



# Future Digital Health in the EU

Targeted Analysis

**Synthesis Report**



# Synthesis Report

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# 1 Main results of targeted analysis

The following report will outline the main considerations that emerged after the performed general evaluation of healthcare digitisation across the European Union and the targeted analysis of how eHealth is being developed in the countries of Estonia, Finland, Slovenia and Bulgaria. It should be noted that the presented benefits from digitalisation are both direct and indirect. The direct ones relate to productivity (more efficient care processes, care can be provided at lower costs). Indirect benefits originate from improved care processes which is facilitated by digitalisation. They result in better health, which helps reduce healthcare costs in longer term. Furthermore, the demand for healthcare services is increasing along with growing and ageing populations, as well as improved medical treatments and better medical equipment, diagnostics and pharmaceuticals – all of these factors lead to an increase in healthcare costs. This is why it is not necessarily possible to see economic benefits from digitalisation in the short term by looking at the healthcare budgets. Secondly, the impact of eHealth has not been properly analysed. Looking at EU in general and in the stakeholder regions in particular, the same issue was a constant – lack of monitoring and evaluation tools built in the eHealth infrastructure.

## 1.1 Supporting healthcare digitisation

eHealth has both the potential to increase the quality of services and access to health information for users and can save precious time and reduce the workload and associated costs for health service providers on the longer term. Developments in eHealth however has also pointed to the need for a more consistent and comprehensive policy and regulatory framework that would facilitate data exchange among service providers, ensure equity of access to eHealth services for all citizens. The increasing concerns over the legislative, governance, technological and ethical issues surrounding eHealth have thus been recognised at the regional, national and EU levels.

One of the key notions needed for eHealth applications and solutions to flourish is funding which forms an integral element for the entire healthcare sector, and especially necessary for novel approaches such as digitalised health and medicine. Several differences in funding structures can be noted between the stakeholder countries after the analysis. For instance, digitalised approaches to healthcare are largely incorporated and already implemented in the Estonian healthcare system, and therefore not necessarily subject to fundamentally different funding mechanisms as the present mainstream healthcare domain. The primary funding comes from solidarity-based mandatory health insurance contributions. Differences, however, can be noted in Finland where the structural and institutional alignment and network of gathered financial means, as both, municipal and national entities adopt a pivotal role, which demonstrates a more decentralised as opposed to Estonia's centralised approach. In a like manner, Slovenia's funding for digitalised approaches to healthcare and medicine is largely integrated into the mainstream healthcare system. The contribution and commitment is not as pronounced as in Estonia and Finland, but nonetheless allows for a comparable, albeit less integrated mix of the financial mechanisms facilitating eHealth development. Bulgaria, on the other hand, pursues an ad-hoc approach, as funding is mostly institutional and based largely on EU grants, and assigned to solutions development rather than fundamental and integral structural levels aimed at deployment of

eHealth. Thus, Bulgaria has a limited overall volume of funding being directed towards healthcare digitalisation.

Besides a fruitful financial environment, digitalised healthcare also needs clear management for its IT infrastructure. Data governance is an essential element of oversight and decision-making procedure related to eHealth services. Data governance and data ownership continues to be an important topic for deliberation within the EU member states. If eHealth marks a progress in terms of patient safety through better management of information, the use of electronic health records supplied by several health actors bears risks. One is the compliance of all actors to the data protection legal framework. Processing data has to be especially safeguarded in the case of use of the data for other purposes than treatment. A nationwide legal framework on EHR should therefore complement the Data Protection Directive. Similarly, health grids have to be controlled to ensure the confidentiality of patients' data and accountability of health care providers. With these considerations in mind, evidence was found in Finland that the management of health data is in the process of being updated. Finland's current legislation on secondary use of health data is currently being reviewed alongside other relevant legislation e.g. concerning the storage and access to genetic information and biobanks.

