technology in Municipalities 2021]. Stockholm: 2021.

for eHealth 2025: Attempting to govern through cooperation]. The report states that "*the digitalisation of social services and municipal healthcare has also been a lower priority in the parties' collaboration than regional healthcare; this despite the fact that municipalities face greater challenges*".[106] Coordination and support in this area must be further improved.

In April 2018, the government tasked the Swedish eHealth Agency with coordinating, designing and making available national support to municipalities for the introduction and use of digital technology. The purpose of the assignment was to support management in municipal healthcare and social services to develop and improve the efficiency of operations conducted with the support of digitalisation. The final report on this assignment was delivered to the government in February 2020, including a proposal in the form of a clickable prototype for eHealth support.[107] During this work, it became readily apparent that municipalities needed coordinated national support that would make it easier to find relevant information about the digital development of their organisations. During autumn 2021, the Swedish eHealth Agency conducted a supplementary survey. This demonstrates that the need for digitalisation support for municipalities remains unchanged since the agency submitted its report to the government. There is, for example, a demand for a 'one-stop shop' for specific, quality-assured national support.[108] At present, knowledge support is dispersed across many different websites, making it more difficult to search for relevant information. Gathering all of this information in a single portal can help support municipalities in their digital development.

4.4 Number of logins på 1177 Vårdguiden ökar

The number of logins to 1177.se continues to increase. Women in the age group 30–39 log in most. During the pandemic, there is also a clear increase in the number of logins among those who are 100 years old or older. During 2020, the site was visited by people over 100 years of age on 1,430 occasions. The corresponding figure for 2021 was 2,343. As the population ages, digital

[106] Swedish Agency for Public Management. 2021:17 *Vision E-hälsa 2025 – att försöka styra genom samverkan.* [Vision for eHealth 2025: Attempting to Steer by Cooperation]. Reg. no.: 2020/167-5
[107] Swedish eHealth Agency. *Nationellt stöd till kommunerna vid införande och användning av digital teknik (e-hälsa) [*National support for municipalities in introducing and using digital technology (eHealth*).* 2020.
[108] Swedish eHealth Agency. *Förstudie en ingång - samlad information på nationell nivå för att stödja den digitala utvecklingen inom socialtjänsten och kommunal hälso- och sjukvård* [Pilot Study for a Portal: Compiled information at national level to support the digital development of municipal social services and healthcare]. 2022.

competence will increase in upper age groups. The use of digital services by older adults is therefore expected to increase.

If the development of eHealth is to be driven forwards, it is important that supply meets the demands of citizens. The Swedish eHealth Agency's general population survey has defined a number of areas of eHealth that are perceived as particularly important by the citizens. These include medical record linkage and that patients and healthcare professionals (including pharmacists) have access to the same information about prescription drugs. A number of government assignments to government agencies are in this field.[109]

4.5 Slow increase in datasets shared between healthcare providers

Over the past year a further eight municipalities joined the National Patient Overview (NPO) as data producers and ten made additional data available via the service. It is important to point out that the municipalities that make data available via the NPO only do so for certain datasets and that a clear majority do not produce any data at all for the NPO and thus only use the service as consumers. Even if regional health authorities are making more data available via the NPO, the amount and types of data vary from one region to the next. One prerequisite for creating value from the NPO is that more healthcare providers produce data for the service. The Swedish eHealth Agency has submitted its final report on how medical record linkage can be utilised to a greater extent. It was proposed that it should eventually be made compulsory for actors to make certain high-priority datasets available.[110] Until the legal framework for such an obligation is in place, the Swedish eHealth Agency proposes incentives for making a number of prioritised datasets available. This may be achieved by a combination of agreements between the government and SALAR, assignments to government agencies and economic stimulus.

[109] For example: the Swedish eHealth Agency's assignments on the National Prescription Drug Register, medical record linkage and national storage capacity for diagnostic imaging data; the Agency for Digital Government's assignments on secure communication in the public sector and the ENA project to establish joint national digital infrastructure; and the National Board of Health and Welfare's assignments on waiting time data, coordinated cancer care and mapping health datasets of national interest.

[110] Swedish eHealth Agency. *Sammanhållen journalföring – Möjligheter till digital informationsförsörjning på hälsodataområdet [Medical record linkage: Opportunities for digital health data provision]*. 2021/01681. February 2022.

Many regions[111] have procured new information systems that have yet to go into production. In our assessment, these procurements will improve the technical conditions for medical record linkage in the regions and municipalities in question. Region Västra Götaland, for example, included all 49 municipalities in the region in its own procurement of healthcare information systems.[112] It is likely that over the coming years this will make a positive contribution to healthcare professionals' access to patient data in collaborations between the region and municipalities.

