



2030
DIGITAL
DECADE

2024 DIGITAL DECADE EHEALTH INDICATOR STUDY

FINAL REPORT

A study prepared for the European Commission, DG Communications, Networks, Content and Technology by

Capgemini  invent

CNECT/2022/OP/0036

EUROPEAN COMMISSION

Directorate-General for Communications Networks, Content and Technology
Directorate H – Digital Society, Trust and Cybersecurity Unit H.3 – eHealth, Wellbeing and Ageing

Contact: Renata Palen

Email: CNECT-H3@ec.europa.eu; renata.palen@ec.europa.eu

European Commission
B-1049 Brussels

INTERNAL IDENTIFICATION

SMART number: CNECT/2022/OP/0036

Disclaimer

The information and views set out in this document are those of the author(s) and do not necessarily reflect the official opinion of the European Commission. The European Commission does not guarantee the accuracy of the data included in this document. Neither the European Commission nor any person acting on the Commission's behalf may be held responsible for the use of the Information contained herein.

AUTHORS – Capgemini Invent

Martin Page PhD (Lead Author; martin.page@capgemini.com), Rudolf Winkel, Arman Behrooz, and Richard Bussink.

Figures were prepared by Edoardo Altamura PhD.

With special thanks to Flory van der Steuijt, Olivier le Blanc, and Nathan Jonker from Capgemini Invent for their contributions to the study.

The authors would like to acknowledge the contribution of all the respondents from the EU/EEA Member States who have been involved in the study through the survey.

The authors are grateful to Renata Palen, Konstantin Hyppönen PhD, and Michiel Sweerts from the European Commission, Directorate General Communications Networks, Content and Technology (DG CNECT) for their guidance and continuous support.

EN PDF DOI: 10.2759/557789 Catalogue number: KK-05-24-386-EN-N ISBN: 978-92-68-16588-1

Manuscript completed in May 2024

The European Commission is not liable for any consequence stemming from the reuse of this publication.

Luxembourg: Publications Office of the European Union, 2024

© European Union, 2024. All rights reserved.



The reuse policy of European Commission documents is implemented by the Commission Decision 2011/833/EU of 12 December 2011 on the reuse of Commission documents (OJ L 330, 14.12.2011, p. 39). Except otherwise noted, the reuse of this document is authorised under a Creative Commons Attribution 4.0 International (CC-BY 4.0) licence (<https://creativecommons.org/licenses/by/4.0/>). This means that reuse is allowed, provided that appropriate credit is given and any changes are indicated.

For any use or reproduction of elements that are not owned by the European Union, permission may need to be sought directly from the respective rightsholders.

Table of Contents

Glossary.....	5
Abstract	6
Résumé	7
Abstrakt	8
Executive summary.....	9
Synthèse	12
Zusammenfassung	16
1 Introduction: measuring access to electronic health records in Europe	20
2 Policy background	22
3 Methodology	24
3.1 Monitoring framework	24
3.2 Approach to data collection	29
4 Data analysis.....	30
4.1 Overall eHealth maturity.....	30
4.2 Thematic layers	34
4.2.1 Electronic access service for citizens	34
4.2.2 Categories of accessible health data	36
4.2.3 Access technology and coverage.....	44
4.2.4 Access opportunities for certain categories of people	53
5 Key insights and perspectives	62
6 Conclusions.....	65
7 Appendix – country scores	66

Glossary

Abbreviation	Full term
DDPP	Digital Decade Policy Programme
DESI	Digital Economy and Society Index
EHDS	European Health Data Space
eID	Electronic identification
EU-27	The 27 Member States of the European Union
GDPR	General Data Protection Regulation
WCAG	Web Content Accessibility Guidelines

Abstract

Following the adoption of the Declaration on European Digital Rights and Principles and the Digital Decade Policy Programme 2030, agreed jointly by the European Parliament, Member States and the Commission, a comprehensive monitoring framework was developed, in close cooperation with Member States, to provide the tool to monitor and annually report the advancement towards achieving the eHealth target.

This study presents the results of the monitoring framework for the Digital Decade target of 100% of EU citizens having access to their electronic health records by 2030. It is the first follow-up study since the framework was established with a baseline data collection in 2022. The primary purpose of this study is to provide the EU Member States and the European Commission with an annual report on the advancement towards achieving the eHealth target and to report the state of play in the EU-27 as well as Iceland and Norway as of 31 December 2023. Data was collected through an online survey completed by nominated respondents in each country.

The average maturity score for EU-27 is 79%, an increase of seven points since 2022. Twenty-two Member States (81%) improved in score in the past year. In summary, more data types within the category of electronic results and reports are being made available, more categories of healthcare providers are connected and supplying data, and more online access services follow web content accessibility guidelines. However, connected healthcare providers still tend to be largely from the public sector, and access to several categories of health data, especially data about medical images and medical devices/implants, remains limited. The study emphasises the need to ensure population-wide access to electronic health record data, that the health data available on the access service should comprehensively reflect the various types of data collected about patients from the various types of healthcare providers they use, and these efforts should be supported by digital products and services that are secure and accessible for all citizens.

Résumé

À la suite de l'adoption de la déclaration sur les droits et principes numériques européens et du programme politique pour la décennie numérique 2030, convenus conjointement par le Parlement européen, les États membres et la Commission, un cadre de suivi complet a été élaboré, en étroite collaboration avec les États membres, afin de fournir l'outil permettant de suivre et de rendre compte annuellement des progrès accomplis dans la réalisation de l'objectif en matière de santé en ligne.

Cette étude présente les résultats du cadre de suivi de l'objectif de la Décennie numérique, qui a l'ambition d'offrir un accès à 100 % des citoyens de l'UE à leur dossier médical électronique d'ici à 2030. Il s'agit de la première étude de suivi depuis que le cadre a été établi avec une collecte de données de référence en 2022. L'objectif principal de cette étude est de fournir aux États membres de l'UE et à la Commission européenne un rapport annuel sur les progrès accomplis dans la réalisation de l'objectif en matière de santé en ligne (ou e-health) et de faire le point sur la situation dans l'Europe des 27, ainsi qu'en Islande et en Norvège, au 31 décembre 2023. Les données ont été recueillies au moyen d'une enquête en ligne à laquelle ont répondu des personnes désignées dans chaque pays.

Le score moyen de maturité pour l'UE-27 est de 79 %, soit une augmentation de sept points depuis 2022. Vingt-deux États membres (81 %) ont amélioré leur score au cours de l'année écoulée. En résumé, davantage de types de données dans la catégorie des résultats et rapports électroniques sont mis à disposition, davantage de catégories de prestataires de soins de santé sont connectées et fournissent des données, et davantage de services d'accès en ligne respectent les lignes directrices relatives à l'accessibilité du contenu web. Toutefois, les prestataires de soins de santé connectés tendent encore à être largement issus du secteur public. Par ailleurs, l'accès à plusieurs catégories de données de santé, en particulier les données relatives aux images médicales et aux dispositifs/implants médicaux, reste limité. L'étude souligne la nécessité d'assurer l'accès de l'ensemble de la population aux données des dossiers médicaux électroniques, de veiller à ce que les données de santé disponibles sur le service d'accès reflètent de manière exhaustive les différents types de données collectées sur les patients auprès des différents types de prestataires de soins de santé qu'ils utilisent, et de soutenir ces efforts par des produits et services numériques sécurisés et accessibles à tous les citoyens.

Abstrakt

Nach der Verabschiedung der Erklärung zu den europäischen digitalen Rechten und Grundsätzen ("Declaration on European Digital Rights and Principles") und des politischen Programms für die digitale Dekade 2030 ("Digital Decade Policy Programme 2030"), auf die sich das Europäische Parlament, die Mitgliedstaaten und die Kommission gemeinsam geeinigt haben, wurde in enger Zusammenarbeit mit den Mitgliedstaaten ein umfassender Überwachungsrahmen entwickelt, der ein Instrument zur Überwachung der Fortschritte bei der Verwirklichung des Ziels der elektronischen Gesundheitsdienste ("eHealth") und zur jährlichen Berichterstattung darüber darstellt.

In dieser Studie werden die Ergebnisse des Überwachungsrahmens für das Ziel des digitalen Jahrzehnts vorgestellt, wonach bis 2030 100% der EU-Bürger*innen Zugang zu ihren elektronischen Patientenakten haben sollen. Es ist die erste Folgestudie seit Einführung des Rahmens mit einer Basisdatenerhebung im Jahr 2022. Der Hauptzweck dieser Studie besteht darin, den EU-Mitgliedstaaten und der Europäischen Kommission einen Jahresbericht über die Fortschritte bei der Erreichung des Ziels der elektronischen Gesundheitsdienste vorzulegen und den Stand der Dinge in der EU-27 sowie in Island und Norwegen zum 31. Dezember 2023 darzustellen. Die Daten wurden mittels einer Online-Umfrage erhoben, die von nominierten Befragten in jedem Land ausgefüllt wurde.

Der durchschnittliche Reifegrad der EU-27 liegt bei 79%, was einem Anstieg um sieben Prozentpunkte seit 2022 entspricht. 22 Mitgliedstaaten (81%) haben ihren Wert im vergangenen Jahr verbessert. Zusammenfassend lässt sich sagen, dass mehr Datentypen innerhalb der Kategorie der elektronischen Ergebnisse und Berichte zur Verfügung gestellt werden, dass mehr Kategorien von Gesundheitsdienstleistern angeschlossen sind und Daten liefern und dass mehr Online-Zugangsdienste den Leitlinien für die Zugänglichkeit von Webinhalten folgen. Die angeschlossenen Gesundheitsdienstleister stammen jedoch nach wie vor größtenteils aus dem öffentlichen Sektor, und der Zugang zu mehreren Kategorien von Gesundheitsdaten, insbesondere zu Daten über medizinische Bilder und medizinische Geräte/Implantate, ist nach wie vor begrenzt. In der Studie wird betont, dass ein bevölkerungsweiter Zugang zu elektronischen Gesundheitsdaten gewährleistet werden muss, dass die im Zugangsdienst verfügbaren Gesundheitsdaten die verschiedenen Arten von Daten, die von den verschiedenen Arten von Gesundheitsdienstleistern über die Patienten erhoben werden, umfassend widerspiegeln sollten und dass diese Bemühungen durch digitale Produkte und Dienste unterstützt werden sollten, die sicher und für alle Bürger zugänglich sind.

Executive summary

As one of the targets in the Digital Decade Policy Programme 2030, facilitating 100% of EU citizens with access to their electronic health records by 2030 is a key priority and ambition for Europe's digital transformation. This report presents the state-of-play of the EU-27 as well as Iceland and Norway towards the Digital Decade target on eHealth. This report is the first follow-up monitoring exercise after the 2022 baseline study 'Digital Decade e-Health Indicators Development' that developed the methodology.

In brief, the **methodology** involves:

- Gathering data through an online survey completed by the competent authorities in each participating country. Responses reflect the state of play as of 31 December 2023. For countries with regional electronic record access services, the survey collected data for each region.
- Analysing survey responses in terms of 12 sub-indicators that define the key performance indicators of the eHealth target. These 12 sub-indicators capture the concept of 100% of EU citizens having access to their electronic health records by outlining what types of health data, from which suppliers, through what modes of access, and with what access requirements represent technical access by citizens to their electronic health records online. Each sub-indicator contributes equally to the overall composite eHealth score.
- Transforming survey responses into maturity scores according to a pre-defined scoring scheme. The response options are allocated scores between 0% and 100% to create a maturity scale for each sub-indicator.

Overall eHealth maturity scores in 2023:

- A total of 22 Member States increased their maturity score on the eHealth composite indicator compared to 2022. Iceland and Norway also achieved increases in overall maturity scores. Furthermore, two Member States decreased in score, and three remained the same.
- The composite eHealth score for the EU-27 averaged 79%, an increase of seven percentage points from 72% in 2022.
- The top five most mature countries in the EU-27 are **Belgium** (100%), **Denmark** (98%), **Estonia** (98%), **Lithuania** (95%) and **Poland** (90%).
- The biggest climbers are **France** (+25 points), **Portugal** (+23 points), **Slovakia** (+20 points), and **Germany** (+17 points).

The sub-indicators are grouped into **four thematic layers** for conceptual analysis:

1) Thematic layer 1: implementation of electronic access services for citizens

- All participating countries report having some form of online access service for electronic health records.
- Twenty-three Member States (89%) report providing access to electronic health records through a centralised access service. The remaining four Member States (**Ireland**, **Italy**, **Spain**, and **Sweden**) report having regional services. In **Sweden**, there is a nationally available portal for citizens to access their information, which is jointly owned by the regions and municipalities and not by the national government. Health data is supplied by the regions.
- **Ireland** newly reports that a large hospital group in one of its six regions provides access to electronic health records for private insurance patients. At the moment, a more universal nationwide solution is not in place; however, the representatives from Ireland describe that a national application for public patients is under development that will provide access to information on medications that are dispensed and paid for by the state.

2) Thematic layer 2: categories of accessible health data

- The most mature category of health data is ePrescriptions and eDispensations.
- The most mature data types in electronic records summaries are data about identification, personal information, and current and relevant past medicines. The least mature is data about medical devices/implants.
- The category of health data with the lowest maturity is electronic results and reports. In particular, only seven Member States have medical images available to access for citizens.

3) Thematic layer 3: access technology and coverage

- In 2022, only 13 Member States reported using a (pre)notified eID compliant with the eIDAS Regulation and having a Level of Assurance classified as 'high' or 'substantial' to authenticate logins to the online access service. This number increased to 17 Member States (63%) in 2023. Only three Member States report using neither a (pre)notified eID nor a nationally notified eID scheme based on two-factor.
- All Member States, except **Ireland** (96%), provide an online portal and 14 Member States (52%) make access available through a native mobile application in addition to the online portal. The access service for one of Ireland's regions uses a mobile application.
- Twenty Member States (74%) report that 80–100% of the national population is technically able to access their electronic health records through the provided access service.
- On average, in the EU-27, private healthcare providers are less connected (55%) than public healthcare providers (74%). However, there has been an increase in the number of private healthcare providers who are connected. Nonetheless, this sub-indicator still scores below the EU-27 average in terms of maturity.

4) Thematic layer 4: access opportunities for certain categories of people

- Twenty-one Member States (78%) facilitate access for legal guardians to their wards' health data, both in terms of legal provisions that grant access rights and technical functionality that grants access.
- Twenty Member States (74%) also report having legal provisions and implemented mechanisms to provide assistance for using the online access service for those who seek it.
- By contrast, only 14 Member States (52%) offer functionality with a legal basis for citizens to authorise other persons to access their health data and perform authorised actions on their behalf. A further eight Member States (30%) have the legal provisions in place but have yet to implement the technical mechanism for citizens to exercise the provision.
- Compliance with web accessibility guidelines (which are required by the Web Accessibility Directive) increased by 22 points from only 52% to 74% in 2023. Six additional Member States report following the guidelines, leaving only seven Member States whose access services must still be aligned with the guidelines.

Outlook:

Accessing one's electronic health records online is comparable to accessing other public services. It is in the interest of citizens themselves and the public in general. Access to electronic health records online will provide individual citizens, their next of kin and/or caregivers with easier access to their health data and health status, aiding them in managing and improving their health while increasing the patient's role in their care and their autonomy. It is therefore highly likely that access to such health data will enhance the quality of care and treatment throughout the EU. It is important to note that online access to health data is not mandatory for citizens; they can choose to what extent they wish to engage.

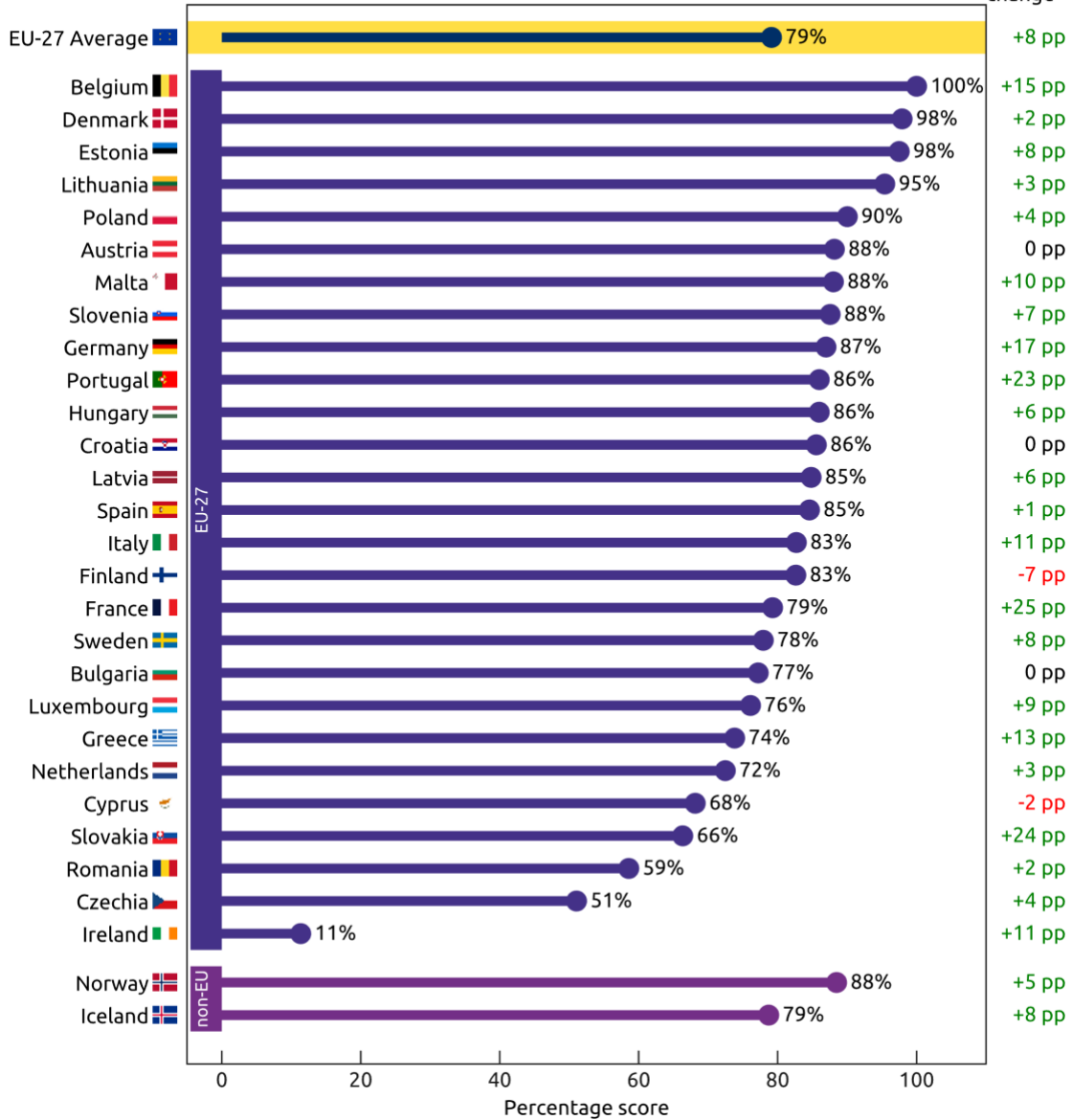
To reach the eHealth target, it is important for Member States to take the following actions. Firstly, population-wide coverage reflects a core ambition of the eHealth target. Member States should prioritise universal access to electronic health record data, ensuring that all citizens have the ability to access their electronic health records online. Secondly, the online access service should be populated with diverse categories of data, reflecting the diverse health data collected about patients during

their interactions with healthcare services. Thirdly, such data should be supplied by the several categories of healthcare providers used by citizens. Finally, these efforts should be supported by digital products and services that are secure and accessible by design, such as using authentication methods based on (pre-)notified eIDs, following guidelines on web accessibility, and implementing further measures to ensure that the online access service can be used equitably by all citizens.

2023 composite eHealth indicator score

Ordered by score, per group of countries

2022 → 2023
change



Synthèse

L'un des objectifs du Programme politique de la Décennie numérique 2030 est de faciliter l'accès pour l'ensemble des citoyens de l'UE à leurs dossiers de santé électroniques d'ici 2030. Cela est défini comme priorité clé et comme ambition pour la transformation numérique de l'Europe. Ce rapport présente la situation actuelle de l'UE-27, ainsi que de l'Islande et de la Norvège, en ce qui concerne l'objectif de la Décennie numérique en matière de « santé en ligne » (ou e-health). Ce rapport est le premier exercice de suivi issu de l'étude de référence de 2022 intitulée « Développement des indicateurs de e-santé pour la Décennie numérique » qui a élaboré la méthodologie.

La **méthodologie** comprend les étapes suivantes :

- La collecte de données via une enquête en ligne complétée par les autorités compétentes de chaque pays participant. Les réponses reflètent la situation au 31 décembre 2023. Pour les pays disposant de services régionaux d'accès aux dossiers électroniques, l'enquête a collecté des données pour chaque région.
- L'analyse des réponses de l'enquête en fonction de 12 sous-indicateurs définissant les indicateurs clés de performance de l'objectif « santé en ligne ». Ces 12 sous-indicateurs illustrent le concept selon lequel 100 % des citoyens de l'UE ont accès à leurs dossiers médicaux électroniques en indiquant leurs types de données de santé, la provenance des fournisseurs ainsi que les modes et les exigences d'accès. Ils représentent l'accès technique des citoyens à leurs dossiers médicaux électroniques en ligne. Chaque sous-indicateur contribue à parts égales au score composite global en matière de santé en ligne.
- Transformer les réponses à l'enquête en scores de maturité selon un système de notation prédéfini. Les options de réponse se voient attribuer des scores entre 0 et 100 % afin de créer une échelle de maturité pour chaque sous-indicateur.

Scores de maturité globaux en 2023 pour la « santé en ligne » :

- Au total, 22 États membres ont augmenté leur score de maturité pour l'indicateur composite « santé en ligne » par rapport à 2022. L'Islande et la Norvège ont également augmenté leur score global de maturité. Par ailleurs, deux États membres ont vu leur score diminuer et trois sont restés inchangés.
- Le score composite de l'UE-27 en matière de santé en ligne s'élève en moyenne à 79 %, soit une augmentation de sept points de pourcentage par rapport à 2022 (72 %).
- Les pays les plus matures de l'UE-27 sont la **Belgique** (100 %), le **Danemark** (98 %), l'**Estonie** (98 %), la **Lituanie** (95 %) et la **Pologne** (90 %).
- Les pays qui ont le plus progressé sont la **France** (+25 points), le **Portugal** (+23 points) la **Slovaquie** (+20 points) et l'**Allemagne** (+17 points).

Les sous-indicateurs sont regroupés en **quatre groupes thématiques** pour une analyse conceptuelle:

1) Thématique 1 : mise en œuvre de services d'accès électronique pour les citoyens

- Tous les pays participants déclarent disposer d'une forme de service d'accès en ligne aux dossiers de santé électroniques.
- 23 États membres (89 %) déclarent fournir un accès aux dossiers de santé électroniques via un service d'accès centralisé. Les quatre États membres restants (l'**Irlande**, l'**Italie**, l'**Espagne** et la **Suède**) déclarent disposer de services régionaux. En **Suède**, il existe un portail disponible au niveau national pour que les citoyens accèdent à leurs informations, qui est la co-propriété des régions et des municipalités et n'est pas du ressort du gouvernement national. Les données de santé sont fournies par les régions.
- L'**Irlande** a signalé récemment qu'un grand groupe hospitalier dans l'une de ses six régions fournit un accès aux dossiers médicaux électroniques aux patients couverts par une assurance privée. Pour l'instant, il n'existe pas de solution nationale ; toutefois, les représentants irlandais expliquent qu'une application nationale pour les patients du secteur public est en cours de développement et permettra d'accéder aux informations sur les médicaments délivrés et payés par l'État.

2) Thématique 2 : catégories de données de santé accessibles

- La catégorie de données de santé la plus mature est celle des ordonnances électroniques et des dispensations électroniques.
- Les types de données les plus matures dans les résumés de dossiers électroniques sont les données d'identification, les informations personnelles, ainsi que les médicaments actuels et pertinents du passé. La moins mature concerne les données sur les dispositifs médicaux/implants.
- La catégorie de données de santé avec la maturité la plus faible est celle des résultats et rapports électroniques. En particulier, seuls sept États membres disposent d'images médicales accessibles aux citoyens.