Privacy, patient rights, trust associated with eHealth solutions are to be stressed as a pivotal factor. As a fundamental principle in Estonian eGovernance, any data belongs to the data subject. In Finland the current legal requirement sees that all healthcare providers are mandated to have their own EHRs and cannot exchange health data with each other automatically without explicit permission of each patient. Interoperability between institutions is only made possible by the KanTa system that oversees the process of inter-institutional data exchange.

Patient access to EHR is a growing focus in all countries. The study found that EHR access falls broadly into three types of patient login procedures:

- *One login/one service* enabling patients to access data from different care providers via one interface to a single EHR system. Countries: France, Finland, Denmark, Estonia.
- *One login/multiple services* where two EHR services use the same login procedure. The main problem was for patients receiving care in different regions who had to manually switch between the services as data could not be transferred. Countries: Sweden, Norway.
- *Multiple logins/multiple services* where EHR services used different login procedures. In those cases, the situation for patients receiving services in different regions was even more problematic. Countries: Austria, Netherlands, United States, New Zealand.

One login/one service appears to be the easiest option and one that is utilised in both Estonia and Finland where eHealth was the culmination of a long and systematic process of digitisation. Both countries also display near universal adoption and use of the electronic patient records by healthcare providers and patients.

## 1.2 Most prevalent eHealth applications

Several more or less distinct eHealth applications are present in most countries, where ePrescriptions, eConsultations, eRegistrations, as well as national patient portals can be found in all countries, excluding Bulgaria. These tools work in a more or less integrated manner with the respective national patient portal and enable a generally seamless information flow between all authorised parties. Some differences, however, can naturally be noted between countries. For instance, Finland has several separate entities which manage different solutions which are then aggregated within its national patient system. On the other hand, Estonia appears to have all eHealth functions fully integrated under a single institutional banner. These differences, however, are purely of structural and managerial nature and do not affect the effective usability. More distinctively, Bulgaria as a whole distinctively lags behind all other researched countries and stands out in a negative manner by not having introduced any comprehensive approach that would pave the way for digitalised health services and eHealth in general. A major reason for Bulgaria's clearly trailing position can be found in a general passiveness in pursuing any unified nor nationwide eHealth application. As a result, healthcare providers usually opt for creating their own internal systems for tracking patients and activities.

Awareness about eHealth services and their value can be directly linked to the level of usage among patients. In Finland a communication strategy saw medical professionals and healthcare providers become disseminators of the various functions and opportunities provided by eHealth. Portals through which users interact with the eHealth system are also highly important for user growth. In Estonia, the Digilugu.ee portal was known to about 63% of the nation's citizens in 2016, and in 2017 244,369 unique visitors accessed the portal (15% of the population). In Slovenia, more than 25% of citizens used electronic health and care services between 2016-2017 and these statistics only reflected the earlier phase of the renewed push to develop the eHealth system in the country. In Bulgaria, however there is a distinct dissatisfaction with eHealth applications introduced in the country, reinforcing low adoption of services among patients. 56% of all respondents of a recent study claimed to not be familiar with the term "electronic healthcare", and 94% claimed not to have been informed about its benefits.

Regarding how eHealth was adopted by providers, Slovenia saw most of its eHealth services being introduced on a national level, as their according usage was made mandatory for all healthcare providers right after the solutions were introduced. In a similar vein, Estonia pursues a highly centralised approach that relies on centrally developed national health information systems, which are furthermore backed up by distinct political support. Finland displays a more fragmented approach on both regional and organisational level. Some eHealth solutions may only be available to residents in specific regions because only specific healthcare providers offer these services. The national KanTa portal offers a common platform for storing (archiving) and exchanging health data between healthcare providers and between healthcare providers and patients. To summarise, the success and adoption of eHealth in the stakeholder countries depended and still depend on the user-friendliness and degree of integration and availability of eHealth solutions.

### 1.3 Socio-economic benefits and future challenges

There are no proper evaluation methods put in place to analyse the effects of digitalised health in none of the case study countries. Instead, one has to rely almost exclusively on impressions and perceived trends, which certainly do not replace a systematic approach, but in turn even demonstrate and reinforce the need for such.