4.6 Most people are satisfied with the digital healthcare services but it is more difficult to evaluate satisfaction with digital welfare services

The Swedish eHealth Agency's general population survey reveals that, while people are generally satisfied with digital healthcare services, 20 per cent of respondents find them difficult to use. This suggests that there is room for improvement in the user-friendliness of these services.

When it comes to digital welfare services, few respondents consider the range of services offered to meet their needs and find them easy to use. These figures should however be interpreted with caution as few respondents have used digital welfare services and the response rate has been low. This makes the exact level of satisfaction difficult to assess and these figures should therefore not be compared with satisfaction with digital healthcare services.

4.7 A quarter of respondents have little confidence in information security within healthcare and social services

One prerequisite for driving the digitalisation of health and welfare services is that citizens feel that they can trust healthcare providers and social services to process data concerning them in a secure manner. According to our general population survey, a quarter of respondents have little or no confidence that data is processed securely within healthcare and social services. Similar figures can be found in the Swedish Internet Foundation's report *The Swedes*

[111]Region Västra Götaland, Region Skåne, Region Västernorrland, Region Västerbotten, Region Blekinge, Region Örebro County, Region Sörmland, Region Halland, Region Norrbotten, Region Dalarna and Region Gävleborg.
[112] Region Västra Götaland. Press release *Unique collaboration finalised in western Sweden: Common health data environment for the region and all municipalities.* 27 May 2020 14:58 Updated: 4 January 2022 13:28. https://www.vgregion.se/aktuellt/nyhetslista/klart-med-unikt-vastsvenskt-samarbete--gemensam-vardinformationsmiljo-for-regionen-och-alla-kommuner/

and the Internet 2021, which found that one in five people do not trust digital social services.[113] Working actively on information security and communicating how data is used, and not used, should have a positive impact on confidence in digitalisation in healthcare and welfare services.

4.8 Inequitable access to eHealth

That access to digital health and welfare services differs from one region to the next, from one municipality to the next, and between regions and municipalities is verified by the Swedish eHealth Authority's report *Jämlik e-hälsa 2020* [Equitable eHealth 2020]. While cooperation should reduce these disparities, according to the Swedish Agency for Public Management's report *Vision eHealth*, joint efforts by the government and SALAR have thus far "*yielded few clear results in the form of, for example, a more coordinated digitalisation of the health and welfare sector. Nor have responsible authorities in the health and welfare sector been provided with objectively better conditions for benefiting from digitalisation*".

The National Board of Health and Welfare lists the following keys to successful digitalisation: expertise, organisation and information security, governance documents, cooperation and finance.[114] There is a vast difference in the ability of municipalities to acquire these keys. Each municipality and region works within its own financial constraints and willingness to invest in digitalisation. This can lead to geographical inequities. Joint national investments may reduce these disparities.

4.9 IT costs are increasing

During the period 2016–2019, the total annual IT expenditure of all regions increased by approximately 7 to 8 per cent. The corresponding annual increase for the period 2019–2020 was 13 per cent (Figure 42). At the time of writing, the figure for 2021 at national level is not available; However, over recent years IT costs have increased more rapidly than municipal and regional tax revenue, which increased by approximately 1 to 7 per cent annually during the period 2016–2020.[115,116] With major IT projects underway in the majority of regions, and given the digital immaturity of municipalities[117], we

[113] Swedish Internet Foundation. *The Swedes and the Internet 2021*.
[114] National Board of Health and Welfare. *E-hälsa och välfärdsteknik i kommunerna 2021* [E-Health and Welfare Technology in Municipalities 2021]. Stockholm: 2021.
[115] Statistics Sweden. Income statements from municipalities and regions 2016–2020. 31.08.2021
[116] Statistics Sweden. Preliminary Financial statements from municipalities and regions for 2021. 01.03.2022.
[117] PwC Sweden *Digital mognad i kommun och region [Digital maturity in municipalities and regions]*. 2020.

can anticipate major investment demands within the area and thus continued rising costs.

4.10 Sweden not in the lead

Vision 2025 is formulated in such a way that it requires progress in the digitalisation of healthcare and social services in international comparison to establish whether the objectives of the vision have been achieved.

Sweden occupies third place in the European Commission's Digital Economy and Society Index (DESI) 2021, having fallen one place from the previous year. Commenting on DESI 2021[118], the Agency for Digital Government noted that, even if Sweden has improved according to all indicators for digital infrastructure, it has lost ground as other countries develop at a faster rate. The European Commission considers human capital[119] to be one of Sweden's greatest competitive edges but highlights the need for more digital expertise. In the DESI key area of integration of digital technology, even if Sweden remains in a healthy position, the European Commission sees other countries catching up as development in Sweden slows. In the key area of digital public services, a significant improvement has been made in the indicator *open data*, even if there remains much to do.