3) Thématique 3 : technologie d'accès et couverture

- En 2022, seuls 13 États membres ont déclaré utiliser une identité électronique (eID) (pré)notifiée conforme au règlement eIDAS et ayant un Niveau d'Assurance classé comme « élevé » ou « substantiel » pour authentifier les connexions au service d'accès en ligne. Ce nombre est passé à 17 États membres (63 %) en 2023. Seuls trois États membres déclarent ne pas utiliser ni d'eID (pré)notifiée ni de schéma eID notifié au niveau national basé sur la double authentification.
- Tous les États membres, à l'exception de l'Irlande (96 %), proposent un portail en ligne et 14 États membres (52 %) rendent l'accès disponible via une application mobile native en plus du portail en ligne. Le service d'accès d'une des régions de l'Irlande utilise une application mobile.
- 20 États membres (74 %) déclarent que 80 à 100 % de la population nationale est techniquement capable d'accéder à leurs dossiers de santé électroniques via le service d'accès fourni.
- En moyenne, les prestataires de soins de santé privés sont moins connectés (55 %) que les prestataires de soins de santé publics (74 %) dans l'UE-27. Cependant, le nombre de prestataires de soins de santé privés connectés a augmenté. Néanmoins, ce sous-indicateur reste en dessous de la moyenne de l'UE-27 en termes de maturité.

4) Thématique 4 : opportunités d'accès pour certaines catégories de personnes

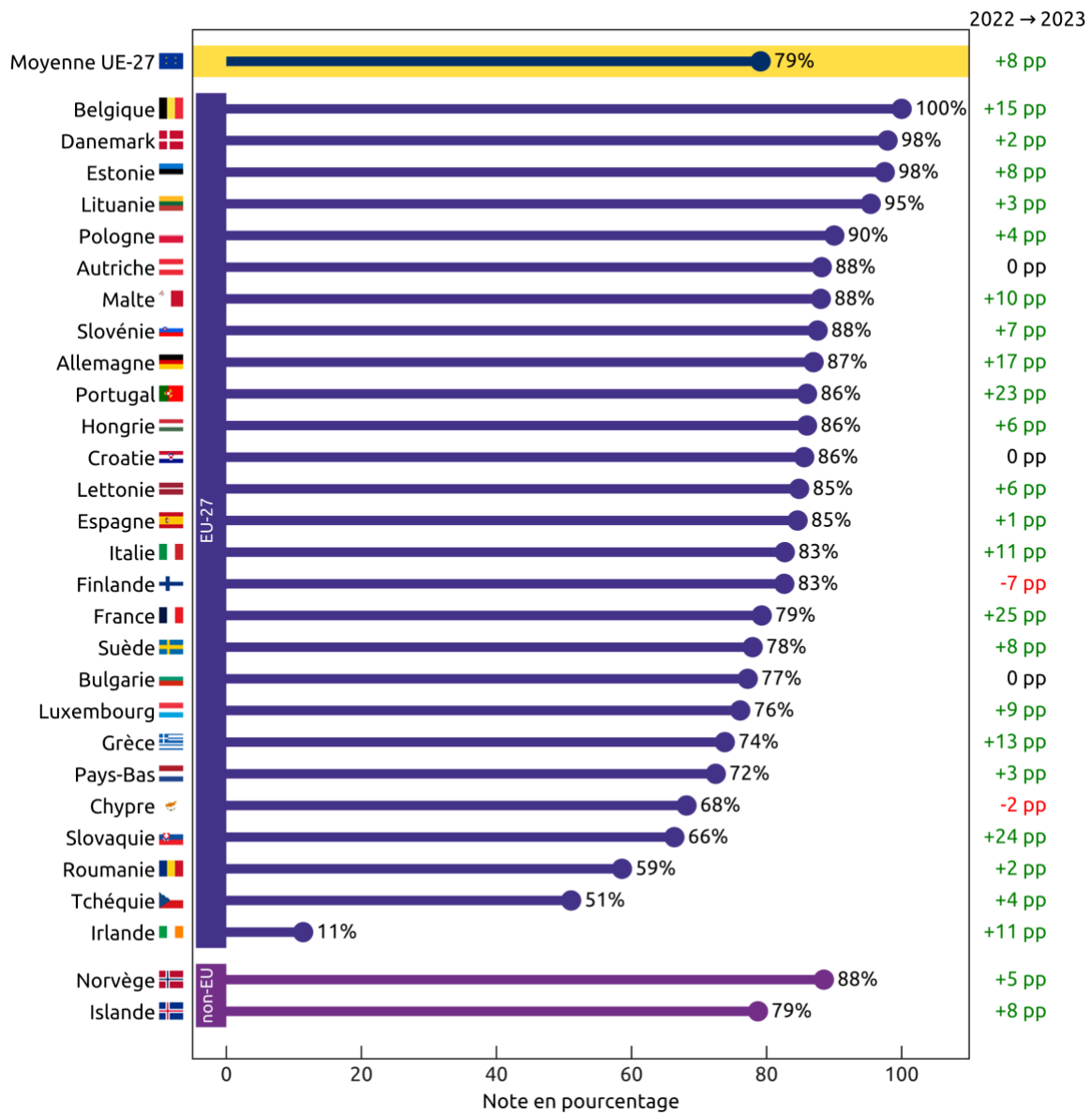
- Vingt et un États membres (78%) facilitent l'accès des tuteurs légaux aux données de santé de leurs pupilles, à la fois en termes de dispositions légales accordant des droits d'accès et de fonctionnalités techniques permettant l'accès.
- Vingt États membres (74 %) déclarent également disposer de dispositions légales et de mécanismes mis en œuvre pour fournir une assistance à l'utilisation du service d'accès en ligne aux personnes qui en font la demande.
- En revanche, seuls 14 États membres (52 %) proposent une fonctionnalité reposant sur une base juridique permettant aux citoyens d'autoriser d'autres personnes à accéder à leurs données de santé et à effectuer des actions autorisées en leur nom. Huit autres États membres (30 %) disposent des dispositions juridiques nécessaires, mais doivent encore mettre en œuvre le mécanisme technique permettant aux citoyens d'exercer cette disposition.
- Le respect des lignes directrices relatives à l'accessibilité du web (exigées par la directive sur l'accessibilité du web) a augmenté de 22 points, passant de 52 % seulement à 74 % en 2023. Six États membres supplémentaires déclarent suivre les lignes directrices, ce qui ne laisse que sept États membres dont les services d'accès doivent encore être alignés sur les lignes directrices.

Perspectives:

L'accès en ligne aux dossiers médicaux électroniques est comparable à l'accès à d'autres services publics. Il est dans l'intérêt des citoyens eux-mêmes et du public en général. L'accès aux dossiers médicaux électroniques en ligne permettra aux citoyens, à leurs proches et/ou à leurs soignants d'accéder plus facilement à leurs données et à leur état de santé, ce qui les aidera à gérer et à améliorer leur santé tout en renforçant le rôle du patient dans ses soins et son autonomie. Il est donc très probable que l'accès à ces données de santé améliorera la qualité des soins et des traitements dans l'ensemble de l'UE. Il est important de noter que l'accès en ligne aux données de santé n'est pas obligatoire pour les citoyens ; ils peuvent choisir dans quelle mesure ils souhaitent s'engager.

Afin d'atteindre l'objectif en matière de cybersanté, il est important que les États membres prennent les mesures suivantes. Premièrement, la couverture à l'échelle de la population reflète une ambition fondamentale de l'objectif de la cybersanté. Les États membres devraient donner la priorité à l'accès universel aux données des dossiers de santé électroniques, en garantissant que tous les citoyens aient la possibilité d'accéder en ligne à leurs dossiers de santé. Deuxièmement, le service d'accès en ligne devrait être alimenté par diverses catégories de données, reflétant les diverses données de santé collectées sur les patients lors de leurs interactions avec les services de santé. Troisièmement, ces données devraient être fournies par les différentes catégories de prestataires de soins de santé utilisés par les citoyens. Enfin, ces efforts devraient être soutenus par des produits et services numériques sécurisés et accessibles dès leur conception, tels que l'utilisation de méthodes d'authentification basées sur des identifiants électroniques (pré)notifiés, le respect des lignes directrices sur l'accessibilité du Web et la mise en œuvre de mesures supplémentaires pour garantir que l'accès en ligne au service puisse être utilisé équitablement par tous les citoyens.

Score de l'indicateur composite e-santé 2023



Zusammenfassung

Eines der Ziele des politischen Programms 2030 für die digitale Dekade („Digital Decade Policy Programme 2030“) und eine der wichtigsten Prioritäten und Ziele für die digitale Transformation Europas ist es, bis 2030 100 % der EU- Bürger*innen den Zugang zu ihren elektronischen Gesundheitsdaten zu ermöglichen. In diesem Bericht wird der Stand der Dinge in der EU-27 sowie in Island und Norwegen in Bezug auf das Ziel des digitalen Jahrzehnts für elektronische Gesundheitsdienste dargestellt. Dieser Bericht ist die erste Folgeuntersuchung der Basisstudie 'Entwicklung von Indikatoren für elektronische Gesundheitsdienste im Rahmen des digitalen Jahrzehnts' („Digital Decade e-Health Indicators Development“) aus dem Jahr 2022, in der die Methodik entwickelt wurde.

Die **Methodik** lässt sich wie folgt zusammenfassen:

- Erhebung von Daten durch eine Online-Umfrage, die von den zuständigen Behörden in jedem teilnehmenden Land ausgefüllt wird. Die Antworten spiegeln den Stand der Dinge zum 31. Dezember 2023 wider. Für Länder mit regionalen Diensten für den Zugang zu elektronischen Akten wurden in der Umfrage Daten für jede Region erfasst.
- Analyse der Umfrageantworten im Hinblick auf zwölf Teilindikatoren, die die wichtigsten Leistungsindikatoren des Ziels der elektronischen Gesundheitsdienste definieren. Diese zwölf Teilindikatoren spiegeln das Konzept wider, dass 100% der EU-Bürger*innen Zugang zu ihren elektronischen Gesundheitsdaten haben sollen, indem sie beschreiben, welche Arten von Gesundheitsdaten, von welchen Anbietern, über welche Zugangsarten und mit welchen Zugangsvoraussetzungen der technische Zugang der Bürger*innen zu ihren elektronischen Online-Gesundheitsdaten erfolgt. Jeder Teilindikator trägt in gleichem Maße zum Gesamtergebnis der elektronischen Gesundheitsdienste bei.
- Umwandlung der Umfrageantworten in Reifegradwerte nach einem vordefinierten Bewertungsschema. Den Antwortoptionen werden Punktzahlen zwischen 0% und 100% zugewiesen, um eine Reifegradskala für jeden Teilindikator zu erstellen.

Gesamtwert für den Reifegrad der elektronischen Gesundheitsdienste im Jahr 2023:

- Insgesamt 22 Mitgliedstaaten haben ihren Reifegrad beim zusammengesetzten Indikator für elektronische Gesundheitsdienste im Vergleich zu 2022 erhöht. Auch Island und Norwegen konnten ihren Gesamtreifegrad steigern. Außerdem verschlechterte sich der Wert in zwei Mitgliedstaaten und in drei blieb er gleich.
- Die zusammengesetzte Punktzahl für elektronische Gesundheitsdienste in der EU-27 lag bei 79%, was einem Anstieg von sieben Prozentpunkten gegenüber 72% im Jahr 2022 entspricht.
- Die fortschrittlichsten Länder in der EU-27 sind **Belgien** (100 %), **Dänemark** (98%), **Estland** (98%), **Litauen** (95%), und **Polen** (90%).
- Die größten Aufsteiger sind **Frankreich** (+25 Prozentpunkte), **Portugal** (+23 Prozentpunkte), die **Slowakei** (+20 Prozentpunkte) und **Deutschland** (+17 Prozentpunkte).

Die Teilindikatoren werden für die konzeptionelle Analyse in vier thematischen Ebenen zusammengefasst:

1) Thematische Ebene 1: Einführung von elektronischen Zugangsdiensten für Bürger*innen

- Alle teilnehmenden Länder geben an, dass sie über irgendeine Form von Online-Zugangsdiensten für elektronische Patientenakten verfügen.
- 23 Mitgliedstaaten (89%) geben an, den Zugang zu elektronischen Gesundheitsdatensätzen über einen zentralen Zugangsdienst zu ermöglichen. Die übrigen vier Mitgliedstaaten (**Irland**, **Italien**, **Spanien** und **Schweden**) geben an, über regionale Dienste zu verfügen. In **Schweden** gibt es ein nationales Portal, über das die Bürger*innen auf ihre Informationen zugreifen können und das nicht von der nationalen Regierung, sondern von den Regionen und Gemeinden gemeinsam betrieben wird. Die Gesundheitsdaten werden von den Regionen bereitgestellt.

- **Irland** berichtet neuerdings, dass eine große Krankenhausgruppe in einer seiner sechs Regionen Privatversicherungspatienten Zugang zu elektronischen Gesundheitsakten bietet. Eine allgemeinere landesweite Lösung gibt es derzeit noch nicht. Die irischen Vertreter beschreiben jedoch, dass derzeit eine nationale Anwendung für Kassenpatienten entwickelt wird, die Zugang zu Informationen über Medikamente bietet, die vom Staat ausgegeben und bezahlt werden.

2) Thematische Ebene 2: Kategorien von zugänglichen Gesundheitsdaten

- Die ausgereifteste Kategorie von Gesundheitsdaten sind elektronische Verschreibungen („ePrescriptions“) und elektronische Arzneimittelabgaben („eDispensations“).
- Die ausgereiftesten Datentypen in elektronischen Aktenzusammenfassungen sind Daten zur Identifizierung, persönliche Informationen sowie aktuelle und relevante frühere Arzneimittel. Am wenigsten ausgereift sind die Daten über medizinische Geräte/Implantate.
- Die Kategorie der Gesundheitsdaten mit dem geringsten Reifegrad sind elektronische Ergebnisse und Berichte. So verfügen nur sieben Mitgliedstaaten über medizinische Bilder, die für die Bürger*innen zugänglich sind.

3) Thematische Ebene 3: Zugangstechnologie und Abdeckung

- Im Jahr 2022 gaben nur 13 Mitgliedstaaten an, dass sie eine (vorab)gemeldete eID verwenden, die der eIDAS-Verordnung entspricht und ein als "hoch" („high“) oder "erheblich" („substantial“) eingestuftes Sicherheitsniveau aufweist, um Anmeldungen beim Online-Zugangsdienst zu authentifizieren. Diese Zahl stieg auf 17 Mitgliedstaaten (63%) im Jahr 2023. Nur drei Mitgliedstaaten geben an, dass sie weder eine (vorab)gemeldete eID noch ein national notifiziertes eID-System auf der Grundlage des Zwei-Faktor-Verfahrens verwenden.
- Alle Mitgliedstaaten außer **Irland** (96%) bieten ein Online-Portal an, und 14 Mitgliedstaaten (52%) ermöglichen den Zugang zusätzlich zum Online-Portal über eine native mobile Anwendung. Der Zugangsdienst für eine der irischen Regionen nutzt eine mobile Anwendung.
- 20 Mitgliedstaaten (74%) berichten, dass 80-100% der nationalen Bevölkerung technisch in der Lage sind, über den bereitgestellten Zugangsdienst auf ihre elektronischen Patientenakten zuzugreifen.
- Im Durchschnitt sind private Gesundheitsdienstleister in der EU-27 weniger vernetzt (55%) als öffentliche Gesundheitsdienstleister (74%). Allerdings ist die Zahl der privaten Gesundheitsdienstleister, die vernetzt sind, gestiegen. Dennoch liegt dieser Teilindikator immer noch unter dem EU-27-Durchschnitt, was den Reifegrad betrifft.

4) Thematische Ebene 4: Zugangsmöglichkeiten für bestimmte Gruppen von Menschen

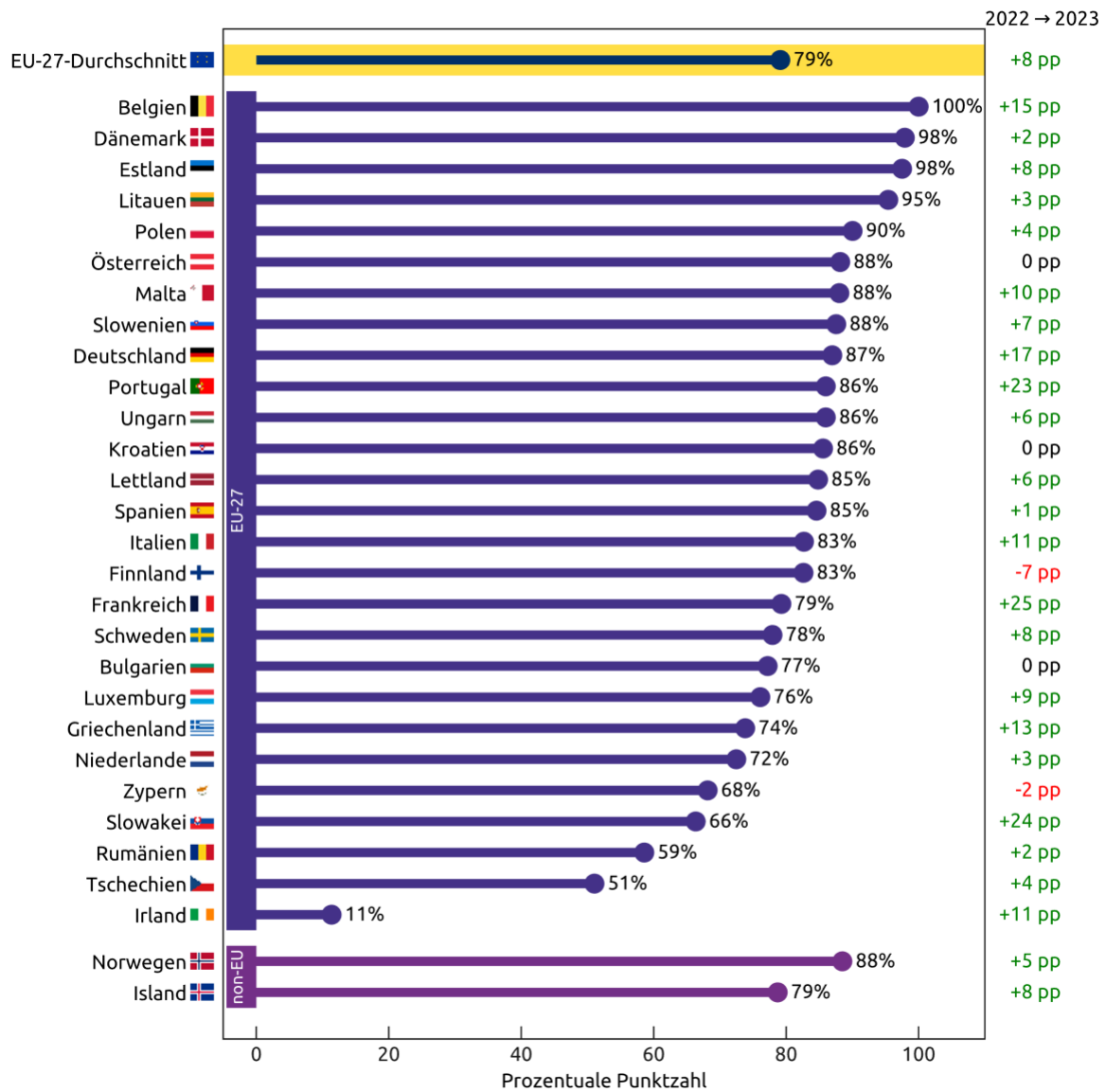
- 21 Mitgliedstaaten (78%) erleichtern den Erziehungsberechtigten den Zugang zu den Gesundheitsdaten ihrer Mündel, und zwar sowohl durch gesetzliche Bestimmungen, die Zugangsrechte gewähren, als auch durch technische Funktionen, die den Zugang ermöglichen.
- 20 Mitgliedstaaten (74%) geben außerdem an, dass sie über Rechtsvorschriften und Mechanismen verfügen, die denjenigen, die den Online-Zugangsdienst in Anspruch nehmen möchten, Unterstützung bieten.
- Im Gegensatz dazu bieten nur 14 Mitgliedstaaten (52%) eine Funktionalität mit einer Rechtsgrundlage für die Bürger*innen an, um andere Personen zu ermächtigen, auf ihre Gesundheitsdaten zuzugreifen und in ihrem Namen autorisierte Aktionen durchzuführen. Weitere acht Mitgliedstaaten (30%) verfügen zwar über die rechtlichen Bestimmungen, müssen aber noch den technischen Mechanismus einrichten, mit dem die Bürger*innen diese Bestimmung ausüben können.
- Die Einhaltung der Leitlinien für den barrierefreien Zugang zum Internet (die in der Richtlinie über den barrierefreien Zugang zum Internet („Web Accessibility Directive“) vorgeschrieben sind) stieg um 22 Prozentpunkte von nur 52% auf 74% im Jahr 2023. Sechs weitere Mitgliedstaaten berichten, dass sie die Leitlinien befolgen, so dass nur noch sieben Mitgliedstaaten übrigbleiben, deren Zugangsdienste noch an die Leitlinien angepasst werden müssen.

Ausblick:

Der Online-Zugang zu Ihren elektronischen Gesundheitsdaten ist mit dem Zugang zu anderen öffentlichen Diensten vergleichbar. Er liegt im Interesse der Bürger*innen selbst und der Öffentlichkeit im Allgemeinen. Der Online-Zugang zu elektronischen Gesundheitsdatensätzen wird dem einzelnen Bürger*innen, seinen Angehörigen und/oder Betreuern einen leichteren Zugang zu seinen Gesundheitsdaten und seinem Gesundheitszustand verschaffen und ihnen helfen, ihre Gesundheit zu verwalten und zu verbessern, während gleichzeitig die Rolle des Patienten bei seiner Versorgung und seine Autonomie gestärkt werden. Es ist daher sehr wahrscheinlich, dass der Zugang zu solchen Gesundheitsdaten die Qualität der Pflege und Behandlung in der gesamten EU verbessern wird. Wichtig ist, dass der Online-Zugang zu Gesundheitsdaten für die Bürger*innen nicht verpflichtend ist; sie können selbst entscheiden, in welchem Umfang sie sich beteiligen möchten.

Um das eHealth-Ziel zu erreichen, müssen die Mitgliedstaaten die folgenden Maßnahmen ergreifen. Erstens ist die flächendeckende Versorgung der Bevölkerung ein Kernanliegen des eHealth-Ziels. Die Mitgliedstaaten sollten dem universellen Zugang zu elektronischen Gesundheitsdaten Vorrang einräumen und sicherstellen, dass alle Bürger die Möglichkeit haben, online auf ihre elektronischen Gesundheitsdaten zuzugreifen. Zweitens sollte der Online-Zugangsdienst mit verschiedenen Datenkategorien bestückt werden, die die verschiedenen Gesundheitsdaten widerspiegeln, die über die Patienten während ihrer Interaktion mit den Gesundheitsdiensten gesammelt werden. Drittens sollten diese Daten von den verschiedenen Kategorien von Gesundheitsdienstleistern bereitgestellt werden, die von den Bürgern in Anspruch genommen werden. Schließlich sollten diese Bemühungen durch digitale Produkte und Dienste unterstützt werden, die von vornherein sicher und zugänglich sind, z. B. durch die Verwendung von Authentifizierungsmethoden auf der Grundlage (vorab) mitgeteilter eIDs, die Einhaltung von Leitlinien für die Barrierefreiheit im Internet und die Umsetzung weiterer Maßnahmen, die sicherstellen, dass der Online-Zugangsdienst von allen Bürgern gleichermaßen genutzt werden kann.

Zusammengesetzter eHealth-Indikatorwert für 2023



1 Introduction: measuring access to electronic health records in Europe

The **Digital Decade Policy Programme (DDPP)**^{1,2} is a monitoring and cooperation mechanism to achieve common targets and objectives for Europe's digital transformation by 2030. One of the four areas of the DDPP is the digitalisation of public services, which includes the target of ensuring that **100% of EU citizens have access to their electronic health records by 2030** (the "eHealth target").