Nonetheless, this analysis has been carefully designed and implemented via a sufficiently large sample size of interviewees to make several claims, which by no means assume all-encompassing validity. Accordingly, perceived, and partially even measured cost savings can be noted. For instance, the cost of paper-based prescriptions has decreased considerably in Estonia, and prescriptions themselves can be managed in a more concise and targeted manner, thereby enabling further cost savings, e.g. in time. The introduction of ePrescriptions have considerably also increased the quality of healthcare. The vast majority of interviewed stakeholders within all countries stated that improved standard of healthcare services and their provision of eHealth applications and strategies (Bulgaria being the exception due to its very limited progress) have allowed for more efficient and effective treatments, which enable more targeted and personally suited approaches. These approaches are furthermore commonly characterised by a higher degree of transparency, which ultimately reinforces trust in such solutions as well as healthcare in general. Lastly, digitalised systems have allowed for easier access for patients and professionals alike, as information is more readily available, remote consultations can be conducted, or less frequent physical meetings are necessary.

It does not come as a surprise that each country is primarily concerned with tackling and addressing its own current problems. Estonia aims to bridge the gap between strategic goals and the ability to efficiently implement them. In general, Estonia's future outlook and strategic visions appear to be rather advanced and long-term oriented. Finland's main challenges for the near future lie in the structural and governance reform of the healthcare system. Digitalisation and eHealth is expected to have a major role in supporting the reform and improving the productivity and quality of healthcare services. Bulgaria, on the other hand, addresses more fundamental and basic issues, especially regarding establishing a suitable IT infrastructure or the adaptation of a suitable mindset amongst its citizens, policymakers, and all other parties involved towards digitisation in general and eHealth in particular. Slovenia's future outlook follows a similar doctrine and is even more uncertain, as no clear aspirations or intentions have been formulated for any timeframe beyond 2018, since the country's focus has been set on achieving its eHealth goals that were unfortunately interrupted between 2008 and 2015 with the onset of the economic crisis. Thus, Slovenia in many ways is both rapidly developing its infrastructure and yet finds itself without a clear vision for how to proceed in the future.

### 1.4 Cross-border digitalisation of healthcare

The digitalisation of healthcare comes along with multiple structural and strategic implications especially when considering the potential of **cross-border operations**. One of main questions on the EU level is interoperability of health data – how easy it is within a certain framework to exchange health data. This consideration already poses a number of ethical and legal challenges related to health data ownership which is why the discussion on cross-border eHealth has to start with the question of data



interoperability on the national level. EU countries still struggle to introduce data interoperability within their own borders, which in many ways demonstrates that cross-border eHealth is a consideration for countries which already have a comprehensive approach to healthcare digitisation.

Of the four countries analysed in this study, the two undisputed spearheading figures in cross-border digital healthcare were Estonia and Finland. Preparations for cross-border ePrescription between the two countries has been ongoing and in 2019 will see Estonian and Finnish ePrescriptions valid in both countries. Beyond the fact that both countries are pursuing bilateral collaboration in establishing common eHealth networks, both countries have further ambitions. Estonia engages in EU-wide programmes such as epSOS or eHDSI, and Finland participates in epSOS projects and pursues intensified operations with its Nordic neighbours. Yet, also these countries find themselves exposed to several problems and barriers. Estonia employs and communicates a multitude of strategic intentions and pilot projects, which have yet to reach implementation or wide scale uptake. In a like manner, Finland is encouraged to focus on harmonisation efforts within its national borders. And of the analysed countries, both Estonia and Finland have the most mature eHealth frameworks in place that were the result of a long and systematic approach. Slovenia has the future potential for cross-border healthcare, but the country is still in the process of establishing all the planned eHealth solutions. Still, examples of collaboration with Italy and Austria in the healthcare sector do suggest potential to expand this relationship with eHealth as well.