The percentage of existing health datasets that can be shared with healthcare providers in a country (Figure 4), or with national and international stakeholders (Figure 3), is an indicator measured by the OECD. This indicator places Sweden far behind our Nordic neighbours. The number of existing health datasets varies from country to country and a deeper analysis of the results is complicated by the fact that the number of datasets held by each country is not reported, only the percentage that can be shared.

Neither DESI nor the OECD give any reason why existing data is not shared in Sweden; i.e., whether it is it due to technical, organisational (data is held by different authorities) or legal obstacles. The survey *eHälsa och IT i regionerna* [eHealth and IT in the Regions] does however indicate that a lack of legal clarity is one of the major perceived obstacles to the introduction of new e-services and IT solutions (Figure 43).[120] It is reasonable to assume that legislation will continue to be perceived as unclear and as a major obstacle

[118] The Agency for Digital Government comments on the Digital Economy and Society Index (DESI) 2021. 15.11.2021.
[119] Digital competence in the population and workforce.
[120] Swedish eHealth Agency. *Following Up on the Vision for eHealth 2025: Report on the Year 2020*. April 2021.

unless an initiative is taken at national level. The Agency for Digital Government's assignment to provide legal support to public administration on matters of digitalisation[121] might well contribute some clarity, although as yet it is too early to evaluate this. In its report on medical record linkage[122], the Swedish eHealth Agency also proposes a code of conduct as a possible point of departure for more long-term development work in this area.

4.11 Difficult to make comparisons

The Swedish eHealth Agency is aware of the difficulty in making comparisons to follow up the development of digitalisation in Sweden as described in Vision for eHealth 2025, given that the available indicators cannot be considered exhaustive based on the objectives and fundamental conditions and that international comparison is problematical. In the opinion of the Swedish eHealth Agency, further work is required to both develop new and improve existing indicators in order to monitor the development of eHealth in Sweden over time. Although the Swedish eHealth Agency would be happy to take on a greater role in any such work together with other agencies – Statistics Sweden, for example – this is not something that can be accommodated within the agency's current framework funding.

Extensive work will be required to develop new indicators that cover all objectives and fundamental conditions. As the Swedish eHealth Agency also sees a lack of clarity regarding who should be responsible for the data collection necessary to monitoring the development of eHealth in Sweden and ensuring that it is comparable over time, we suggest that this be addressed before the start of the next strategy period for Vision for eHealth 2025.

The framework for following up the vision previously developed by the agency is based on existing datasets.[123] A number of indicators of regional development have also fallen by the wayside this year as the questions in the survey on which they are based have been altered.[124] This reduces our ability to monitor the development of services offered by regional health authorities.

An additional difficulty, which is also highlighted in the report on the indicator-based framework for monitoring Vision e health 2025 [125] is that the

[121] Government Resolution. I2021/00288. *Assignment to provide legal support to public administration on matters of digitalisation.* 28.01.2021
[122] Swedish eHealth Agency. Sammanhållen journalföring – Möjligheter till digital informationsförsörjning på hälsodataområdet [Medical record linkage: Opportunities for digital health data provision]. February 2022.
[123] Swedish eHealth Agency. *Indicator Based Framework for Follow Up of Vision for eHealth 2025*, October 2020.
[124] Jerlvall, Pehrsson. *eHälsa och IT i regionerna*. [eHealth and IT in the Regions], May 2020.
[125] Swedish eHealth Agency. *Indicator Based Framework for Follow Up of Vision for eHealth 2025*, October 2020.

majority of current indicators focus on the extent of digitalisation while evaluation of Vision e health requires that extent be linked to the effects of digitalisation (i.e., achieving high-quality, equitable healthcare and social services). The few indicators that are capable of evaluating progress towards these objectives can in many cases only demonstrate a correlation. At present, the ability to demonstrate causality is further limited. To do so will demand further research in the area.

International cooperation has been extended during the year in order to identify indicators that can compare specific countries. At the behest of Norway, discussions were held within the framework of the Nordic Council of Ministers on the possibility of conducting a pan-Nordic general population survey of eHealth. However, no progress has been made on the planned survey. Attempts have also been made to extend cooperation between Sweden and other countries to formulate internationally comparable indicators.

This will require not only international cooperation but also increased cooperation within Sweden. It is also apparent that we lack statistics in this area to facilitate quality-assured time series and create the conditions for continuity in following up the objectives of the Vision for eHealth 2025.

Even if this situation changes by the time of the 2023 report, the three years until 2025 is a relatively short period in the context and it is therefore deemed unlikely that there will be sufficient time to establish and obtain detailed results from international cooperation.