Electronic health records are defined in the upcoming European Health Data Space (EHDS)³ regulation as a "collection of electronic health data related to a natural person and collected in the health system, processed for the purpose of the provision of healthcare". The target relates to the technical availability of electronic health records for citizens through an online access service (i.e. that citizens can access their electronic health records if and when needed); it does not relate to the actual usage of online services that provide access to health data or any other eHealth services. The general aims of the EHDS are to improve individuals' access to and control over their health data (primary use of data), at both national and EU levels, and to facilitate data reuse (secondary use of data) for research, innovation, regulatory and public policy purposes across the EU⁴. The Regulation also aims to ensure a legal framework consisting of trusted EU and Member State governance mechanisms and a secure processing environment. Further objectives of the regulation include supporting the free movement of citizens by ensuring that health data follows them and fostering a genuine single market for digital health services and products. In addition to involving citizens in their healthcare, access to such health data is anticipated to improve the quality and continuity of care across the EU. Moreover, common rules and obligations for the interoperability and security of electronic health record systems are expected to reduce the costs for the flow of health data across the EU. The secondary use of health data is also expected to yield efficiency gains for data users in the area of health.

This study **presents the results of the monitoring framework for the eHealth 2030 target**. The primary **purpose** of this study is to provide the Member States and the European Commission with an annual report on the advancement towards achieving the eHealth target. The monitoring framework was developed in consultation with Member State representatives in the eHealth Network in the context of a previous study⁵ titled the 'Digital Decade e-Health Indicators Development' study, which also collected baseline data on citizens' online access to electronic health records for 2022. The current study implements the methodological framework⁶ as the first annual monitoring exercise after the baseline data collection. The study's **geographical scope** is country-level data collection and analysis across the 27 EU Member States as well as Iceland and Norway. Data was collected by means of a survey completed by nominated representatives in each participating country. Data was collected and validated between February and April 2024 and reflects the developments and the state of play as of 31 December 2023. The results will contribute to the annual Report on the state of the Digital Decade and the Digital Economy and Society Index (DESI)⁷.

The monitoring framework defines citizens' access to electronic health records in terms of 12 sub-indicators that are grouped into four thematic layers:

1. **Implementation of electronic access services for citizens:** evaluates whether an online service is available for citizens to access their electronic health records (i.e. can records be accessed).

¹ <https://digital-strategy.ec.europa.eu/en/policies/europes-digital-decade>

² <https://eur-lex.europa.eu/eli/dec/2022/2481/oj>

³ https://www.europarl.europa.eu/doceo/document/TA-9-2024-0331_EN.html

⁴ <https://www.consilium.europa.eu/media/70909/st07553-en24.pdf>

⁵ <https://op.europa.eu/en/publication-detail/-/publication/78938111-461e-11ee-92e3-01aa75ed71a1/language-en>

⁶ <https://op.europa.eu/en/publication-detail/-/publication/1da67c3e-461d-11ee-92e3-01aa75ed71a1/language-en>

⁷ <https://digital-strategy.ec.europa.eu/en/policies/desi>

2. **Categories of accessible health data:** evaluates the categories of health data available to citizens through the electronic access services (i.e. what records can be accessed).
3. **Access technology and coverage:** evaluates the modes and means available to citizens to access their electronic health records (i.e. how and how widely can records be accessed) and whether data is supplied by all sectors of care (i.e. how connected are healthcare providers to the access service).
4. **Access opportunities for certain categories of people:** evaluates the mechanisms and opportunities that support certain categories of the population to access their electronic health records (i.e. who can access the records and equity of the access).

This report provides an analysis of the 12 sub-indicators of the eHealth target and the composite eHealth indicator across the EU, Iceland and Norway. It describes the EU-level trends and offers recommendations for countries to further improve on the indicator. This report is supplemented with country-specific factsheets that summarise the data and state of play for each of the participating countries. The following chapters cover the (2) **policy background**, (3) **methodology**, (4) **data analysis**, (5) **key insights and recommendations**, and (6) **conclusions** of the study.

2 Policy background

The digital transformation in health within the EU has been characterised by significant legislative and strategic efforts in recent years. This chapter provides a summary of the recent policy developments in digital health and electronic health records. See Figure 1 for a high-level overview.

Prior to the DDPP, the European Commission published a **Communication on the digital transformation of health and care in 2018**⁸. With the aim of empowering citizens and building a healthier society, the Commission proposed to act in three areas: (1) citizens' secure access to and sharing of health data across borders, (2) better data to advance research, disease prevention and personalised health and care, (3) digital tools for citizen empowerment and person-centred care.

Some of the key technical enablers to facilitate secure and trustworthy health data sharing and access in the EU include a **recommendation for the development of a European electronic health record exchange format**⁹ and legislative frameworks for data protection and security. In particular, the implementation of stronger data protection rules through the **General Data Protection Regulation**¹⁰ (GDPR) (EU 2016/679) in 2016 gave citizens of the EU rights to their health data, i.e., the right to access, the right to portability and the right to rectification of their electronic health data. Furthermore, the **Electronic Identification and Electronic Trust Services Regulation (eIDAS)** (EU 910/2014) in 2014¹¹ and the **EU Cybersecurity Act** (EU 2019/881)¹² in 2019 help create enabling conditions for the secure transfer of health data across borders in the EU.

In March 2021 the European Commission published a communication on the European way for the **Digital Decade**¹³, a comprehensive framework that will guide all actions related to digital transformation. The framework for the Digital Decade includes the **Digital Decade Policy Programme** (EU 2022/248)², which allows the EU and the Member States to work together to reach the Digital Decade targets and its objectives and lays down a mechanism to monitor progress towards 2030. Leading up to 2030, EU Member States, in collaboration with the European Parliament, the Council of the EU, and the European Commission, will shape their digital policies to achieve targets in four areas: (1) digital skills, (2) secure digital infrastructures, (3) digital businesses, and (4) digital public services. One of the targets for the digitalisation of public services is 100% of EU citizens having online access to their electronic health records (eHealth target). An important aspect of the Digital Decade is the commitment to a secure, safe and sustainable digital transformation that puts people at the centre, as captured in the **European Declaration on Digital Rights and Principles**¹⁴.

The **European Health Data Space (EHDS)**¹⁵, announced under the European strategy for data¹⁶, and adopted as a regulation proposal by the European Commission in 2022, aims to promote better exchange and access to different types of health data (such as electronic health records, data from patient registries, etc.), to empower citizens, support healthcare delivery and improve the quality and accessibility of health data for research, innovation and health policy-making purposes. Access by citizens to their electronic health data is one of the basic rights in the upcoming EHDS Regulation. A political agreement¹⁷ on the Regulation was reached in March 2024, followed by its endorsement by the Council on 22 March 2024 and vote by the European Parliament plenary on 24 April 2024. The act is now undergoing the final stages of the adoption process.

⁸ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2018%3A233%3AFIN>

⁹ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019H0243>

¹⁰ <https://eur-lex.europa.eu/eli/reg/2016/679/oj>

¹¹ https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2014.257.01.0073.01.ENG

¹² <https://eur-lex.europa.eu/eli/reg/2019/881/oj>

¹³ <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A52021DC0118>

¹⁴ <https://digital-strategy.ec.europa.eu/en/library/european-declaration-digital-rights-and-principles>

¹⁵ https://health.ec.europa.eu/ehealth-digital-health-and-care/european-health-data-space_en

¹⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0066>

¹⁷ https://ec.europa.eu/commission/presscorner/detail/en/ip_24_1346

To provide a tool for the Member States and the European Commission to monitor progress towards the eHealth target, a 2022 study developed a **monitoring framework for the eHealth indicator**⁵. This methodology was developed in consultation with Member State representatives in the eHealth Network and built upon the results of an earlier study from 2021 on the **Interoperability of Electronic Health Records in the EU**¹⁸. This current report implements the monitoring framework for eHealth indicators as the first annual follow-up study on the eHealth target.



Figure 1: Summary of policy milestones for digital health in Europe

¹⁸ <https://digital-strategy.ec.europa.eu/en/library/interoperability-electronic-health-records-eu>

3 Methodology

The methodological framework for this monitoring study was developed in consultation with Member State representatives in the eHealth Network (including Iceland and Norway) and is described in the 2022 baseline report⁵ and the report's annexes⁶. This chapter summarises the monitoring framework (3.1) and explains the process of the 2023 data collection (3.2). The data is collected through an online survey completed by the competent authority in each Member State, Iceland and Norway.

3.1 Monitoring framework

The Digital Decade eHealth composite indicator comprises 12 sub-indicators. The 12 sub-indicators define the key performance indicators of the eHealth target. Together, the 12 sub-indicators capture the concept of **100% of EU citizens having access to their electronic health records** by outlining what types of health data, from which suppliers, through what modes of access, and with what access requirements represent technical availability of citizens to their electronic health records online. The 12 sub-indicators are grouped into four thematic layers that provide conceptual themes for the data analysis (Figure 2).

The composite eHealth indicator is calculated as a simple average of the 12 sub-indicators. In other words, each sub-indicator contributes equally to the composite indicator ($\frac{1}{12} = 8.33\%$). The percentage value of each sub-indicator and the composite indicator is considered a maturity score, with 100% representing top maturity on a particular aspect that facilitates full access to electronic health records data for citizens.

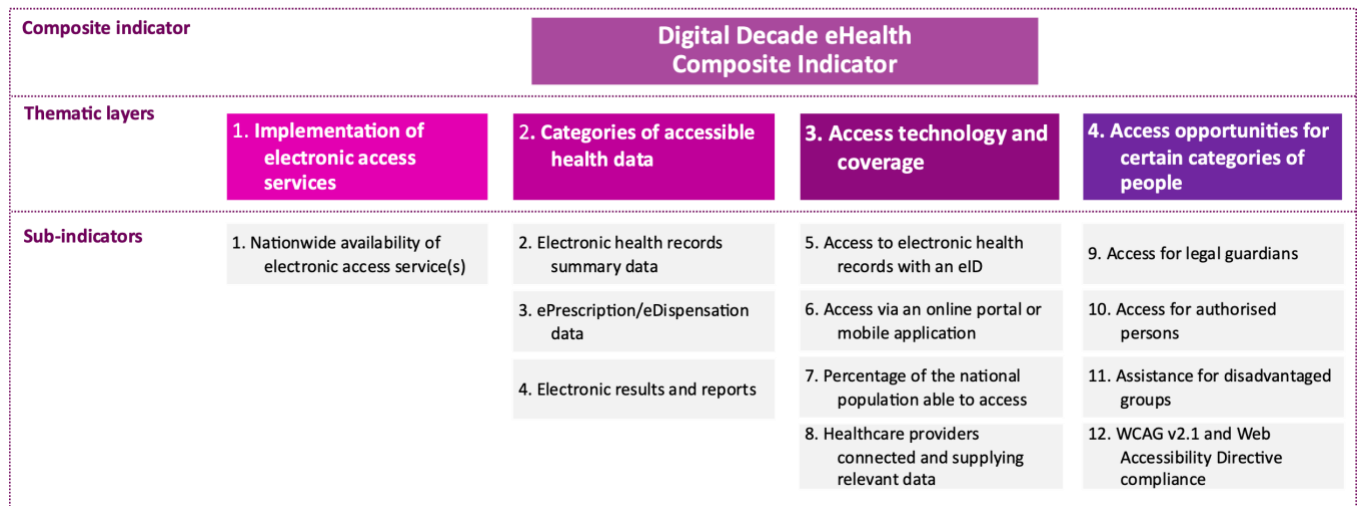


Figure 2: Overview of the eHealth composite indicator framework

Table 1 summarises the definitions of the sub-indicators and their scoring scheme. Data for the sub-indicators is collected through a questionnaire. The questionnaire defines response options for each sub-indicator. The response options for a sub-indicator are allocated scores between 0% and 100% to create a maturity scale for each sub-indicator.

Table 1: Summary of the eHealth sub-indicators

ID	Name of sub-indicator	Description	Survey response options	Scoring
Thematic layer 1: Electronic health data access service				
Q1	Nationwide availability of an online access service for electronic health records	The existence of a nationwide or a set of (regional) electronic health records data online access services which facilitate citizens with the opportunity to access their electronic health data irrespective of time and place online.	(a) Yes, a centralised, nationwide access service is technically available	100%
			(b) Yes, national territories (i.e., regions) have their own regional access service(s)	100%
			(c) Yes, health regions offer their own access services to citizens	100%
			(d) No, there is no access service available for citizens	0%
Thematic layer 2: Categories of accessible health data				
Q2	Electronic health records summary data	Data about (1) identification, (2) personal information, (3) allergies, (4) current problems/diagnoses, (5) medical devices and implants, (6) procedures/operations, and (7) current and relevant past medicines is available to citizens through the electronic health records online access service. Furthermore, data should be made visible in a timely manner after being entered into the electronic health record system, in compliance with national clinical and data processing guidelines.	<i>The score for the sub-indicator is the average score for the seven data types.</i>	
			(a) Data type is not available	0%
			(b) Data type is available but not timely	50%
			(c) Data type is available and timely	100%
Q3	ePrescription/eDispensation data	Data about (1) ePrescriptions, (2) eDispensation is available to citizens through the electronic health records online access service. Furthermore, data should be made visible in a timely manner after being entered into the electronic health record system, in	<i>The score for the sub-indicator is the average score for the two data types.</i>	
			(a) Data type is not available	0%
			(b) Data type is available but not timely	50%

ID	Name of sub-indicator	Description	Survey response options	Scoring
		compliance with national clinical and data processing guidelines.	(c) Data type is available and timely	100%
Q4	Electronic results and reports	Data about (1) laboratory test results, (2) medical imaging reports, (3) medical images, and (4) hospital discharge reports is available to citizens through the electronic health records online access service. Furthermore, data should be made visible in a timely manner after being entered into the electronic health record system, in compliance with national clinical and data processing guidelines.	<i>The score for the sub-indicator is the average score for the two data types.</i>	
			(a) Data type is not available	0%
			(b) Data type is available but not timely	50%
			(c) Data type is available and timely	100%
Thematic layer 3: Access technology and coverage				
Q5	Access to electronic health records with an eID	Authentication to access electronic health data is done using an eIDAS (pre)notified eID scheme, as an electronic method that can guarantee the unambiguous identification of a person.	(a) A (pre-)notified eID compliant with the eIDAS Regulation with a Level of Assurance classified as "high" or "substantial" is offered as an authentication means	100%
			(b) Authentication is done with a nationally notified eID scheme based on two-factor authentication	75%
			(c) Another identification means is used	0%
Q6	Access via an online portal or mobile application	Online portal(s) and native mobile application(s) are used as technology solutions on which the electronic health records data online access service is built to provide citizens with access to their electronic health data.	(a) Both online portal(s) and native mobile application(s)	100%
			(b) Only online portal(s)	70%
			(c) Only native mobile application(s)	70%
Q7	Percentage of national population able to access their electronic health records	The extent to which the population, including minors, can technically make use of the online health data access service. Access for minors is counted if the guardians have access on their behalf. A person is technically able to make use of the electronic health records access service if the service is operational and accessible without unreasonable technical requirements or hurdles. The question does not target the level of actual use but the proportion of the national population that is technically able to log-in to the	(a) 80-100% of national population	100%
			(b) 60-79% of national population	75%
			(c) 40-59% of national population	50%
			(d) 20-39% of national population	25%
			(e) Less than 19% of national population	0%

ID	Name of sub-indicator	Description	Survey response options	Scoring
		online access service and view their health data.		
Q8	Healthcare provider types connected and supplying relevant health data	The extent to which categories of healthcare providers are consistently supplying relevant electronic health data to citizens through the online access service. A category of healthcare providers is considered connected to the online access service if 60% of healthcare facilities in that category are supplying data. Eleven categories of healthcare providers are evaluated, covering the public and private sector: (1 & 2) Public and/or private primary care physicians and community care centres (3 & 4) Public and/or private secondary and tertiary hospitals and clinics (5 & 6) Public and/or private rehabilitation centres (7 & 8) Public and/or private geriatric nursing homes (9 & 10) Public and/or private mental health facilities (11) Pharmacies	<i>The score for the sub-indicator is the average score for the eleven categories of healthcare providers.</i>	
			(a) Applicable but not connected and supplying data	0%
			(b) Applicable, connected and supplying data	100%
			(c) Not applicable	N/A
Thematic layer 4: Access technology and coverage				
Q9	Access for legal guardians	A technical solution is implemented, based on appropriate national legislation, for legal guardians to access the electronic health data of their ward(s) through electronic health data access service(s). This means that there is a mechanism to assign a legal guardian who can use the online access service for electronic health records data to access health data on behalf of their ward.	(a) Both legally facilitated* and implemented as a functionality**	100%
			(b) Legally facilitated* (but not implemented as a functionality**)	50%
			(c) Implemented as a functionality** (but not legally facilitated*)	50%
			(d) Neither legally facilitated* nor implemented as a functionality**	0%
Q10	Access for authorised persons	A technical solution is implemented, based on appropriate national legislation, for authorised persons (e.g. caregivers), to access the electronic health data of another individual and perform authorised actions through the electronic access service(s). This means that there is a mechanism for the data subject to authorise other individuals to use the online access service on their behalf and perform authorised actions	(a) Both legally facilitated* and implemented as a functionality**	100%
			(b) Legally facilitated* (but not implemented as a functionality**)	50%
			(c) Implemented as a functionality** (but not legally facilitated*)	50%
			(d) Neither legally facilitated* nor implemented as a functionality**	0%

ID	Name of sub-indicator	Description	Survey response options	Scoring
Q11	Assistance for disadvantaged groups	A solution is implemented, based on appropriate national legislation, for citizens to receive assistance from a contact point to get access to their data or make use of the electronic health records data online access service(s). This means that there is a mechanism to assist citizens with low digital and health literacy, disabled citizens or the elderly in making use of the online access service for electronic health records. A key condition is the ability to receive physical or remote assistance for citizens who experience problems when trying to make use of access service.	(a) Both legally facilitated* and implemented as a functionality**	100%
			(b) Legally facilitated* (but not implemented as a functionality**)	50%
			(c) Implemented as a functionality** (but not legally facilitated*)	50%
			(d) Neither legally facilitated* nor implemented as a functionality**	0%
Q12	WCAG v2.1 and Web Accessibility Directive	The electronic health records online access service(s) complies with the Web Content Accessibility Guidelines.	(a) Yes	100%
			(b) No	0%

* "Legally facilitated" refers to the existence of a legal basis or provision that stipulates specific requirements.

** "Implemented as a functionality" refers to the actual implementation of the feature that technically enables a specific requirement or the factual availability of a measure.

Since access services for electronic health records can be provided nationally or regionally, the eHealth survey has two versions. For countries with an implementation on the national level, the questionnaire gathers the state of play for each of the 12 sub-indicators at a national level (i.e. one response per sub-indicator). For countries with an implementation on a regional level (including by individual healthcare providers), the questionnaire is completed for each region (i.e. one response per sub-indicator per region). When responses are provided at the regional level, a national score is calculated as an average of the regional scores. Thus, each sub-indicator score represents the average score across all regions for which data are submitted. The national or regional version of the survey is triggered based on the response to sub-indicator 1. Selecting the response option "Yes, a centralised, nationwide access service is technically available" configures the national version of the questionnaire, whereas the other yes options configure the regional version of the questionnaire.

Some minor refinements were made to the 2022 baseline methodology when running the 2023 data collection:

- For sub-indicators 2 to 4, timely availability was clarified as a timescale compliant with national clinical and data processing guidelines. "Timely availability" refers to the period between when data is entered into the electronic health record system and when a citizen can view the data using the access service.
- For sub-indicator 6, mobile applications were clarified as native mobile applications. In other words, mobile applications refer to applications installable from an application store, not a mobile-friendly version of the online portal.
- Since this study monitors changes from the baseline data collection, survey respondents were invited to present supporting materials for any changes to responses from the previous year. This added reference material to validate the data.

3.2 Approach to data collection

The methodology is operationalised through a survey. The EUSurvey tool¹⁹ was used to distribute the survey and collect responses on the twelve sub-indicators for each participating country. A competent authority in each country completed the survey. The competent authority was identified through the eHealth Network. The nominated survey respondents were requested to provide responses that represent the state of play in their country as of 31 December 2023. In other words, survey respondents were asked to report any developments in the past year. In addition to reporting responses that best reflect their country's state of play, survey respondents were asked to elaborate on changes since the previous data collection and provide URLs and supporting insights as sources to give a clear context to these developments. An explanation of the scoring system and a copy of their country's previous survey were shared with survey respondents at the launch of this year's survey.

Once the survey was submitted, the study team reviewed the responses. The study team analysed all responses that changed from the previous data collection and the supporting material offered to evidence the change. Where the study team could not adequately validate the state of play from the supporting material provided, the study team requested further clarifications from the survey respondent. Clarifications were requested in two consultation rounds. These steps form part of the study's due diligence to ensure that the data was as correct, complete, and objective as possible.

The responses provided by the survey respondents were transformed into a maturity score according to a pre-defined scoring scheme (see Table 1). A data sheet with the survey responses and transformed scores was shared with the survey respondents for verification. Proposed revisions to responses based on the provided supporting material were communicated to survey responses before being validated by the study team. Throughout the survey period and consultation rounds, survey respondents were invited to request clarifications from the study team if needed.

¹⁹ <https://ec.europa.eu/eusurvey/>

4 Data analysis

This chapter provides an analysis of the 2023 data collection for the Digital Decade eHealth indicators. The analysis includes a comparison to the baseline data gathered in 2022. The chapter first provides an overview of eHealth maturity in Europe (4.1) and then analyses the results for each of the 12 sub-indicators grouped by thematic layers (4.2).

4.1 Overall eHealth maturity

In 2023, the composite eHealth score for the **EU-27 averaged 79%**, an increase of seven percentage points from 72% in 2022 (Figure 3 and Figure 4). Countries that show accelerated maturity on the eHealth indicator include **France** (+25 points), **Portugal** (+23 points), **Slovakia** (+20 points), **Germany** (+17 points), and **Belgium** (+15 points). The top five “trendsetters” in 2023 are **Belgium** (100%), **Denmark** (98%), **Estonia** (98%), **Lithuania** (95%) and **Poland** (90%). All but five of the EU-27+2 showed increased maturity in 2023 (note that Denmark, Romania, and Spain’s maturity score increased by two points or less and Cyprus’ score decreased by two points, which is not visible on Figure 3 due to the axis scale). Of the five countries that did not report increased maturity on the eHealth indicator, three (**Austria**, **Bulgaria**, and **Croatia**) have the same maturity score as 2022. **Finland** decreased in score due to more accurate reporting. The increase in the composite score of the EU-27 was driven by increases in each of the four thematic layers of the methodology. The thematic layer of data categories increased the most on average year-on-year.