## 2 Policy Recommendations

The analysis of the EU level and the stakeholder countries (Estonia, Finland, Slovenia and Bulgaria) has allowed identifying several changes to policies that would facilitate eHealth development. The policy recommendations initially outline the general principle that could be applicable in different countries. It is then followed by examples specific to Estonia, Finland, Slovenia and Bulgaria, provided the recommendation correlates to the country.

- There is a need to have a clear national strategy for developing and deploying eHealth / digitalising healthcare. This is needed as a basis for legislative changes, securing government funding (or any other funding models), any targeted development and deployment initiatives, etc. It also acts as a clear incentive for developers of eHealth applications. Furthermore, the strategy should be complemented with a national action plan with clear mandates, incentives and initiatives to ensure coherent implementation. Looking at the dynamics of development in the field of eHealth services in Slovenia it is evident that over the last three years the pace of development became much faster and visible progress has been achieved. Despite these positive signs, future of eHealth development is still unpredictable as there is no clear strategy how to continue with the development of this important area beyond 2018. Thus, Slovenia needs to prioritise the development of a new strategic approach. In order to avoid potential problems in the future, the government would need to prepare regular strategic and action plans for the periods of 3-5 years ahead with concrete aims and objectives, expected results, milestones, indicators, reporting and clear responsibilities.
- The need to encourage the development and deployment of improved care and operational practices facilitated by digitalisation to ensure the realisation of the socio-economic potential of digitalisation/eHealth. For Estonia the biggest challenge in developing eHealth is understanding of users' needs. Patient engagement is a weakness of Estonian healthcare as well as in eHealth development, where the service processes are developed without understanding the real needs of the users. A paradigm shift in development approach would be a welcome change in this regard: moving from technology-lead to citizen-centred eHealth.
- To mainstream eHealth / healthcare digitalisation into healthcare policy and its implementation and make use of major transitions to speed up its deployment. In Finland with the planned healthcare reform, Finland faces the challenges of redesigning the healthcare infrastructure, aggregating regional managing bodies and initiatives into larger organisational structures. In this environment a more integrated and inclusive approach should be taken into account. Fostering cross-regional and cross-border exchange and interoperability (standards) is a goal commonly formulated in Finland. Integration could be pursued in structural changes where private health care providers could be mandated to implement EHRs. This vision could be achieved by offering private health care providers a direct interface to the KanTa system.
- Systematic monitoring and evaluation of the impacts of digitalisation/eHealth. This issue has been observable across all four analysed countries. The establishment of a more suitable monitoring and evaluation system for the impacts of eHealth or the general digitalisation of healthcare needs to be a core ambition. This could be done in the form of guidelines, which should cover metrics, evaluation

approaches most suitable for individual eHealth services and applications, specific types of eHealth systems, and eHealth platforms. Concerned evaluation and monitoring systems should capture economic as well as social benefits with respect to all stakeholder groups, while understanding the wider context in which the effects materialise.

- Capturing the socio-economic potential of health data, e.g. how it can act as a basis for new businesses and better medical care. Estonia should be aiming at improving the usability of the data collected. Piloting has become a widely used practice in Estonia; however, the problem is that in most cases small-scale pilots/research projects, even with promising results, end without further implementation. There needs to be a process to support the whole innovation process of digital innovations in healthcare.
- Address the key barriers for healthcare digitalisation. These may be more fundamental, i.e. adopting the ICT infrastructure on a national level to suit digital public services. Or related to communication and engagement of patients, showing the benefits of eHealth. These recommendations are about the policy makers asking the question of what is fundamentally holding the adoption of eHealth back. Of the analysed countries Bulgaria highlights this the most, as the country has seen numerous strategies, projects fail. However, the latest course of action appears to be scaling back of ambitions and taking incremental steps in developing eHealth. If recognising that large scale changes are too difficult to implement at the present, the reduced scope for new strategies would allow concentrating on a better management structure and more efficient implementation of digitising healthcare.