Change in composite eHealth indicator score
Protocol order, per group of countries

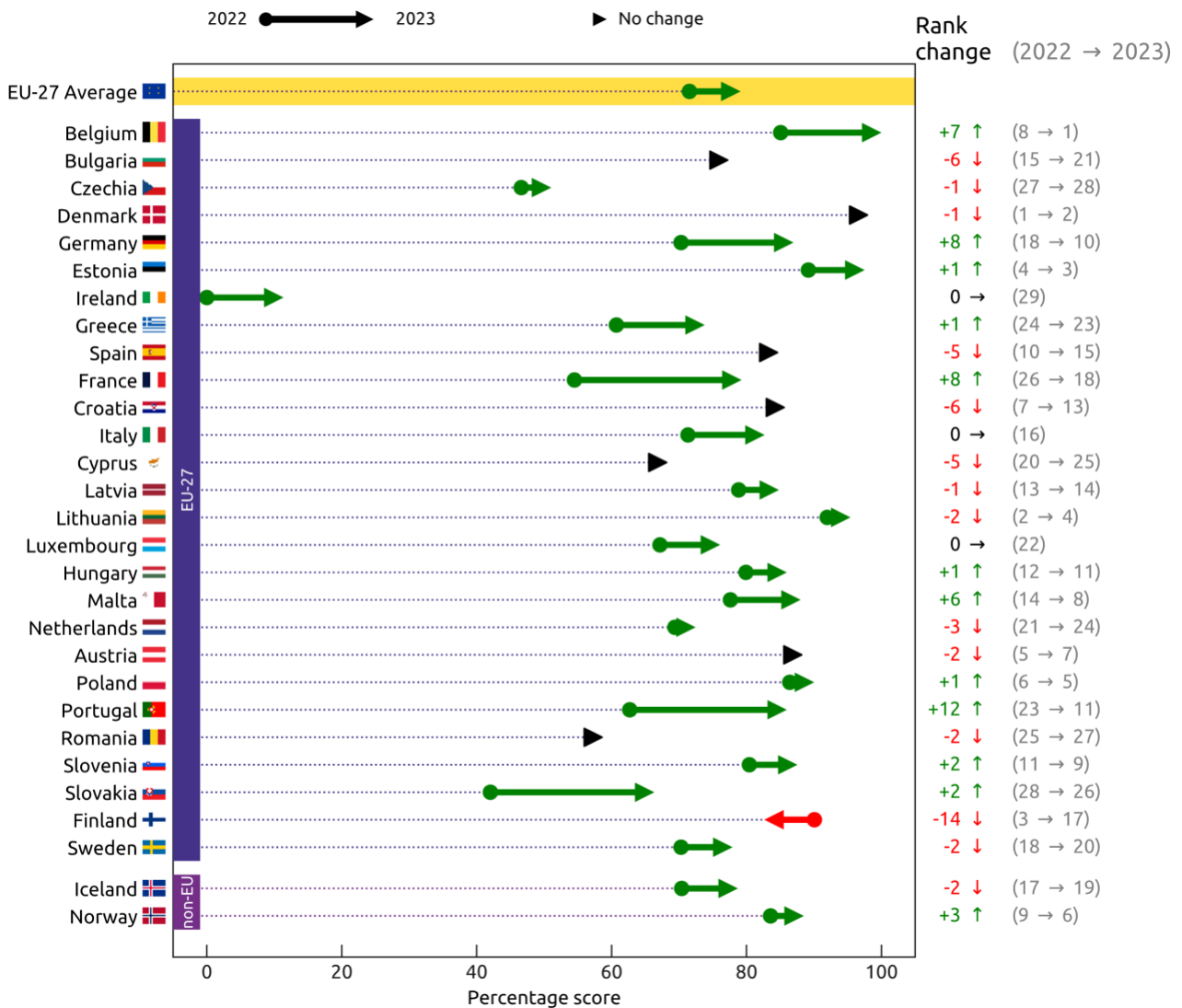


Figure 3: Composite eHealth maturity scores and the change in rank position, 2022 and 2023

Highlights per thematic layer

Figure 4 represents the composite eHealth score disaggregated by thematic layer. For the thematic layer about access services, all the EU-27, Iceland, and Norway have some form of access service available for citizens, an increase of one country, **Ireland**, from 2022. This grants this thematic layer a score of 100% across the EU-27.

The nine-point improvement in the EU-27 on the thematic layer about data categories is driven by a 13-point increase in the sub-indicator *electronic results and reports* (maturity score of 62%). This means that, on average, citizens in the EU-27 have broader access to information such as laboratory test results (maturity score of 78%), medical imaging reports (75%), hospital discharge reports (69%), and medical images (26%), compared to the previous year. However, access to these types of data remains lower than access to ePrescription/eDispensation data (83%) and health record summaries (76%).

The thematic layer about access modes and coverage improved by eight points in the EU-27 largely due to an increase in the *types of connected healthcare providers supplying relevant data*. This sub-indicator increased by 12 points, meaning that on average, citizens in the EU-27 have access to their health data from more types of healthcare providers. Nonetheless, this sub-indicator is still the lowest scoring in this thematic layer.

For the last thematic layer about access opportunities, the seven-point increase in the EU-27 was driven by a 22-point increase on the sub-indicator for the *WCAG v2.1 guidelines on web accessibility*. Compared to 2022, seven additional countries indicated that their portals comply with the accessibility guidelines, bringing the total to twenty-two countries in the EU-27, Iceland, and Norway. The only sub-indicator to decrease on average is *access for authorised persons*, with **Slovakia** and **Spain** revising their responses for greater accuracy in the 2023 survey.

2023 eHealth composite score by thematic layer (TL)

Ordered by score, per group of countries

2022 → 2023
change

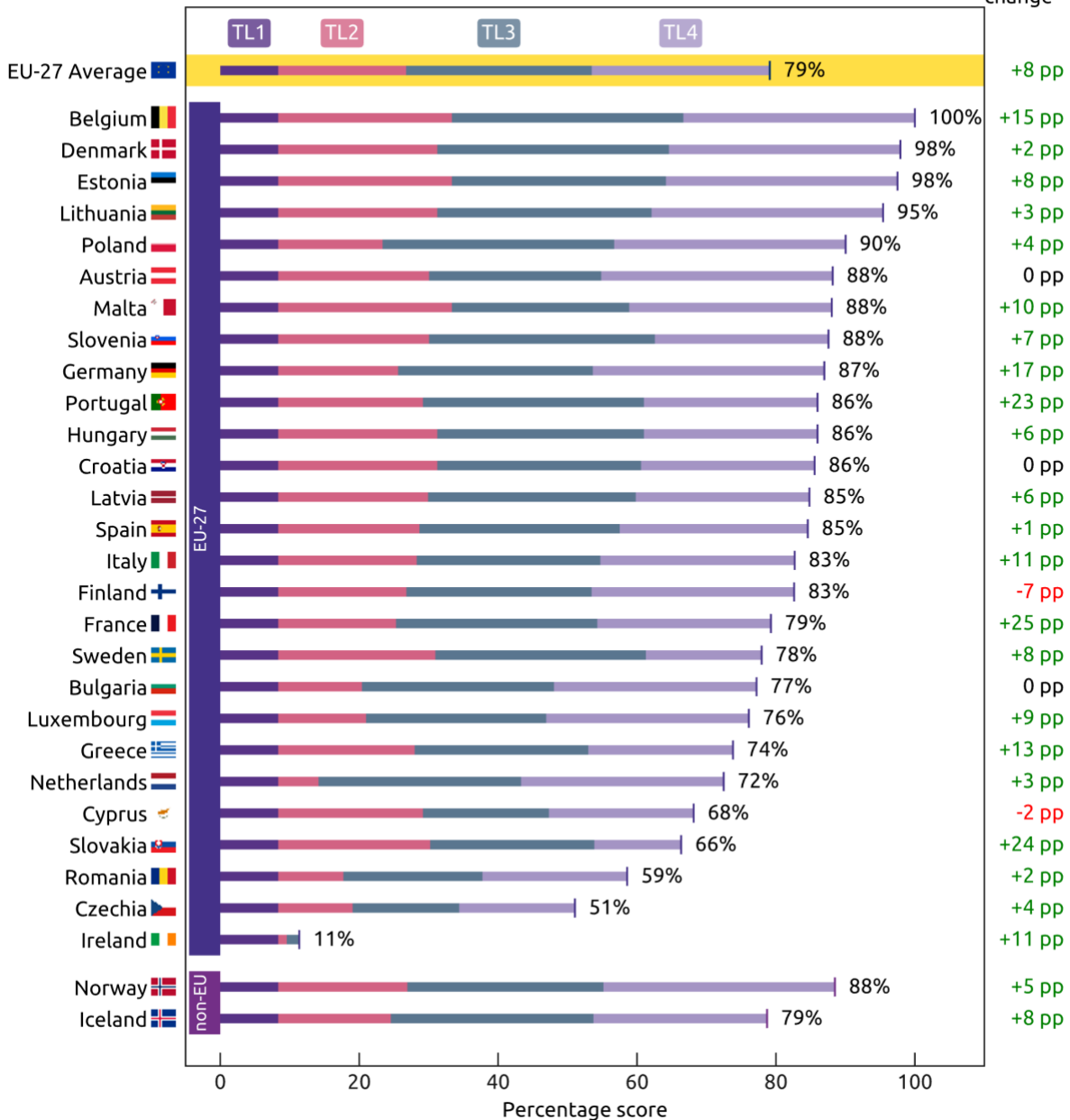


Figure 4: Composite eHealth maturity scores by thematic layer, 2023

Highlights per cluster

- To identify affinities between countries, the EU-27, Iceland, and Norway are grouped into four clusters based on their overall score: the trendsetters, fast-trackers, followers, and beginners (Figure 5). The clusters are as follows.
- Trendsetters** (Member States with a composite score of 90% or greater): **Belgium, Denmark, Estonia, Lithuania, and Poland.** In these countries, access to electronic health records is available for a high percentage of the population, with several categories of health data available from most healthcare providers and access opportunities for certain categories of people.
- Fast-trackers** (Member States with a maturity score above the EU-27 average but less than 90%): **Norway, Austria, Malta, Germany, Portugal, Hungary, Croatia, Slovenia, Latvia, Spain, Italy, and Finland.**
- Followers** (Member States that score the EU-27 average or less, but above 65%): **France, Iceland, Sweden, Bulgaria, Luxembourg, Greece, the Netherlands, Cyprus, and Slovakia.**
- Beginners** (Member States with a composite score less than 65%): **Romania, Czechia, and Ireland.**

Clustering by overall maturity score

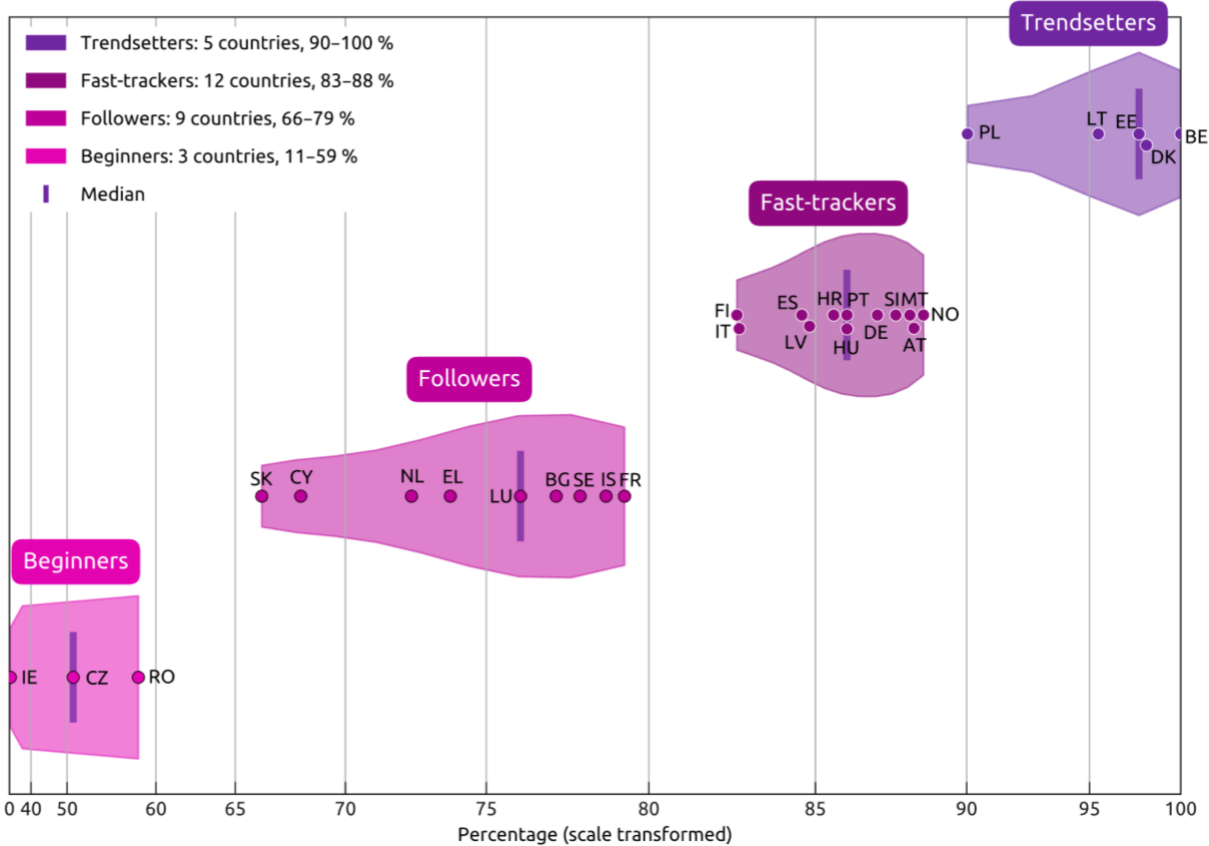


Figure 5: Clustering based on the eHealth composite score, 2023

Compared to the previous year, several Member States moved to a more advanced cluster. For example, **Portugal** advanced from the beginners cluster last year to become one of the fast-trackers in this year's study, scoring above the EU-27 average. **Germany** is a fast-tracker in 10th place, while it ranked in 18th place in 2022. **France** has progressed to become a follower in 18th place, while it ranked 26th in the previous year.

4.2 Thematic layers

The following sections provide an analysis of each thematic layer and its sub-indicators, namely access services (4.2.1), categories of data (4.2.2), access modes and coverage (4.2.3), and access opportunities (4.2.4).

4.2.1 Electronic access service for citizens

Thematic layer 1 at a glance: Electronic access services for citizens in the EU-27

In 2023, all Member States (100%) provide some form of national or regional online access service(s) for citizens to access their health data. This is an improvement due to developments in one country, **Ireland**, which in 2022 reported having no access service. In 2023, a large hospital group in one of Ireland's six regions provides access to electronic health records for private insurance patients. Like Ireland, **Italy**, **Spain** and **Sweden** also have regional access services and provided a state-of-play per region in this year's data collection. Even though **Sweden** reports having a regional system, health data are provided through a single nationally available portal that is jointly owned by the regions and municipalities and not by the national government. Interestingly, countries with regional approach in other domains may choose a centralised approach for eHealth. For example, in **Belgium**, the basic services delivered by the eHealth platform, cooperation principles, the eHealth regulation, interoperability and security standards, and the software used by the health care providers and institutions are identical for the whole country. Furthermore, some countries have a blend of centralised and regional elements. For example, in **Czechia**, a subset of data such as ePrescription/eDispensation, vaccinations, patient summaries are available through the national Citizen Portal. In addition, at least one region provides a selection of medical data to citizens through their own patient portal, as do some healthcare providers through their own patient portals.

This thematic layer evaluates the technical ability of citizens to access electronic health records through an online access service. In a country, there may be a single nationwide access service or a set of (regional) access services that facilitate citizens with the opportunity to access their electronic health data irrespective of time and place online. This thematic layer comprises one sub-indicator about the nationwide availability of electronic health records through an access service(s). An overview of the scores for this thematic layer is presented in Figure 6.

Change in maturity score, electronic access services (layer 1)
Protocol order, per group of countries

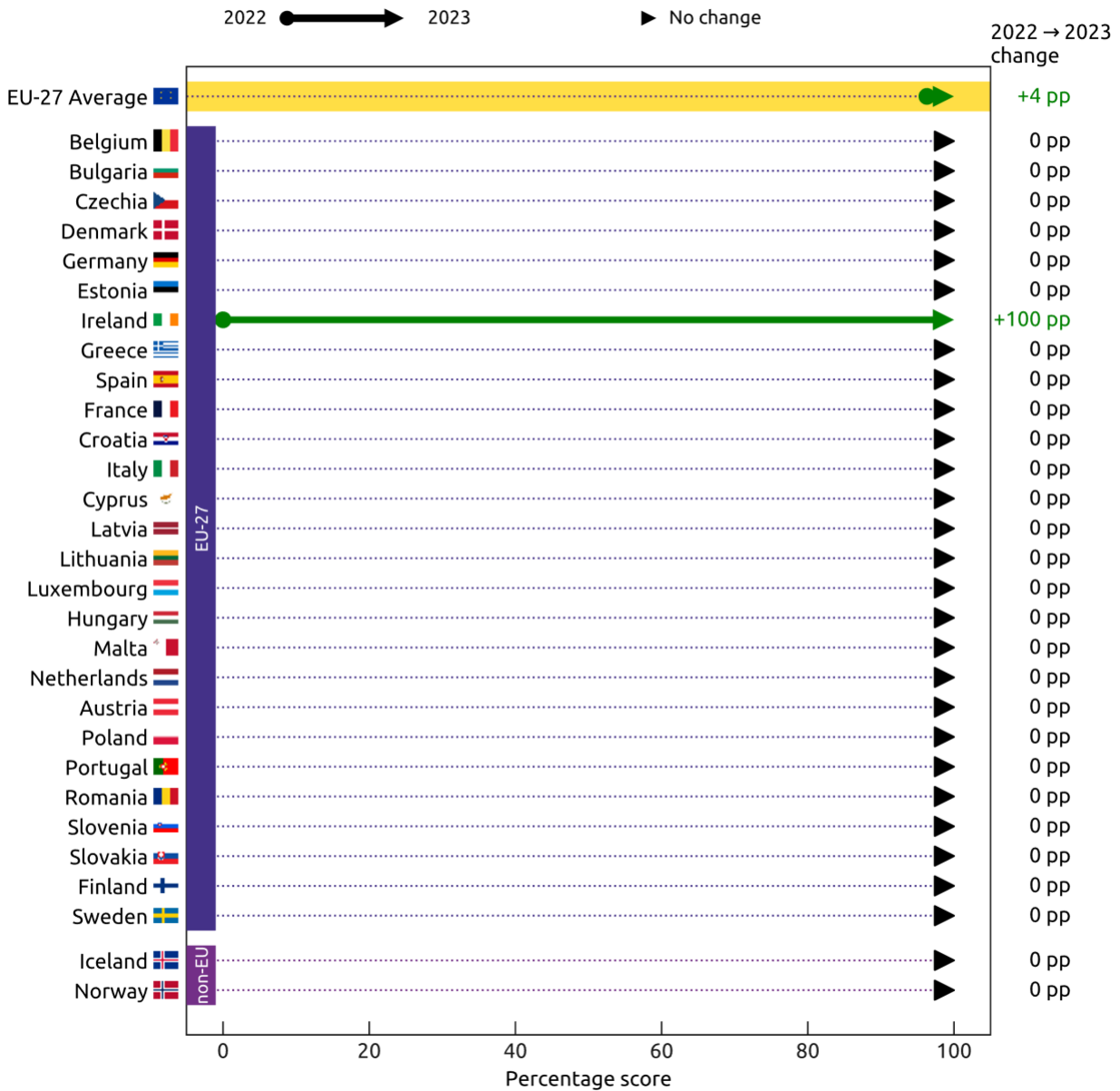


Figure 6: Scores and ranking for electronic access service (thematic layer 1), 2022 and 2023

4.2.1.1 Sub-indicator 1: Nationwide availability of electronic health records data

Since the previous eHealth survey, an access service for a large private hospital group has been introduced in one of **Ireland's** six health regions. The hospital provides its patients access to their health records through a mobile application. As access by patients to their own electronic health records is national policy applicable to all hospitals and endorsed by the Irish Department of Health, this meets the requirement of this sub-indicator that at least some form of nationwide access service is technically available to (some) citizens, bringing the EU average to 100%.

In terms of the type of access service, 23 Member States (85%) report providing access to electronic health records through a centralised access service. The remaining four Member States (Ireland, Italy, Spain, and Sweden; 15%) report having regional services, although **Sweden** still integrates its regional data into a single nationally available portal. While **Ireland's** current access service is offered by a private healthcare provider

to patients with private insurance, Ireland also reports future plans to develop a national application for other patients that will provide access to information on medications that were dispensed and paid for by the State. **Norway** and **Iceland** also report having centralised access services.

In some cases, the access service landscape is more complex than captured by this sub-indicator. For example, **Czechia** has a blend of national, regional, and healthcare provider access services covering different parts of the population and different types of health data.

4.2.2 Categories of accessible health data

Thematic layer 2 at a glance: Categories of accessible health data in the EU-27

In 2023, the EU-27 achieved an average score of 74% on the thematic layer about the categories of accessible health data, a growth of 10 points, going from an average of 64% in 2022. However, this is the lowest scoring thematic layer among the four layers conceptualised in the eHealth methodology. The methodology distinguishes between categories of data being available but not updated timely and data being available and updated timely, with data that is timely available awarded double points. The most mature categories of health data include data about identification (maturity score of 94%), personal information (90%), ePrescription (85%), eDispensation (81%), current and relevant past medicines (79%), and laboratory test results (78%). The least mature categories of data include data about medical images (26%), medical devices and implants (52%), hospital discharge reports (69%), and procedures/operations (70%).

17 Member States (63%) made improvements by either providing more categories health data or providing the available data in a timely manner. Member States that improved substantially on this thematic layer include **Belgium** (+48 points), **France** (+31 points), and **Slovakia** (+60 points). **Belgium** now report that all the types of data assessed in this methodology are available and provided in a timely manner, in line with national clinical and data processing guidelines, joining **Estonia** and **Malta** in scoring 100% on this thematic layer. **France** and **Slovakia** achieved their improved scores (from 37% to 68%, and 27% to 88%, respectively) by making several categories of data timely available whereas in last year's data collection they were reported as not available. Three Member States (**Cyprus**, **Finland**, and **Slovenia**) decrease in score due to more accurate reporting in this year's data collection.

This thematic layer evaluates the timely availability of specified types of health data through the online access service. Within this thematic layer, three broad categories of data are defined as sub-indicators: electronic health records summary data (4.2.2.1), ePrescription/eDispensation data (4.2.2.2), and electronic results and reports (4.2.2.3). For each type of data, the survey asked whether that data is available and, additionally, whether that available data is made visible to citizens in a timely manner after it is entered into the electronic health record system. For a mature eHealth access service, various types of health data should generally be available to citizens in due time (e.g., within a few hours or a few days after the relevant healthcare encounter) in compliance with national clinical and data processing guidelines. To score the maturity of each data type, 0% is awarded if the data type is not available, 50% is awarded if the data type is available, and 100% is awarded if the data type is timely available. A score for the sub-indicators is calculated as an average of the scores for each of its data types. An average score of 100% on a sub-indicator means that all the data types in that category are available in a timely manner. Timeliness is defined as complying with national clinical and data processing guidelines. An overview of the scores for this thematic layer is presented in Figure 7.

Change in maturity score, categories of accessible health data (layer 2)
Ordered by score, per group of countries

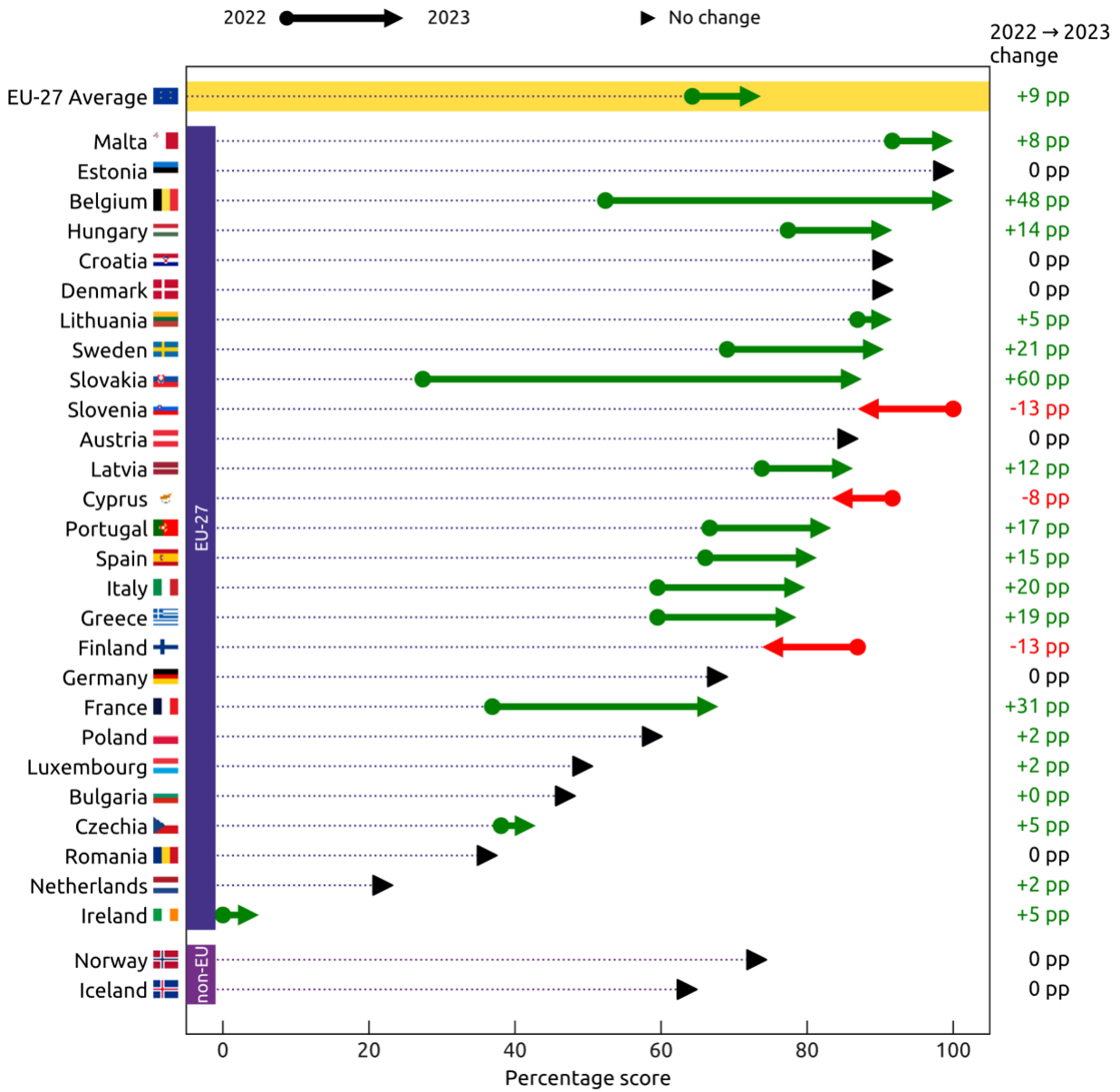


Figure 7: Scores and ranking for categories of accessible health data (thematic layer 2), 2022 and 2023

4.2.2.1 Sub-indicator 2: Electronic health records summary data

This sub-indicator investigates whether the below seven types of health summary data are made available to citizens through the online access service in a timely manner. The score on this sub-indicator is an average of the scores for each of the seven data types (see the introduction to this thematic layer for a description of the scoring system).

The seven data types evaluated in the sub-indicator are data about:

1. Identification (e.g., national healthcare ID)
2. Personal information (e.g., name, date of birth, gender)
3. Allergies (e.g., description and type of allergy, severity, agent)
4. Current problems (e.g., description and onset)
5. Medical devices and implants (e.g., device ID, implant/explant date)
6. Procedures/operations (e.g., description, body site, date)
7. Current and relevant past medicines (e.g., reason, use, brand name, ingredients, dosage)

In 2023, the EU-27 scored an average of 76% for the summary data sub-indicator, an increase of nine points compared to 2022 (Figure 8). **Belgium, France, Hungary, and Slovakia** are the main contributors to this increase, all improving their scores by more than 40 points compared to last year. Already in 2022, **Slovakia** reported that all seven data types were available but now reports that the data are also made available in a timely manner through a law requiring healthcare providers to submit electronic records without delay. **France** now reports providing data about allergies, current problems, and current and relevant past medicines in a timely manner, compared to 2022 when these data types were not reported as available. Data about procedures/operations are now reported as available, leaving data on medical devices and implants as the only data type of this sub-indicator that France does not yet make available. **Belgium** now reports that all seven data types are available in a timely manner, compared to 2022, where only identification data was reported as timely. Overall, ten Member States (37%) score 100% on this sub-indicator, meaning that all seven data types are made available in a timely manner (**Belgium, Croatia, Cyprus, Denmark, Estonia, Hungary, Lithuania, Malta, Portugal, and Slovakia**). **Finland** and **Slovenia** decreased in score due to more accurate reporting. **Spain** also has a slight decrease in score due to more granular reporting at the regional level.

The most mature data types are *identification* and *personal information* data (available in all Member States except **Ireland**; 96%), followed by data about *current and relevant past medicines* (available in all Member States except **Czechia** and **Ireland**; 93%)(Figure 8). Data about *personal information* is available in one of Ireland's regions but is generally not available. Further to being the most commonly available, these three data types also have the greatest timeliness. In terms of timely availability, 25 Member States (93%) make *identification* data, 22 Member States (81%) make *personal information*, and 18 Member States (67%) make data about *current and relevant past medicines* available in a timely manner. The least available data type is *medical devices and implants*, with 10 Member States (37%) not providing this data. (Although some regions in **Spain** and **Sweden** do report providing data on *medical devices and implants*, these are less than half the regions).

Change in availability of electronic health records summary data

Protocol order, per group of countries

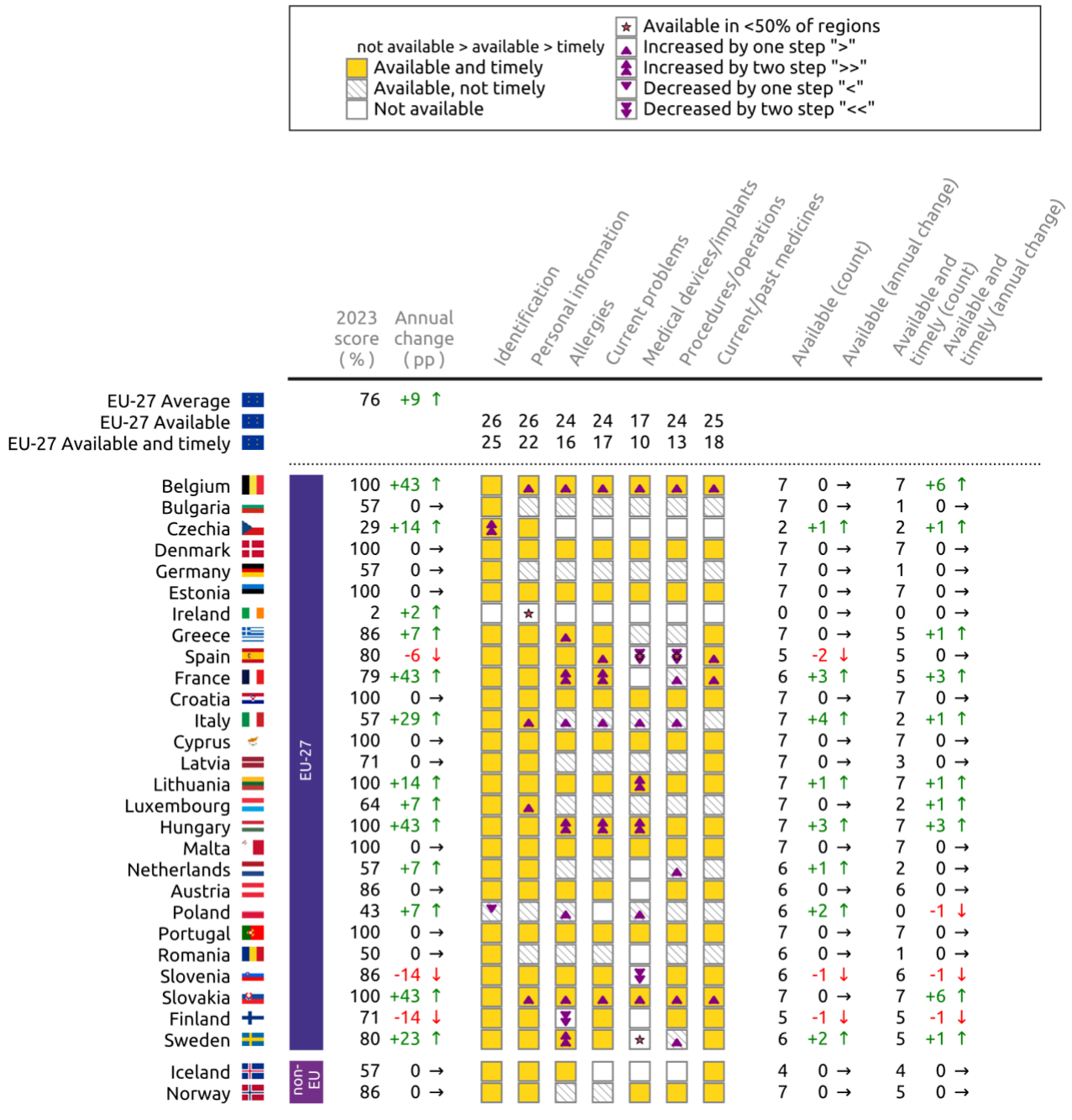


Figure 8: The availability and timeliness of electronic health records summary data, 2023

4.2.2.2 Sub-indicator 3: ePrescription/eDispensation data

This sub-indicator investigates whether ePrescription and eDispensation data are made available to citizens through the online access service in a timely manner. The score on this sub-indicator is an average of the scores for each of the two data types (see the introduction to this thematic layer for a description of the scoring system).

The seven two types evaluated in the sub-indicator are data about:

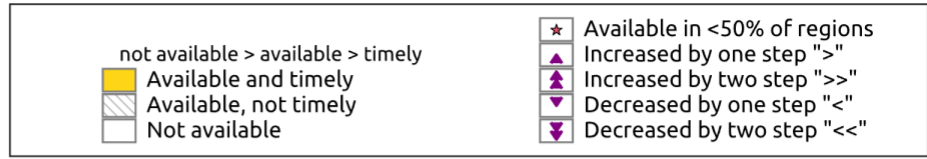
1. ePrescription information (e.g., date of issuance, dosage, strength, administration, brand name)
2. eDispensation information (e.g., date of dispensation, location, pharmacy)

Data on ePrescription and eDispensation are mature types of data in terms of their availability and timeliness. In 2023, the EU-27 average for this sub-indicator is 83%, an increase of six points from 77% in 2022 (Figure 9). The increase is due to three Member States (**Belgium, France, and Slovakia**) making developments to ensure accessible data on ePrescription and eDispensation. **Slovakia** increased its score by 75 points, reaching the full score, meaning that both types of data are now available in a timely manner. **Belgium** now reports that these data are available in a timely manner, compared to 2022 when these data were reported as available but not timely. **France** now reports providing access to ePrescription (but not eDispensation) data and that the available data is made so in a timely manner. In total, 21 Member States (78%), as well as Iceland and Norway, score 100% on this sub-indicator. This includes all the regions reported by Italy, Spain, and Sweden.

In terms of the data types, ePrescription data is available in 24 Member States (except **Ireland, Luxembourg, and the Netherlands**, 89%). eDispensation data is available in 23 Member States (except **France, Ireland, Luxembourg, and the Netherlands**, 85%). When these two types of data are available, they are also timely in all but two (**Bulgaria, and Romania**) Member States.

Change in availability of ePrescription and eDispensation data

Protocol order, per group of countries



	2023 score (%)	Annual change (pp)	ePrescription	eDispensation	Available (count)	Available (annual change)	Available and timely (count)	Available and timely (annual change)
EU-27 Average	83	+6 ↑						
EU-27 Available			24	23				
EU-27 Available and timely			22	21				
<hr/>								
EU-27								
Belgium	100	+50 ↑	▲	▲	2	0 →	2	+2 ↑
Bulgaria	50	0 →	▨	▨	2	0 →	0	0 →
Czechia	100	0 →	■	■	2	0 →	2	0 →
Denmark	100	0 →	■	■	2	0 →	2	0 →
Germany	100	0 →	■	■	2	0 →	2	0 →
Estonia	100	0 →	■	■	2	0 →	2	0 →
Ireland	0	0 →	□	□	0	0 →	0	0 →
Greece	100	0 →	■	■	2	0 →	2	0 →
Spain	100	0 →	■	■	2	0 →	2	0 →
France	50	+50 ↑	▲	□	1	+1 ↑	1	+1 ↑
Croatia	100	0 →	■	■	2	0 →	2	0 →
Italy	100	0 →	■	■	2	0 →	2	0 →
Cyprus	100	0 →	■	■	2	0 →	2	0 →
Latvia	100	0 →	■	■	2	0 →	2	0 →
Lithuania	100	0 →	■	■	2	0 →	2	0 →
Luxembourg	0	0 →	□	□	0	0 →	0	0 →
Hungary	100	0 →	■	■	2	0 →	2	0 →
Malta	100	0 →	■	■	2	0 →	2	0 →
Netherlands	0	0 →	□	□	0	0 →	0	0 →
Austria	100	0 →	■	■	2	0 →	2	0 →
Poland	100	0 →	■	■	2	0 →	2	0 →
Portugal	100	0 →	■	■	2	0 →	2	0 →
Romania	50	0 →	▨	▨	2	0 →	0	0 →
Slovenia	100	0 →	■	■	2	0 →	2	0 →
Slovakia	100	+75 ↑	▲	▲	2	+1 ↑	2	+2 ↑
Finland	100	0 →	■	■	2	0 →	2	0 →
Sweden	100	0 →	■	■	2	0 →	2	0 →
non-EU								
Iceland	100	0 →	■	■	2	0 →	2	0 →
Norway	100	0 →	■	■	2	0 →	2	0 →

Figure 9: The availability and timeliness of ePrescription and eDispensation data, 2023

4.2.2.3 Sub-indicator 4: Electronic results and reports

This sub-indicator investigates whether the below four types of electronic results and reports are made available to citizens through the online access service in a timely manner. The score on this sub-indicator is an average of the scores for each of the four data types (see the introduction to this thematic layer for a description of the scoring system).

The four data types evaluated in the sub-indicator are data about:

1. Laboratory test results
2. Medical Imaging reports (reports with summaries of diagnostic imaging procedures of any kind)
3. Medical images (made available to citizens in digital formats, e.g., .png, .jpeg or .pdf)
4. Hospital discharge reports (reports with summaries of ward episodes or ambulatory care)

The EU-27 average for *electronic results and reports* is 62%, making this category of data the least mature one in the EU-27 (Figure 10). However, this sub-indicator also shows the strongest growth in this thematic layer, with an increase of 13 points compared to last year. Ten Member States made advancements in the past year and three Member States decreased in score due to more accurate reporting in the 2023 data collection.

Substantial improvements were reported in **Belgium, Greece, Portugal, Slovakia, and Spain**, all increasing by more than 50 points. Compared to last year, when none of these four data types was provided to citizens, **Slovakia** now provides *laboratory results, medical imaging reports, and hospital discharge reports*, with the latter two data types also provided in a timely manner. **Greece** has changed from providing none of these data to providing *laboratory results and hospital discharge reports* and **Portugal** now reports providing *laboratory results and medical imaging reports*. Moreover, these newly provided data types in **Greece** and **Portugal** are available in a timely manner. **Belgium** now reports that these data are available in a timely manner, compared to 2022 when these data were reported as available but not timely. **Belgium, Estonia** and **Malta** score 100% in this sub-indicator. **Cyprus, Finland, and Slovenia** decreased in score due to more accurate reporting.

Spain and **Italy** provided regional reporting in this year's data collection, and the more accurate reporting led to an improved score. All four data types except *medical images* are available in all of **Italy's** regions; data on *medical images* is available in less than half the regions. *Laboratory results* and *hospital discharge report* are timely available in all of **Spain's** regions; *medical imaging reports* and *medical images* are available in less than half the regions.

The least mature data type is medical images. Only seven Member States (**Belgium, Estonia, Germany, Latvia, Luxembourg, Malta, and Sweden**; 26%) provide citizens with access to medical images. When this data is available it is generally provided so in a timely manner (in five of the seven Member States). Eight of **Spain's** 18 regions and six of **Italy's** 21 regions report providing medical images in a timely manner; the other ten regions do not yet offer this data.

On the other hand, 24 Member States (except **Czechia, Ireland, and Romania**; 89%) provide access to laboratory reports, 21 Member States (78%) provide access to medical imaging reports, and 21 Member States (78%) provide access to hospital discharge reports. In more than half the cases where these data are provided, they are done so in a timely manner. **Ireland's** West region also provides these three data types; however, these data are not available in the majority of regions.

Change in availability of electronic results and reports

Protocol order, per group of countries

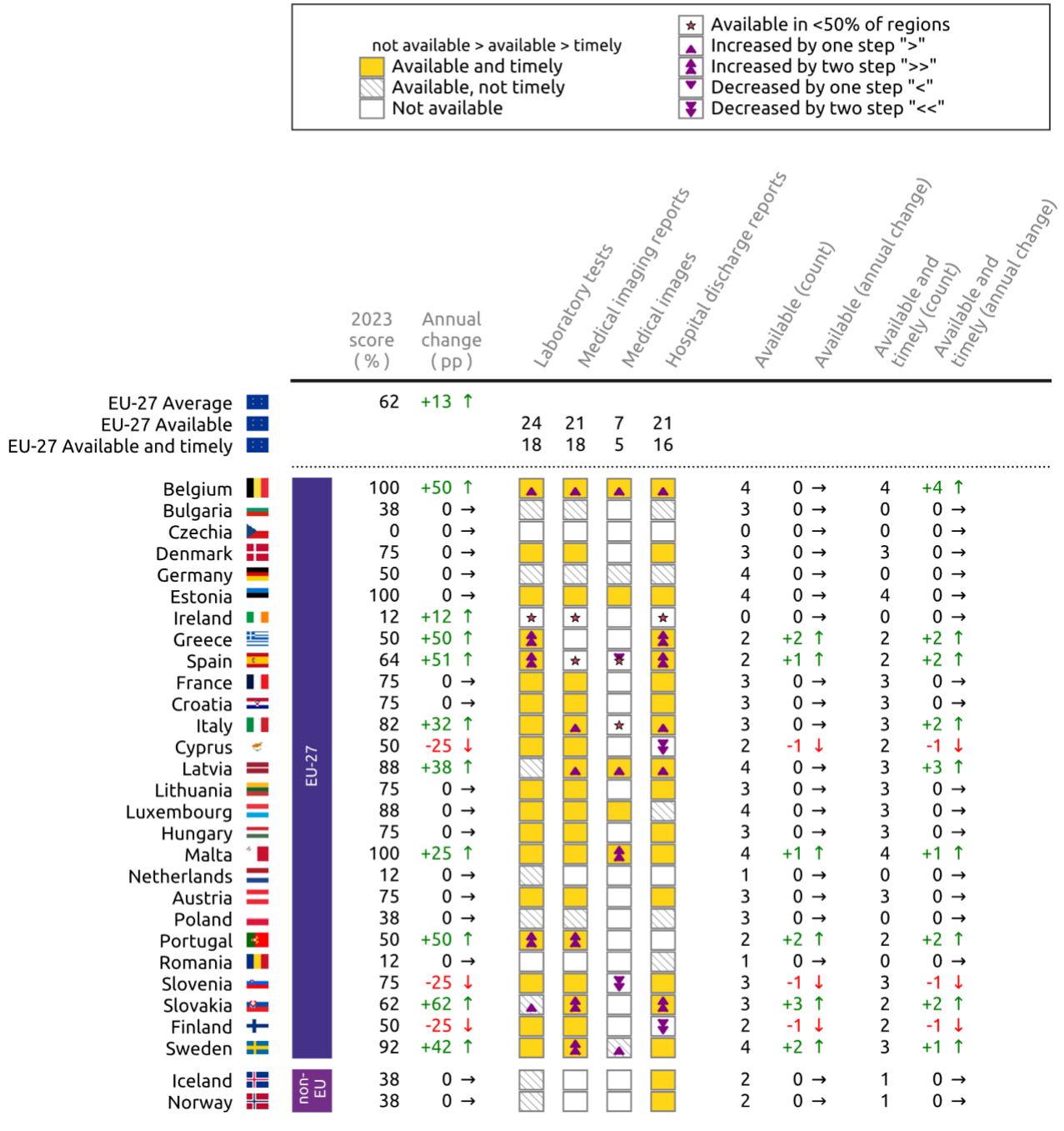


Figure 10: The availability and timeliness of electronic results and reports, 2023

4.2.3 Access technology and coverage

Thematic layer 3 at a glance: Access technology and coverage in the EU-27

In 2023, the EU-27 average for the thematic layer about access technology and coverage improved by eight points reaching 80% compared to the previous year. This is the highest-scoring thematic layer after the *electronic access service*. Seventeen Member States (63%) enable citizens to use a secure eID (pre)notified under the eIDAS Regulation to authenticate themselves when using the online access service. All Member States except Ireland offer access to electronic health data through an online portal. The health region in **Ireland** with an online access service uses a native mobile application. In addition, 14 Member States (52%) report offering citizens both online portal(s) and native mobile application(s) as modes to access their electronic health records.

In terms of population coverage, 20 Member States (74%) report that 80-100% of the national population can technically make use of the online access for electronic health records to view their health data. Coverage of healthcare providers that are connected and supplying relevant health data is the lowest scoring sub-indicator of this thematic layer. Only seven Member States (26%) report that at least 60% of healthcare providers across all applicable categories of facilities (e.g. primary care facilities, secondary care facilities, geriatric nursing homes, etc.) are supplying (at least some) relevant data to the access service. Nonetheless, 11 Member States (41%) expanded the number of categories of connected healthcare providers since the last year.

In total, 19 Member States improved their score in the field of access technology and coverage. **Slovakia** (+28 points), **Germany** (+25 points), **Malta** (+25 points), and **Portugal** (+20 points) substantially improved their score since 2022. The improved scores of **Slovakia** and **Portugal** were driven primarily by more connected healthcare providers supplying relevant health data. On the other hand, **Malta's** improved score relates to the newly reported use of an eIDAS (pre)notified eID, and **Germany's** score relates to an increase in the population with technical access to the online service. In 2023, **Belgium**, **Denmark**, and **Poland** score 100% on this thematic layer. **Italy's** score decreased slightly due to more granular reporting on the regional level.

This thematic layer evaluates the means through which and extent to which citizens can access their electronic health records and the coverage of the access services in terms of data suppliers. This layer consists of four sub-indicators, assessing the authentication means that citizens can use to log into the online access service (4.2.3.1), the modes in which the access service is made available, namely as online portals or native mobile applications (4.2.3.2), the percentage of the population technically able to access their electronic health records (4.2.3.3), and the extent to which healthcare providers are connected to the access service and contribute relevant health data for citizens (4.2.3.4). An overview of the scores for this thematic layer is presented in Figure 11.

Change in maturity score, access technology and coverage (layer 3)
Ordered by score, per group of countries

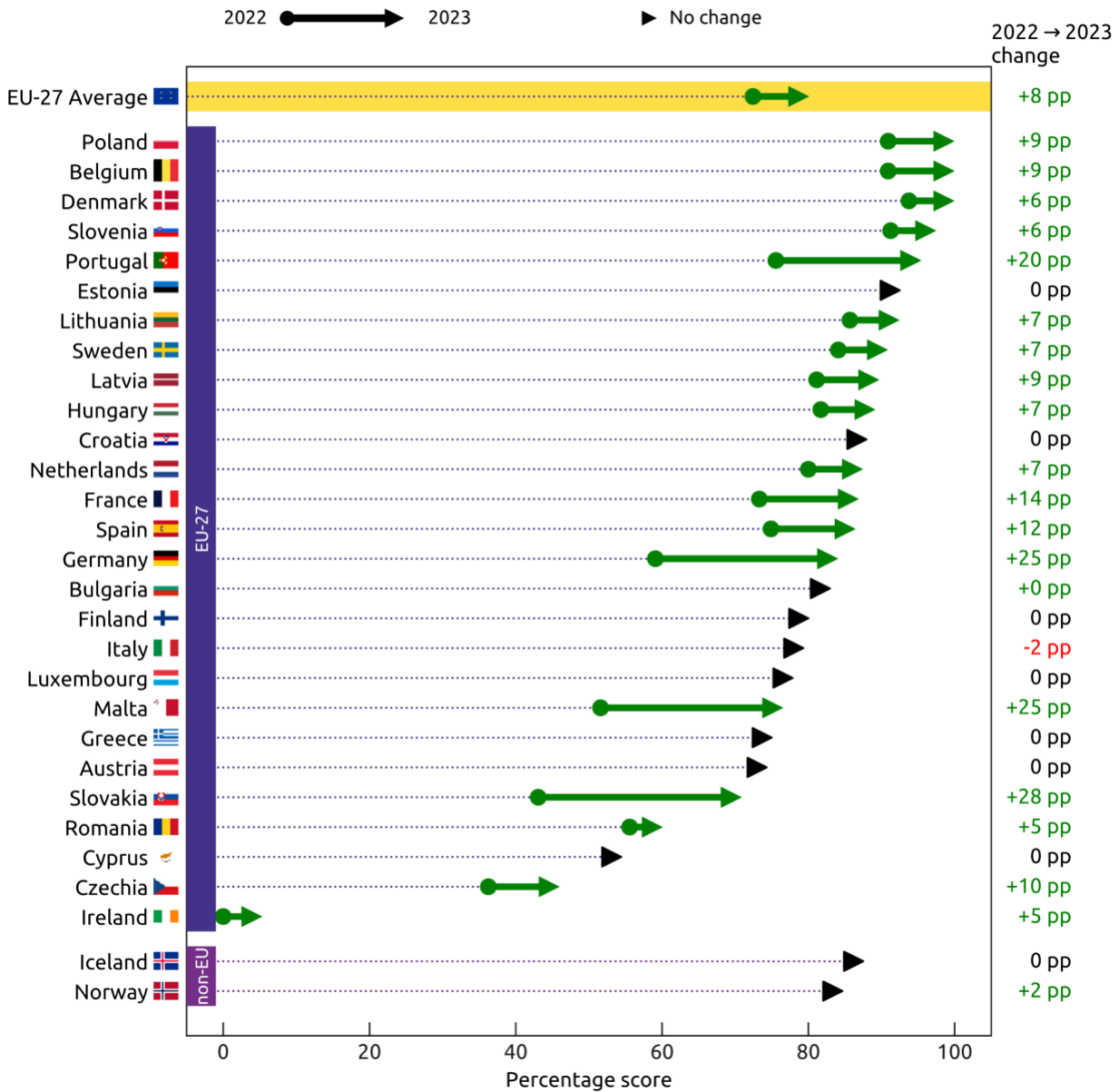


Figure 11: Scores and ranking for access technology and means (thematic layer 3), 2022 and 2023

4.2.3.1 Sub-indicator 5: Access to electronic health records with an eID

This sub-indicator investigates whether citizens are required to log in to the online access service using a secure means of authentication. A score is given based on the type of authentication method. The most secure login method is an eID that is (pre)notified under the eIDAS Regulation and has a 'high' or 'substantial' level of assurance. The use of this authentication method is, therefore, awarded a maturity score of 100%. The use of the less secure method of a nationally notified eID scheme based on two-factor authentication is awarded 75%. Using another identification mean is considered the least secure and is awarded a maturity score of 0%.

The EU-27 average for access to electronic health records with an eID is 82%, a six-point increase compared to the previous year's 76% (Figure 12). This increase came from four Member States (**Denmark, Malta, Portugal, and Slovenia**) reporting the use of more secure methods of authentication. **Malta** improved the

most, moving from using “another means” to using an eIDAS-(pre)notified eID. **Denmark, Portugal, and Slovenia** also now report using an eIDAS-(pre)notified eID for citizens to access their electronic health records. **Portugal** additionally offers users the option to log in via a user number and code, which is a two-factor authentication-based eID scheme.

In total, 17 Member States (63%), including the majority of regions in Spain, make use of an eIDAS-(pre)notified eID. Seven Member States (26%) and one region of Spain use two-factor authentication based on a nationally notified eID, and three Member States (**Cyprus, Greece, and Ireland**; 11%) and one other region of Spain report using another authentication method. **Spain's** maturity score decreased slightly from the previous survey due to more granular reporting using a regional model.

Change in maturity score, authentication method (Q5)
Protocol order, per group of countries

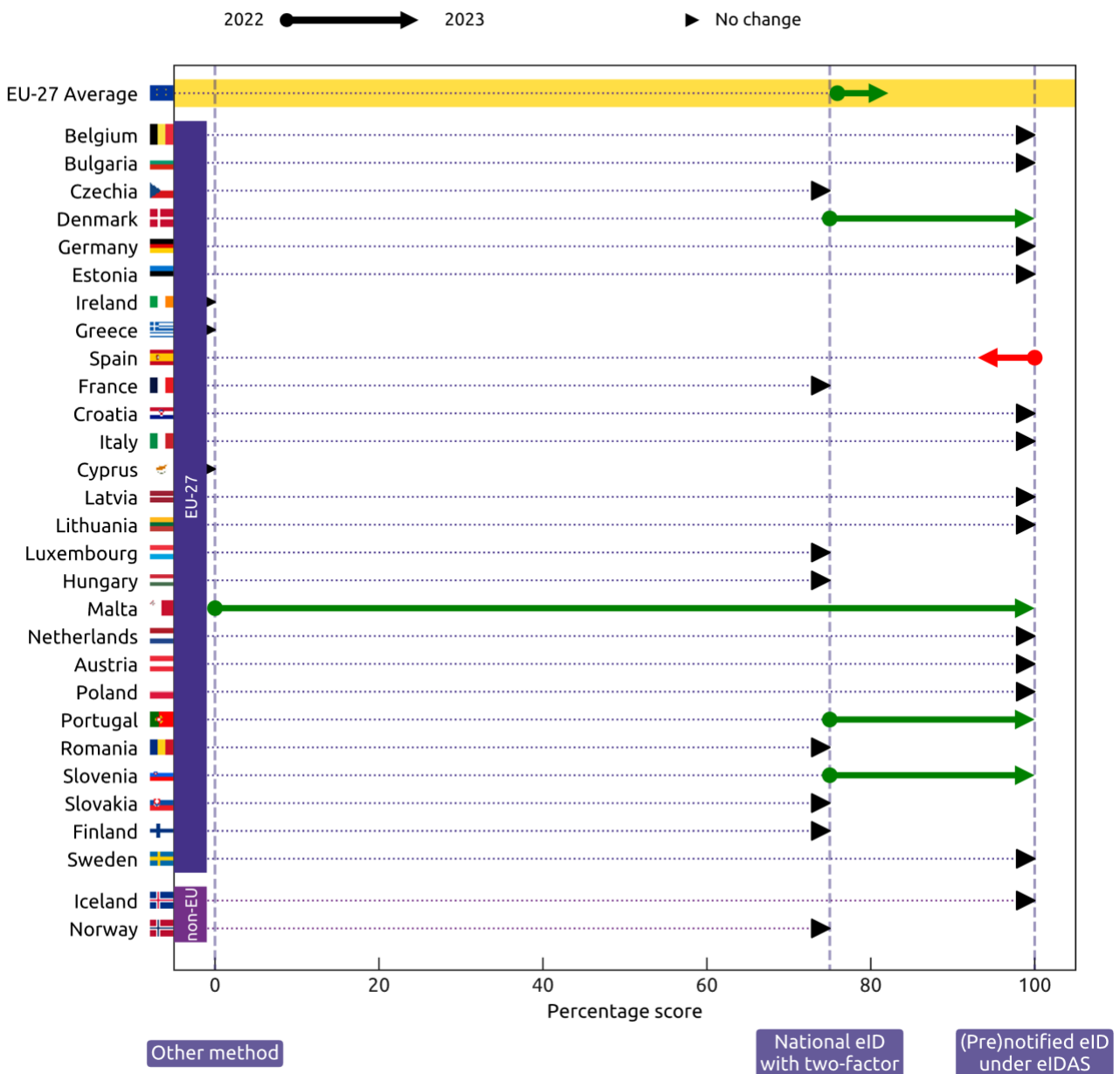


Figure 12: Access to electronic health records with an eID, 2022 and 2023

4.2.3.2 Sub-indicator 6: Access via an online portal or mobile application

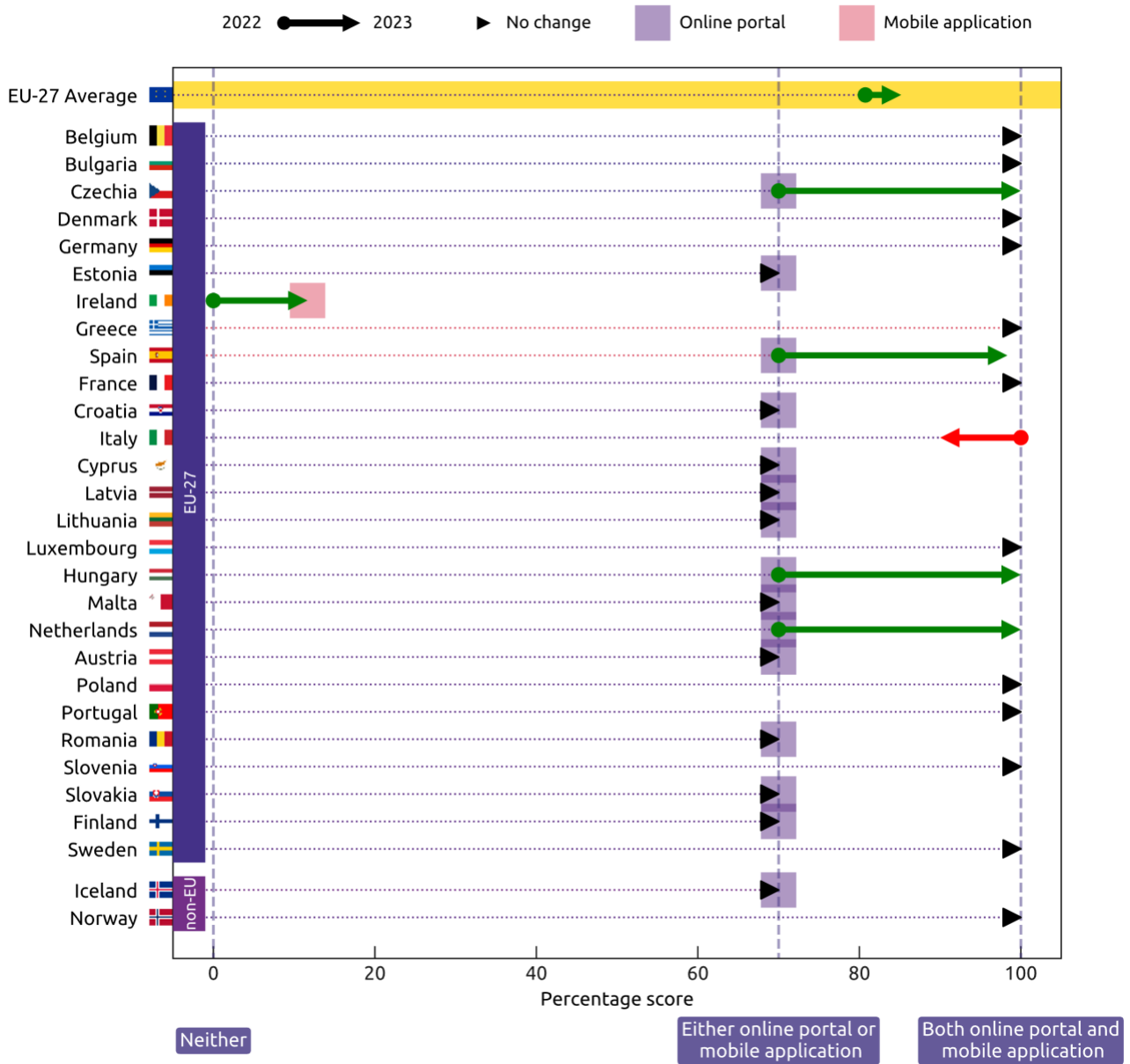
This sub-indicator investigates the type of front-end solution citizens can use to access their online electronic health records, such as web-based patient portals or native mobile applications. A maturity score of 100% is awarded if both digital platforms are available to citizens, whereas 70% is awarded if only one of these digital platforms is provided.

Online portals remain the most common digital platform provided for citizens to access their electronic health records. All Member States, except Ireland (96%), provide an online portal. The one region in Ireland that has an access service by a private hospital uses a mobile application. Furthermore, 14 Member States (52%) make access available through a native mobile application in addition to the online portal. This includes all the regions of **Spain** except the National Institute of Health Management (INGESA), which offers services to the Autonomous Cities of Ceuta and Melilla. INGESA's mobile application provides functionality to book appointments but not to access health data. In **Sweden**, all regions connect to one national portal, and users choose the region to which they belong from the landing page. In **Italy**, 14 of the 18 regions have both an online portal and a mobile application. **Italy's** maturity score decreased from the previous survey due to more granular reporting using a regional model.

In 2023, the EU-27 average is 84%, a three-point growth from the previous year. **Czechia** and **Hungary** now report having a mobile application for their citizens, in addition to the online portal reported in 2022. In 2023, **Spain** provided reporting at the regional level, most of which also have mobile applications that complement the online portal to access health data. **Czechia** explained that they have three web-based portals and mobile applications for citizens to access their data: one for eVaccination data, one for ePrescriptions/eDispensations, and one for patient summaries, to which only a limited number of hospitals currently contribute.

Change in maturity score, technology platform (Q6)

Protocol order, per group of countries



How to read

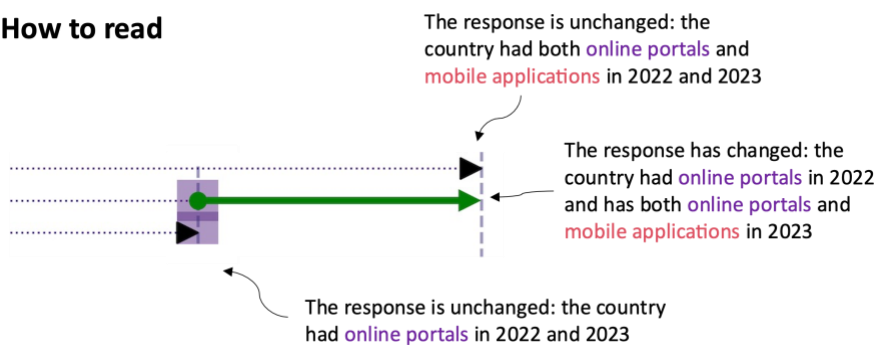


Figure 13: Access via an online portal or mobile application

4.2.3.3 Sub-indicator 7: Percentage of the national population able to access their electronic health records

This sub-indicator investigates the extent to which the population can technically make use of the online access service for health data. The response options are divided into five ranges: 80–100% of the national (or regional) population (awarded a maturity score of 100%), 60–79% of the national (or regional) population (awarded a maturity score of 75%), 40–59% of the national (or regional) population (awarded a maturity score of 50%), 20–39% of the national (or regional) population (awarded a maturity score of 25%), and less than 19% of the national (or regional) population (awarded a maturity score of 0%).

In 2023, the average maturity score for the EU-27 average is 86%, an eight-point increase from 2022. Twenty Member States (74%) report that 80–100% of the national population is technically able to access their electronic health records through the provided access service, as do **Iceland** and **Norway**. **Germany**, **Slovakia**, and **Spain** report a greater percentage of the population with access than last year. **Germany** reported that their electronic patient record (ePA) was technically available for all patients in the statutory health insurance (by opt-in) already in 2022, but with technical hurdles. Authentication was complex. Thus, only a few patients chose to opt-in to the ePA. A legal change in 2023 made it possible to authenticate in a way that patients more widely accept, so now it is possible to say that all patients in the statutory health insurance are able to use the ePA without unreasonable technical hurdles. Germany also notes that it expects the number of persons actually using the ePA will increase significantly by 2025, since the ePA will then be provided on an opt-out basis. **Slovakia** noted that all citizens who have been issued a relevant eID are able to access their electronic health records.

In **Ireland**, a hospital group in the West region now provides an access service for patients with private insurance. The population of the West region is about one million people out of a national population of about five million people. All people in the West region with private insurance have access to the private hospital and on average about 40% of people in Ireland have private insurance. This translates to an 8% maturity score on this sub-indicator for **Ireland**, which is calculated as an average score of the regions.

Change in maturity score, population coverage (Q7)
Protocol order, per group of countries

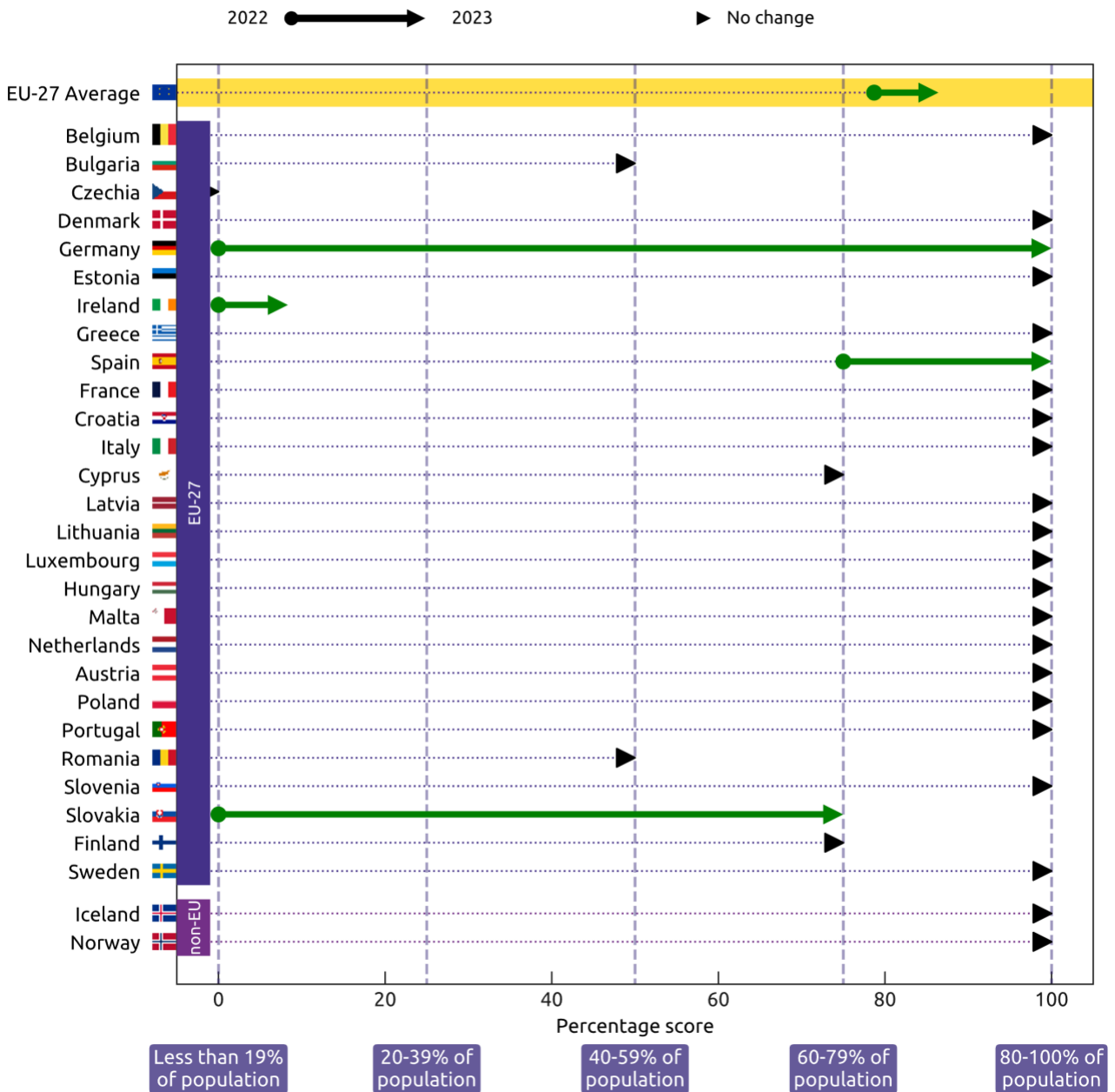


Figure 14: Percentage of the national population able to access their electronic health records, 2022 and 2023²⁰

²⁰ Erratum: the 2022 maturity scores of Czechia, Germany and Slovakia were revised from 10% to 0% due to an encoding error in the score calculator

4.2.3.4 Sub-indicator 8: Healthcare providers connected and supplying relevant health data

This sub-indicator investigates the extent to which categories of healthcare providers are supplying data to the electronic health records access service. This sub-indicator considers pharmacies and five other types of healthcare providers, which can be in the public and private sectors. The five categories of providers in the public sector, five categories of providers in the private sector, and pharmacies together give a total of 11 categories of healthcare providers under assessment. The five public and private categories of healthcare providers are: (1) primary care physicians and community care centres, (2) secondary and tertiary hospitals and clinics, (3) rehabilitation centres, (4) geriatric nursing homes, and (5) mental health facilities. A category of healthcare providers is considered connected if at least 60% of the healthcare providers in that category are consistently supplying health data that citizens can access. A maturity score is calculated based on the number of categories of providers connected and supplying data. Some categories of healthcare providers may not be applicable in a country, in which case they are excluded from the calculation of the maturity score.

This sub-indicator increased the most within this thematic layer. Nonetheless, this is still the lowest-performing sub-indicator of this layer. In 2023, the EU-27 averaged a 67% maturity score for this sub-indicator, an increase of 12 points from the previous year. Twelve Member States (44%) improved this score. **France** reported the greatest improvement, increasing from 18% to 100%. **Portugal** increased by 55 points, and **Belgium, Poland, and Slovakia** all increased by 36 points. Portugal notes that they made progress towards the gradual increase of healthcare institutions that provide health data to the access service, notably the expansion of the access service to 26 entities of the National Integrated Care Network and the extension of access services to physiotherapists. However, Portugal also notes that often these healthcare providers still supply only limited types of health data.

In some countries, certain categories of healthcare providers are not applicable. In the **Netherlands**, for example, all healthcare providers are considered private. In **Latvia**, geriatric nursing homes are considered social institutions, not medical institutions, and data in the national electronic health record system can be submitted only by healthcare institutions. Similarly, in **Belgium**, rehabilitation centres and geriatric nursing homes are not applicable because the electronic health records are not managed by these institutions but by the individual healthcare providers (e.g. the coordinating physicians for patients residing in the rehabilitation centres and geriatric nursing homes).

In total, eight Member States (**Belgium, Denmark, Estonia, Finland, France, Greece, Lithuania, and Poland**; 30%) score 100%, meaning they report that all applicable categories of healthcare providers in their country supply data to access service.

Beyond the EU-27, **Norway** increased by nine points, now reporting that public geriatric nursing homes are also connected to the access service and supplying relevant health data, bringing their maturity score on this sub-indicator to 64%.

In terms of the categories of healthcare providers, the most commonly connected are (1) pharmacies, in 25 Member States (except **Ireland** and **Luxembourg**; 93%), (2) public secondary and tertiary hospitals and clinics, in 24 Member States (except **Czechia, Ireland, and the Netherlands**; 89%), and (3) public primary care physicians and community care centres, in 23 Member States (except **Czechia, Ireland, Malta, and the Netherlands**; 85%). Public and private geriatric nursing homes are among the lowest, being connected in only eight Member States (30%). In general, public healthcare providers (72% on average in the EU-27) are better connected than are private healthcare providers (55% on average in the EU-27).

Change in connected categories of providers (Q8)

Protocol order, per group of countries

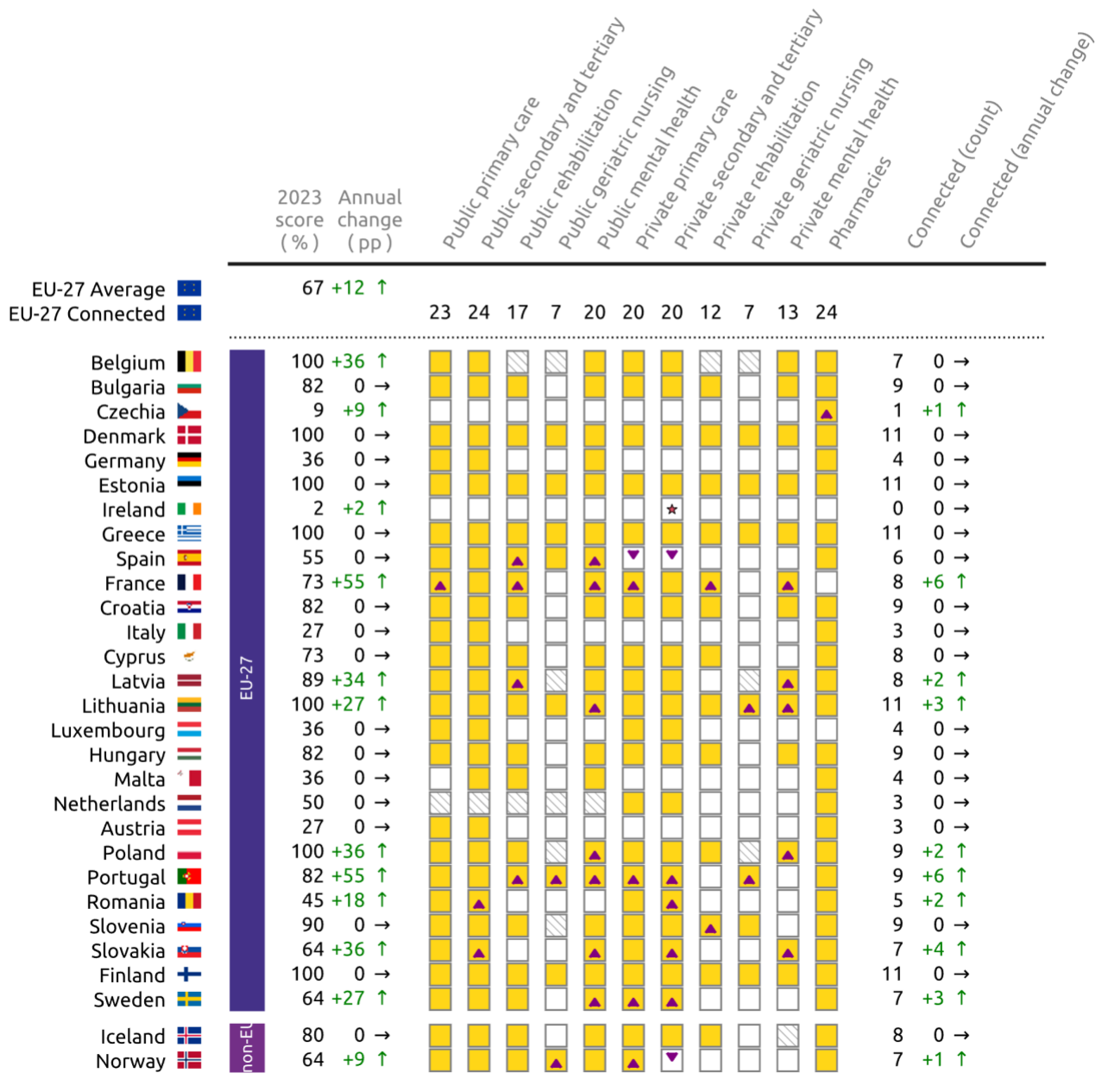
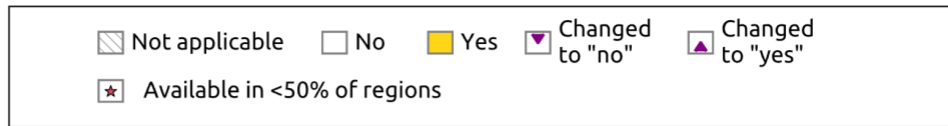


Figure 15: Healthcare providers connected and supplying relevant health data, 2023²¹

²¹ Erratum: the 2022 maturity score of Slovakia was revised from 50% to 27% due to an encoding error in the score calculator

4.2.4 Access opportunities for certain categories of people

Thematic layer 4 at a glance: Access opportunities for certain categories of people in the EU-27

In 2023, the EU-27 average for the thematic layer about access opportunities increased by seven points compared to previous year, reaching 77% in 2023. Nineteen Member States (70%) offer technical functionalities with a legal basis that grant legal guardians access to the electronic health records of their wards. In addition, half of **Spain's** 18 health regions provide this functionality with a legal basis, as do 12 of **Italy's** 21 regions. The maturity score for this sub-indicator is 83% since all the remaining countries and regions, except **Ireland** and **Sweden**, have legal provisions that grant guardians access even though this is not yet implemented as a functionality on the access service.

20 Member States (74%) offer assistance, based on a legal right, to help citizens in gaining access to their electronic health data. This includes the majority (12 out of 21) of **Italy's** regions. The average maturity score for this sub-indicator is slightly higher at 83% since most of the remaining Member States provide either legal provisions or implemented mechanisms, but not both. Only **Czechia** and **Ireland** report neither legal provisions nor services that allow citizens to seek assistance from an official public or private sector contact point if they experience problems when trying to make use of the access service. Furthermore, 20 Member States (74%) report that their online access service meets web content accessibility guidelines, an increase of 6 Member States (**Denmark, France, Germany, Luxembourg, Portugal** and **Slovenia**; 22%) from 2022.

The least mature access opportunity is the ability of a citizen to authorise other individuals to access their electronic health records on their behalf. Thirteen Member States (48%) offer technical functionalities with a legal basis and five Member States (**Croatia, France, Ireland, Slovakia, and Sweden**; 19%) report having neither legal provisions nor implemented mechanisms that grant this functionality.

In total, full scores for this thematic layer have been achieved by seven Member States (**Austria, Belgium, Denmark, Estonia, Germany, Lithuania, and Poland**), meaning that the three categories of support investigated in this thematic layer are both legally facilitated and implemented in practice and the access services are web accessibility. **Portugal** (+38 points) and **France** (+38 points) increased the most of this thematic layer. In addition to reporting that the portals now follow web content accessibility guidelines, **Portugal** now reports having a legal basis for legal guardians to access the health data of their wards. **France** has developed the functionality for legal guardians, building on the legal basis already in place. Two Member States (**Finland** and **Spain**) decrease in score due to more accurate reporting in this year's data collection. Specifically, **Spain** provided information at the regional level.

This thematic layer evaluates the provision of additional measures to ensure access to electronic health records for specific demographics, such as children, the elderly, or citizens with disabilities. Emphasis lies on establishing both a legal basis for these measures and implementing technical functionalities to facilitate equitable access. In terms of scoring, having both a legal basis and an implemented mechanism is awarded 100%, whereas having either of these aspects is awarded 50%. This layer consists of four sub-indicators, assessing the provisions for legal guardians to access the electronic health records of their wards (4.2.4.1), the provisions for a citizen to authorise other individuals to access their electronic health records on their behalf (4.2.4.2), the provision of assistance, especially for citizens with a low digital literacy, in gaining access to their electronic health records from an official public or private sector contact point (4.2.4.3), and the extent to which the online access services comply with Web Content Accessibility Guidelines (4.2.4.4). An overview of the scores for this thematic layer is presented in Figure 16.

Change in maturity score, access opportunities (layer 4)

Ordered by score, per group of countries

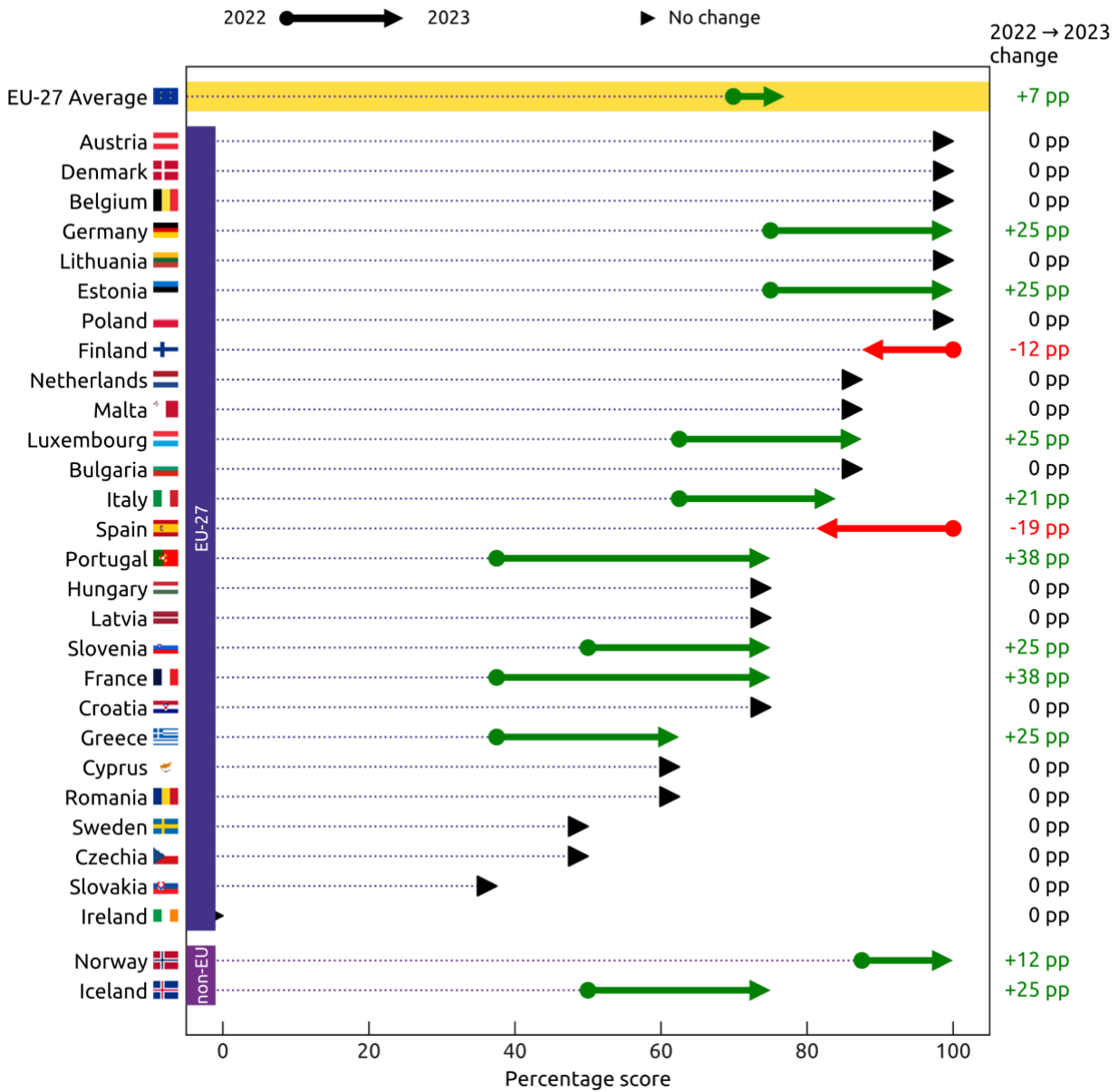


Figure 16: Scores and ranking for access opportunities for certain categories of people (thematic layer 4), 2022 and 2023

4.2.4.1 Sub-indicator 9: Access for legal guardians

This sub-indicator investigates whether there are legal provisions that allow legal guardians such as parents and state custodians to access the electronic health data of their wards, and whether this access functionality is implemented as part of the online access service(s) for electronic health records data.

This is the highest-scoring sub-indicator in this thematic layer, tied with that of assistance for disadvantaged groups, with an EU-27 average of 83% (Figure 17). This is an increase of four points compared to last year. Twenty-one Member States (78%) facilitate access for legal guardians both in terms of legal provisions that grant access rights and technical functionality that grants access. This includes at least half of the regions in **Italy** and **Spain**. **Iceland** and **Norway** also offer this functionality with a legal basis. These countries are, therefore, awarded 100% on this sub-indicator. Four Member States (**Czechia**, **Malta**, **Portugal**, and **Slovakia**; 15%) have legal provisions in place but are yet to implement the mechanism to make the provisions technically available. In **Spain**, half the regions have implemented such functionality, and in **Italy**, 12 of the 21 regions have implemented the functionality. In **Ireland** and **Sweden**, none of the regions has legal provisions or functionality in place. **Spain's** maturity score decreased from the previous survey due to more granular reporting using a regional model and **Italy's** score increased based on the regional data.

Change in maturity score, access for legal guardians (Q9)

Protocol order, per group of countries

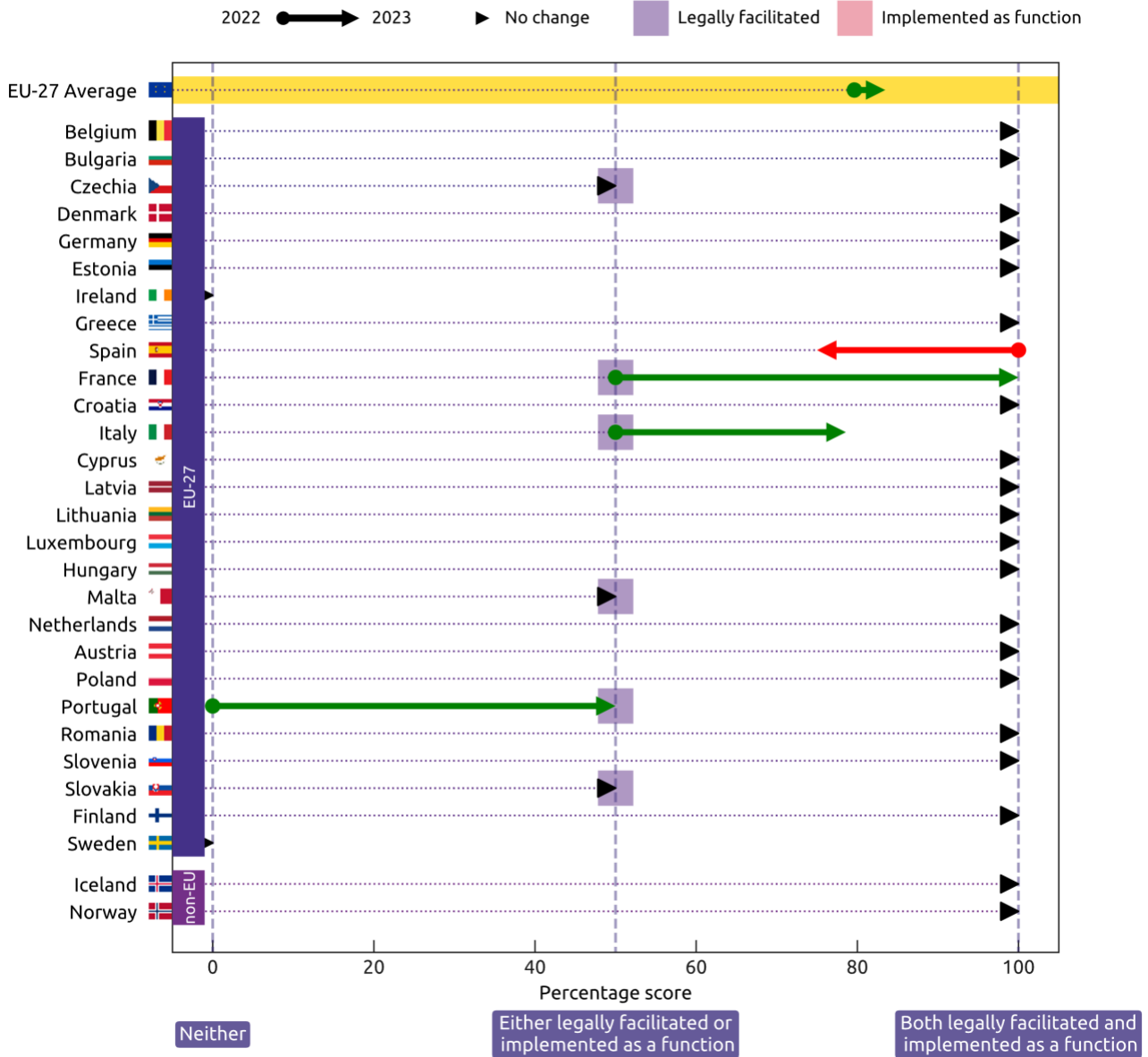


Figure 17: Change in legal provisions and implemented functionality regarding access for legal guardians, 2022 and 2023

4.2.4.2 Sub-indicator 10: Access for authorised persons

This sub-indicator investigates whether citizens have the ability, based on appropriate national legislation, to authorise other individuals who are not already acting as legal guardians, such as caregivers, to access their health data and possibly perform other authorised actions (e.g., requesting a renewal of an ePrescription) on their behalf.

This is the lowest-scoring sub-indicator in this thematic layer, with an EU-27 average of 68% (Figure 18). Fourteen Member States (52%) offer this functionality with a legal basis, including more than half of Italy's regions. Furthermore, eight Member States (30%) have the legal provisions in place but have yet to implement the technical mechanism for citizens to exercise the provision. One Member State, **Romania**, offers this functionality to citizens even though it is not facilitated in legislation. **Spain's** score decreased due to more accurate reporting in this year's data collection. **Italy's** maturity score increased from the previous survey due to more granular reporting using a regional model.

Change in maturity score, access for authorised persons (Q10)

Protocol order, per group of countries

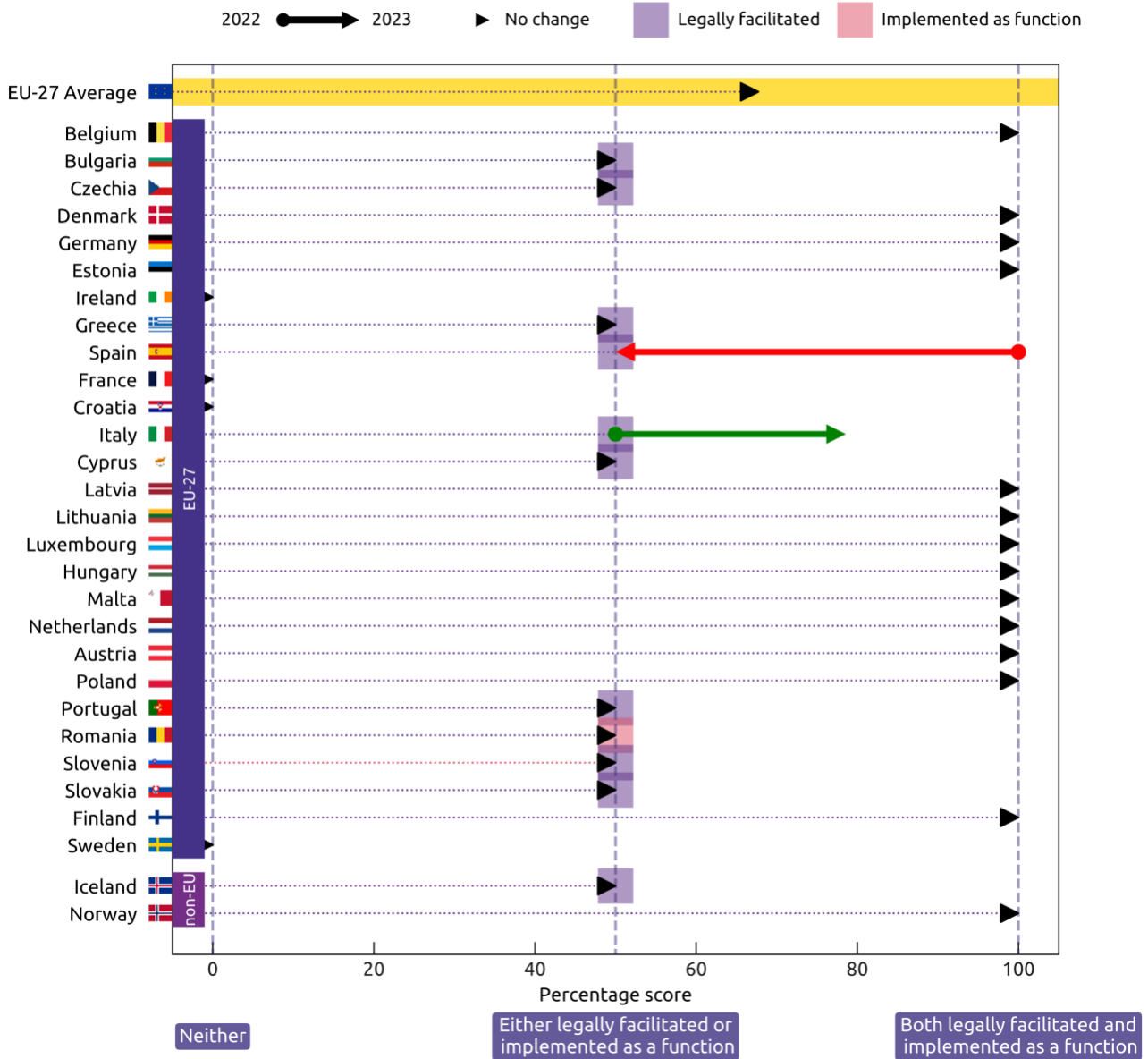


Figure 18: Change in legal provisions and implemented functionality regarding access for authorised persons, 2022 and 2023

4.2.4.3 Sub-indicator 11: Assistance for disadvantaged groups

This sub-indicator investigates whether citizens have the ability, based on appropriate national legislation, to seek assistance from an official public or private sector contact point in gaining access to their electronic health records. A key condition is the ability to receive physical or remote assistance for citizens who experience problems when trying to make use of the electronic health records data online access service (e.g., citizens with low digital and health literacy, citizens with disabilities, or the elderly).

In 2023, the EU-27 average for this sub-indicator is 83%, an increase of three points from 2022 (Figure 19). Twenty Member States (74%) report having legal provisions and implemented mechanisms to provide assistance regarding the online access service for those who seek it, including 12 of **Italy's** 21 regions. Three Member States (**Luxembourg, Slovakia, and Slovenia**; 11%) report providing assistance even though it is not facilitated through legislation, and Italy indicated that the legal provisions are in place in their country, but the practical assistance must still be implemented. **Finland** and the **Netherlands** have the legal provision in place but have yet to implement supporting functionality. Only **Czechia** and **Ireland** report having neither legal provisions nor implemented functionality for formal assistance from an official public or private sector contact point. **Finland's** score decreased due to more accurate reporting in this year's data collection. **Italy's** maturity score increased from the previous survey due to more granular reporting using a regional model

Change in maturity score, assistance for disadvantaged groups (Q11)

Protocol order, per group of countries

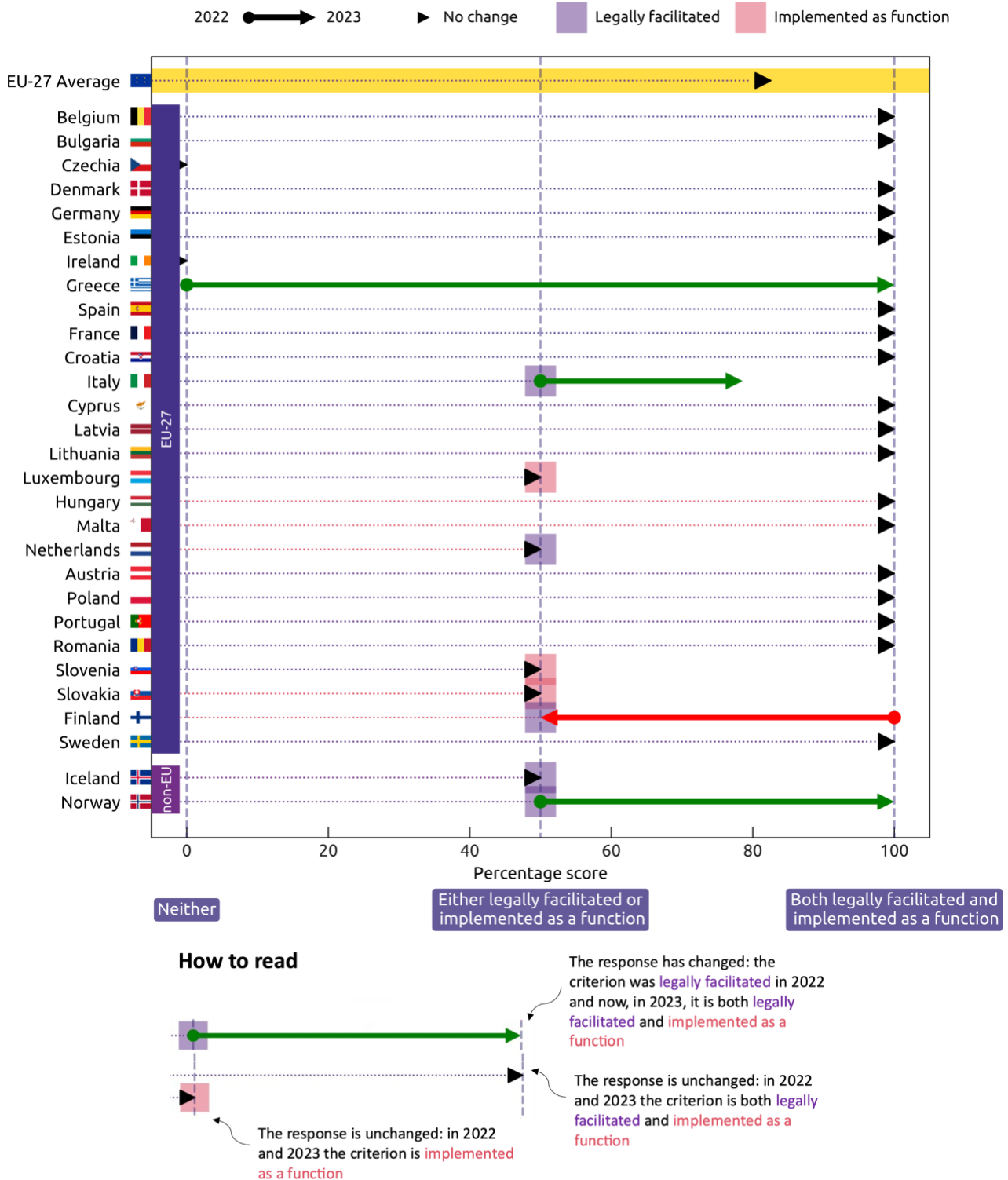


Figure 19: Change in legal provisions and implemented functionality regarding access for disadvantaged groups, 2022 and 2023

4.2.4.4 Sub-indicator 12: WCAG v2.1 and Web Accessibility Directive compliance

The WCAG v2.1 and Web Accessibility Directive (EU 2016/2102) aim to make websites, applications, electronic documents, and other digital assets accessible to people with a broad range of disabilities, including sensory, intellectual, learning, and physical disabilities. This sub-indicator investigates whether online access services for electronic health records are compliant with these guidelines.

This sub-indicator had the most substantial year-on-year increase out of all twelve sub-indicators in the eHealth methodology, rising by 22 points from 52% in 2022 to 74% in 2023. This is due to the development in six additional Member States (**Estonia, France, Germany, Luxembourg, Portugal, and Slovenia**) that report compliance with web content accessibility guidelines in 2023, bringing the total to 20 Member States (74%) that follow the accessibility guidelines. In addition, **Iceland** also newly reported that its access service follows the WCAG v2.1 guidelines.

Change in maturity score, web accessibility (Q12)
Protocol order, per group of countries

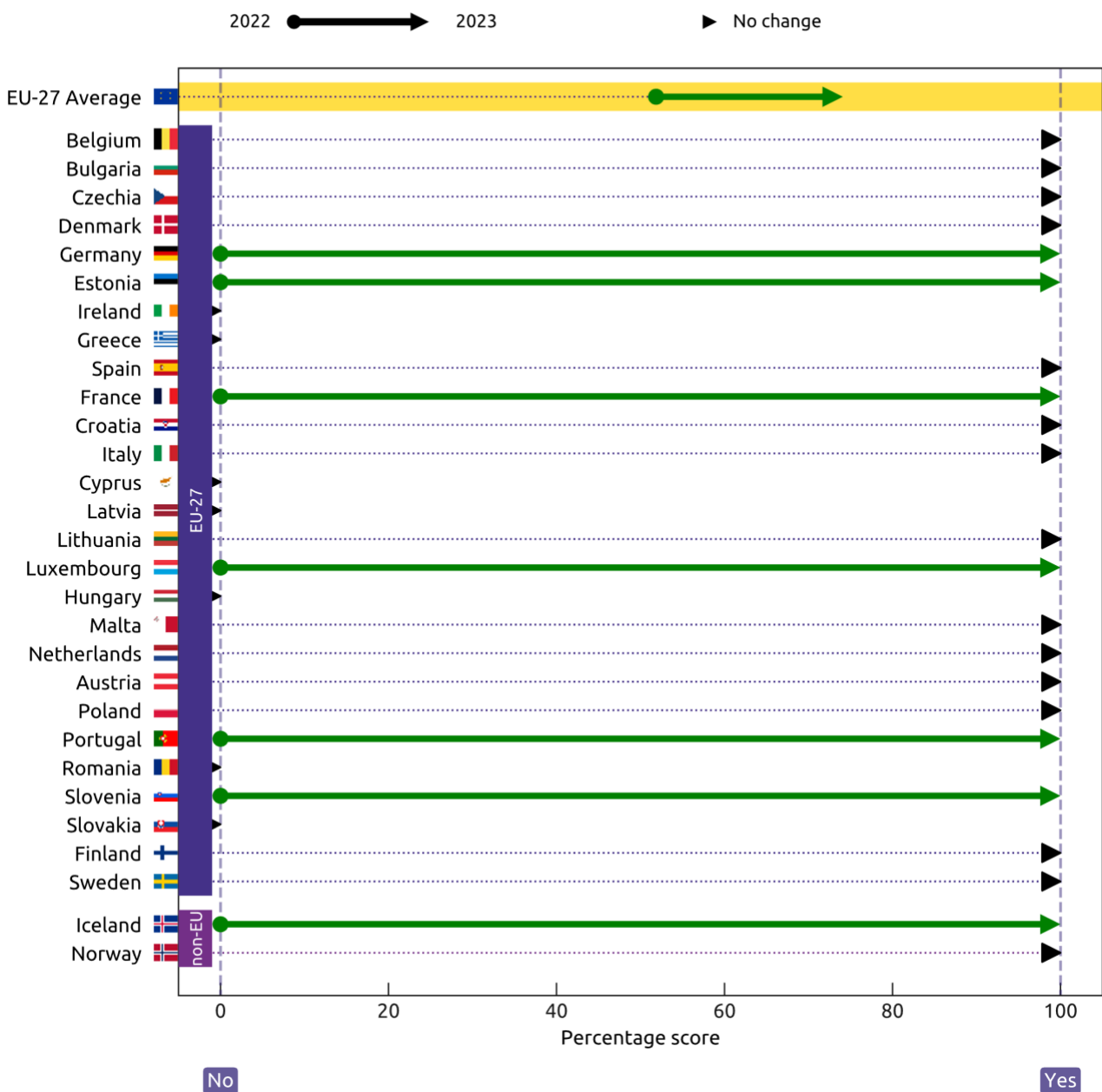


Figure 20: Change in compliance with web accessibility guidelines, 2022 and 2023

5 Key insights and perspectives

This section presents key insights from the 2023 data analysis and suggests perspectives for participating countries to continue improving on the eHealth indicator.

Key insight: a central aspect of the eHealth target is that all citizens can technically access their health data online; but citizens in the EU-27 do not yet enjoy universal population coverage

The digital decade target for eHealth is for 100% of EU citizens to have access to their electronic health records by 2030. Seven more Member States need to ensure that the online access service for electronic health records is technically accessible by all citizens.

Perspective

The eHealth target, as defined in this study's methodology, is not as straightforward as having all citizens able to technically access the online service for electronic health records. It is also essential that several categories of data are available through this access service, that healthcare providers consistently supply timely data, that the technology platform is fit-for-purpose, and that there is support for those who need help gaining access to their data. Only once all these aspects are in place can the target of 100% of EU citizens having access to their electronic health records be achieved. Nonetheless, having the entire national population with technical access is an important milestone towards this target. **Member States should not overlook the core concept of universal coverage of the population and continue to create an operational and accessible service for all citizens to access without unreasonable technical requirements or hurdles.**

Key insight: more categories of healthcare providers are connected to the access services, but private healthcare providers are less connected than public ones

The sub-indicator measuring connected healthcare providers had the second-greatest increase of all sub-indicators. However, with a few exceptions, the majority of EU27 Member States have not connected all relevant healthcare provider types to supply relevant health data accessible to citizens. Moreover, private providers remain less connected than public ones.

Perspective

Healthcare providers are the data suppliers for the electronic health access service. The access service is only beneficial to citizens if their healthcare providers are connected and supplying relevant, complete, and timely data. Member States should continue to support the public sector and lead by example in supplying health data to the access service. In addition, **Member States should consider how to further incentivise or require private providers to supply data through an appropriate mix of regulatory and other measures.** This was a gap also identified in the previous year's report. Due to the diversity of healthcare systems and their organisation, there is no one-size-fits-all solution. However, the exchange of knowledge and experience in onboarding private care providers to actively use electronic access services could prove to be a valuable resource for new approaches for some Member States that are showing less progress in this aspect.

Key insight: a diverse selection of health data is available to citizens, but certain data types such as medical images and medical devices have limited availability in the EU-27

This methodology investigates 13 types of health data (see sub-indicators two to four). Certain types of health data such as data about *identification, personal information, current and relevant past medicines, ePrescription, eDispensation, and laboratory tests* are highly mature, being made available to citizens and often in a timely manner. However, other categories, such as data about medical images, medical devices and implants, hospital discharge reports, and procedures/operations, show markedly lower maturity, in many cases not being made available to citizens. This difference in maturity score suggests that certain types of health data are more readily available in publishable formats and easier for data providers to make available to citizens through the online access service.

Perspective

Countries with lower maturity on the thematic layer about categories of health data could focus on making available those health data that show high maturity on the EU-27 average first, and then progress to the more challenging data types. These categories of health data can form the foundation of data supplied to the access service. The more mature categories of health data are often used in many care pathways. Countries that already make these categories of health data available in a timely manner could share their experiences and best practices with countries of lower maturity.

Key insight: although digital platforms to access electronic health records are widely available, not all online access services enable the highest standards of authentication

The use of (pre-)notified eIDs that are compliant with the eIDAS Regulation and have a 'high' or 'substantial' level of assurance as an authentication method has increased. This is a positive development but usage of (pre-)notified eIDs for secure login is not yet at 100% maturity. The eIDAS Regulation lays down a common legal framework for electronic transactions to ensure that they are secure, reliable, and legally binding across all EU Member States. It is, therefore, a crucial component of the EU's efforts to create a trusted and secure digital environment.

Perspective

In order to ensure equally secure access to online health data for all citizens in the EU, Member States should **prioritise compliance with the eIDAS Regulation to ensure that a secure authentication means for the electronic health record access services is enabled.** This entails that Member State authorities facilitate citizens' access to their health data using recognised eID schemes based on harmonised and secure standards across the EU. Member States should also start the work towards acceptance of the upcoming EU digital identity wallets as authentication means in their electronic health record access services.

Key insight: adherence to web accessibility requirements improved substantially in the past year but opportunities remain to improve access opportunities under existing legal provisions

The sub-indicator measuring compliance with web accessibility requirements increased the most out of all sub-indicators. This is an important development since these requirements are prescribed in Directive (EU) 2016/2102 (Web Accessibility Directive). The Directive requires EU Member States to ensure that websites and mobile applications of public sector bodies comply with the Web Content Accessibility Guidelines (WCAG) 2.1 at level AA.

Further to web accessibility requirements, the majority of Member States offer several other forms of assistance for specific groups of people and circumstances. In cases when the other three types of assistance investigated in this thematic layer are not currently implemented as a functionality, it was commonly found that the underlying legal provisions are in place.

Perspective

For the remaining seven Member States reporting that their access service is not compliant with the Web Accessibility Directive, **implementing the requirements regarding web accessibility could be a low-hanging fruit to increase their maturity of the thematic layer about access opportunities**, given the success of several Member States in 2023 in ensuring their digital platforms meet the requirements.

While the Web Accessibility Directive applies to the websites or apps of the public sector, the European Accessibility Act²² sets minimum accessibility requirements for the private sector and covers a wider range of products and services. With regards to websites and mobile applications, the European Accessibility Act has the same accessibility requirements as the Web Accessibility Directive. The legislation will be fully in force no later than June 2025, putting increased attention on equitable access to products and services in the EU. This is especially important in the context of healthcare, as healthcare is for all people.

Regarding the other three types of assistance mechanisms investigated in this thematic layer, there are several opportunities to **support existing legal provisions with implemented functionality and services that make the provisions a factual reality**. Therefore, countries should continue to leverage these legal bases to ensure equitable access to electronic health records.

²² <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019L0882>

6 Conclusions

With a growth of seven points, the EU-27 average for the eHealth composite indicator increased from 72% in 2022 to 79% in 2023. This demonstrates that countries continue to progress towards the Digital Decade target of 100% of EU citizens having access to their electronic health records by 2030. Three Member States decreased in composite maturity score due to more accurate reporting. Three Member States reported an unchanged state of play since 2022. The data were also made more granular by **Italy**, **Spain** and **Sweden** providing a breakdown on a regional level.

Various sub-indicators showed improvements, specifically compliance with web accessibility guidelines, categories of healthcare providers connected and supplying data, and electronic results and reports available to citizens. Despite strong increases, the sub-indicators about connected healthcare providers, especially those from the private sector, and data about *electronic results and reports* remain at relatively low maturity. Data about *medical images* and *medical devices/implants* have particularly low maturity.

In order to reach the eHealth target, it is important for Member States to take the following actions. Firstly, population-wide coverage reflects a core ambition of the eHealth target. Member States should prioritise universal access to electronic health record data, ensuring that all citizens have the ability to access their electronic health records online. Secondly, the online access service should be populated with diverse categories of data, reflecting the diverse health data collected about patients during their interactions with healthcare services. Thirdly, such data should be supplied by the several categories of healthcare providers used by citizens. Finally, these efforts should be supported by digital products and services that are secure and accessible by design, such as using authentication methods based on (pre-)notified eIDs, following guidelines on web accessibility, and implementing further measures to ensure that the online access service can be used equitably by all citizens. Legislation such as the eIDAS Regulation and the Web Accessibility Directive support digital products and services that are safe and accessible for all.

The eHealth indicator methodology aims to provide a comprehensive perspective on what it means to have 100% of EU citizens having access to their electronic health records by 2030, such as the types of health data, coverage of data suppliers, and technological requirements and assistance to the access service. It is designed to provide a comparable, year-on-year snapshot of progress towards the Digital Decade target for eHealth. Nonetheless, as Member States' online access continues to mature and as the policy and technology landscape continue to evolve, it may be merited to periodically update the methodology to ensure its continued relevance.

Looking ahead, one of the cornerstones of health data in the EU will be the establishment of the European Health Data Space (EHDS). The EHDS is designed to facilitate EU citizens with access to their health data through a legal framework and technical environment, enabling patients and their caregivers to navigate their healthcare journey. The EHDS also seeks to interconnect healthcare systems across Member States, thereby facilitating the primary use of health data in direct patient care and the secondary use of data for research, innovation, policy-making, and regulatory purposes. The eHealth target and EHDS are complementary, and Member States should find the relevant synergies in their efforts to meet both these sets of requirements.

7 Appendix – country scores

Question Description	Digital Decade eHealth Composite indicator	Electronic Health data access service(s)	Nationwide availability of electronic health records data online access service(s) for citizens	Types of accessible health data categories	Electronic health records summary data available to citizens	Identification (e.g., national healthcare ID)	Personal information (e.g., name, date of birth, gender)	Allergies (e.g., description and type of allergy, severity, agent)	Current problems (e.g., description and onset)	Medical devices and implants (e.g., Device ID, implant/explant date)	Procedures/operations (e.g., description, body site, date)	Current and relevant past medicines (e.g., reason, use, brand name, ingredients, dosage)	ePrescription on data available to citizens	ePrescription information (e.g., date of issuance, dosage, strength, administration, brand name)	eDispensation information (e.g., date of dispensation, location, pharmacy)	Electronic results and reports available to citizens	Laboratory test results	Medical Imaging reports (reports with summaries of diagnostic imaging procedures of any kind)	Medical images (made available to citizens in digital formats, e.g., png, .jpeg or .pdf)	Hospital discharge reports (reports with summaries of ward episodes or ambulatory care)
Question ID	Composite eHealth Score	TL1	Q1	TL2	Q2	Q2a	Q2b	Q2c	Q2d	Q2e	Q2f	Q2g	Q3	Q3a	Q3b	Q4	Q4a	Q4b	Q4c	Q4d
Austria	88%	100%	100%	87%	86%	100%	100%	100%	100%	0%	100%	100%	100%	100%	100%	75%	100%	100%	0%	100%
Belgium	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Bulgaria	77%	100%	100%	48%	57%	100%	50%	50%	50%	50%	50%	50%	50%	50%	50%	38%	50%	50%	0%	50%
Croatia	86%	100%	100%	92%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	75%	100%	100%	0%	100%
Cyprus	68%	100%	100%	83%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%	0%	0%
Czechia	51%	100%	100%	43%	29%	100%	100%	0%	0%	0%	0%	0%	100%	100%	100%	0%	0%	0%	0%	0%
Denmark	98%	100%	100%	92%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	75%	100%	100%	0%	100%
Estonia	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Finland	83%	100%	100%	74%	71%	100%	100%	0%	100%	0%	100%	100%	100%	100%	100%	50%	100%	100%	0%	0%
France	79%	100%	100%	68%	79%	100%	100%	100%	100%	0%	50%	100%	50%	100%	0%	75%	100%	100%	0%	100%
Germany	87%	100%	100%	69%	57%	100%	50%	50%	50%	50%	50%	50%	100%	100%	100%	50%	50%	50%	50%	50%
Greece	74%	100%	100%	79%	86%	100%	100%	100%	100%	50%	50%	100%	100%	100%	100%	50%	100%	0%	0%	100%
Hungary	86%	100%	100%	92%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	75%	100%	100%	0%	100%
Iceland	79%	100%	100%	65%	57%	100%	100%	100%	0%	0%	0%	100%	100%	100%	100%	38%	50%	0%	0%	100%
Ireland	11%	100%	100%	5%	2%	0%	17%	0%	0%	0%	0%	0%	0%	0%	0%	13%	17%	17%	0%	17%
Italy	83%	100%	100%	80%	57%	100%	100%	40%	38%	40%	40%	40%	100%	100%	100%	82%	100%	100%	29%	100%
Latvia	85%	100%	100%	86%	71%	100%	100%	50%	50%	50%	50%	100%	100%	100%	100%	88%	50%	100%	100%	100%
Lithuania	95%	100%	100%	92%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	75%	100%	100%	0%	100%
Luxembourg	76%	100%	100%	51%	64%	100%	100%	50%	50%	50%	50%	50%	0%	0%	0%	88%	100%	100%	100%	50%
Malta	88%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Netherlands	72%	100%	100%	23%	57%	100%	100%	50%	50%	0%	50%	50%	0%	0%	0%	13%	50%	0%	0%	0%
Norway	88%	100%	100%	74%	86%	100%	100%	50%	50%	100%	100%	100%	100%	100%	100%	38%	50%	0%	0%	100%
Poland	90%	100%	100%	60%	43%	50%	50%	50%	0%	50%	50%	50%	100%	100%	100%	38%	50%	50%	0%	50%
Portugal	86%	100%	100%	83%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	50%	100%	100%	0%	0%
Romania	59%	100%	100%	38%	50%	100%	50%	50%	50%	0%	50%	50%	50%	50%	50%	13%	0%	0%	0%	50%
Slovakia	66%	100%	100%	88%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	63%	50%	100%	0%	100%
Slovenia	88%	100%	100%	87%	86%	100%	100%	100%	100%	0%	100%	100%	100%	100%	100%	75%	100%	100%	0%	100%
Spain	85%	100%	100%	81%	80%	100%	100%	100%	100%	17%	44%	100%	100%	100%	100%	64%	78%	50%	44%	83%
Sweden	78%	100%	100%	91%	80%	100%	100%	62%	100%	48%	50%	100%	100%	100%	100%	92%	100%	98%	69%	100%
EU27 Average	79%	100%	100%	74%	76%	94%	90%	72%	75%	52%	70%	79%	83%	85%	81%	62%	78%	75%	26%	69%

Question Description	Access technology and means	Access to electronic health records data with eID for authentication	Access mode via an online portal or mobile application	Percentage of the national population able to access service across the country	Healthcare providers connected and supplying relevant data	Public primary care physicians and community care centres	Public secondary and tertiary hospitals and clinics	Public rehabilitation centres	Public geriatric nursing homes	Public mental health facilities	Private primary care physicians and community care centres	Private secondary and tertiary hospitals and clinics	Private rehabilitation centres	Private geriatric nursing homes	Private mental health facilities	Pharmacies	Access opportunities for certain categories of people	Access to electronic health data records for legal guardians	Access to electronic health data records for authorised persons	Assistance for disadvantaged groups provision	WCAG v2.1 guidelines and Web Accessibility Directive compliance
Question ID	TL3	Q5	Q6	Q7	Q8	Q8a	Q8b	Q8c	Q8d	Q8e	Q8f	Q8g	Q8h	Q8i	Q8j	Q8k	TL4	Q9	Q10	Q11	Q12
Austria	74%	100%	70%	100%	27%	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	100%	100%	100%	100%
Belgium	100%	100%	100%	100%	100%	100%	100%	0%	0%	100%	100%	100%	0%	0%	100%	100%	100%	100%	100%	100%	100%
Bulgaria	83%	100%	100%	50%	82%	100%	100%	100%	0%	100%	100%	100%	100%	0%	100%	100%	88%	100%	50%	100%	100%
Croatia	88%	100%	70%	100%	82%	100%	100%	100%	0%	100%	100%	100%	100%	0%	100%	100%	75%	100%	0%	100%	100%
Cyprus	54%	0%	70%	75%	73%	100%	100%	100%	0%	100%	100%	100%	100%	0%	0%	100%	63%	100%	50%	100%	0%
Czechia	46%	75%	100%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	50%	50%	50%	0%	100%
Denmark	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Estonia	93%	100%	70%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Finland	80%	75%	70%	75%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	88%	100%	100%	50%	100%
France	87%	75%	100%	100%	73%	100%	100%	100%	0%	100%	100%	100%	100%	0%	100%	0%	75%	100%	0%	100%	100%
Germany	84%	100%	100%	100%	36%	100%	100%	0%	0%	100%	0%	0%	0%	0%	0%	100%	100%	100%	100%	100%	100%
Greece	75%	0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	63%	100%	50%	100%	0%
Hungary	89%	75%	100%	100%	82%	100%	100%	100%	0%	100%	100%	100%	100%	0%	100%	100%	75%	100%	100%	100%	0%
Iceland	88%	100%	70%	100%	80%	100%	100%	100%	0%	100%	100%	100%	100%	0%	0%	100%	75%	100%	50%	50%	100%
Ireland	5%	0%	12%	8%	2%	0%	0%	0%	0%	0%	0%	17%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Italy	79%	100%	90%	100%	27%	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	100%	84%	79%	79%	79%	100%
Latvia	90%	100%	70%	100%	89%	100%	100%	100%	0%	100%	100%	100%	0%	0%	100%	100%	75%	100%	100%	100%	0%
Lithuania	93%	100%	70%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Luxembourg	78%	75%	100%	100%	36%	100%	100%	0%	0%	0%	100%	100%	0%	0%	0%	0%	88%	100%	100%	50%	100%
Malta	77%	100%	70%	100%	36%	0%	100%	100%	0%	100%	0%	0%	0%	0%	0%	100%	88%	50%	100%	100%	100%
Netherlands	88%	100%	100%	100%	50%	0%	0%	0%	0%	0%	100%	100%	0%	0%	0%	100%	88%	100%	100%	50%	100%
Norway	85%	75%	100%	100%	64%	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	100%	100%	100%	100%	100%	100%
Poland	100%	100%	100%	100%	100%	100%	100%	100%	0%	100%	100%	100%	100%	0%	100%	100%	100%	100%	100%	100%	100%
Portugal	95%	100%	100%	100%	82%	100%	100%	100%	100%	100%	100%	100%	0%	100%	0%	100%	75%	50%	50%	100%	100%
Romania	60%	75%	70%	50%	45%	100%	100%	0%	0%	0%	100%	100%	0%	0%	0%	100%	63%	100%	50%	100%	0%
Slovakia	71%	75%	70%	75%	64%	100%	100%	0%	0%	100%	100%	100%	0%	0%	100%	100%	38%	50%	50%	50%	0%
Slovenia	98%	100%	100%	100%	90%	100%	100%	100%	0%	100%	100%	100%	100%	100%	0%	100%	75%	100%	50%	50%	100%
Spain	86%	93%	98%	100%	55%	100%	100%	100%	100%	100%	0%	0%	0%	0%	0%	100%	81%	75%	50%	100%	100%
Sweden	91%	100%	100%	100%	64%	100%	100%	100%	0%	100%	100%	100%	0%	0%	0%	100%	50%	0%	0%	100%	100%
EU27 Average	80%	82%	85%	86%	67%	85%	89%	63%	26%	74%	74%	75%	44%	26%	48%	89%	77%	83%	68%	83%	74%



DOI: 10.2759/557789

Catalogue number: KK-05-24-386-EN-N

ISBN: 978-92-68-16588-1



2030
DIGITAL
DECADE