

How can the platform economy be accelerated in the health sector?

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Abstract

While the quality of healthcare is high in Finland, innovative and scalable platform-based solutions are not emerging. Platform-based and data-based solutions can be used to reduce the coordination and transaction costs of healthcare for society and to produce healthcare that is of significantly better quality and also more cost-effective. This additionally creates prerequisites for competitive health services and solutions aimed for the international market. In this report, we present three challenges and recommendations related to innovation policy for accelerating the development of the platform economy in the healthcare sector. The challenges and recommendations are derived from the results of the Policy Rationales in the Shift to Digital Platform Economy research project funded by Business Finland.

Challenges and recommendations

Challenges

Challenge 1. Lack of incentives and regulation prevent the scaling of platforms in healthcare

Challenge 2. Little innovative and effective solutions using health data are created

Challenge 3. Closed and incompatible data systems hamper the development of platform-type health services

Policy recommendations

Recommendation 1. Prerequisites for platform-based healthcare should be created

Recommendation 2. Individuals' right to manage their health data and promote its use should be strengthened

Recommendation 3. Access to public health data systems should be opened up and interface compatibility should be developed

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Jel: O38, I15, I18, L17, L50

Introduction

Finland is a pioneer in the development of the health sector platform economy. The Kanta service maintained by the Social Insurance Institute (Kela) is a good example of this. It includes a prescription centre, a medicine database and My Kanta (Pentikäinen et al., 2019). However, the full potential of the platform economy and the health data associated with it has not been exploited. For example, the platform economy enables the use of machine learning in pre-screening and assessing the need for treatment (Kretschmer & Khashabi, 2020; Tenhunen et al., 2018), availability of mental health services 24/7 (Blumenfeld & Levin-Scherz, 2020), a better situation picture of home care (Rotenstein & Friedman, 2020) and the avoidance of unnecessary patient transfers (Zenooz, 2020).

The platform economy can make the health sector accessible to new actors. For example, Amazon has expanded its operations to pharmacy services, in which it can use its platform to offer not only medicines but also a client health profile, prescription and payment data management and other support services (Shieber & Lunden, 2020). Platform-type multi-actor ecosystems are already being created. These include Apple HealthKit which, for example, makes transferring patient data between different actors easy (Rotenstein & Friedman, 2020).

Compatible interfaces between actors are crucial for creating platform ecosystems. They enable interconnected services including remote care, making appointments, and organising transport (Anderson et al., 2020). A key resource in the healthcare platform economy is data that can be collected on the patient in real time and in many ways throughout the patient's history for various purposes (Chen & Patel, 2020; Kretschmer & Khashabi, 2020; Zenooz, 2020). This data can, for instance, be used to produce personalized health services (Chen & Patel, 2020) and new medicines (Parra-Moyano et al., 2020). New wellbeing solutions (wristbands and other services) can be combined with other health data, making it possible to see the big picture of the patient's health (MEAE, 2018). The benefits of data analytics can emerge in many ways, for instance as a narrowing of health gaps between population groups, better allocation of resources, improved quality of care and increased welfare of individual patients (Neittaanmäki et al., 2019).

Material and methods

These challenges and recommendations are based on the results of the Policy Rationales in the Shift to Digital Platform Economy research project funded by Business Finland. The policy recommendation is based on a comprehensive literature analysis of over 100 research articles, books and policy reports (Aalto et al., 2020) and the results of an expert workshop for the health sector. A preliminary survey was conducted for the workshop, and a background document analysing the challenges was produced. Leading experts in platform economy and digital health care from the Finnish private and public sector participated in the workshop. The workshop held in March 2021 was attended by 20 people.

Results

Challenge 1. Lack of incentives and regulation prevent the scaling of platforms in healthcare

The current legislation encourages health sector actors to develop and maintain their solutions in their own local ecosystem (administrative and organisational boundaries, separate systems/technologies). New platform-type solutions are hence not scalable, and the critical number of participants and developers is not achieved. Information system suppliers benefit from the current situation in which the systems are tailored for each individual case. No one carries the overall responsibility for promoting a platform-type healthcare system in Finland.

- **Fragmented and slow regulatory work slows down platform growth.** Fragmented regulation makes it difficult to get a big picture of healthcare requirements and recommendations. National regulation is fragmented between many organisations (the Ministry of Social Affairs and Health, the Finnish Institute for Health and Welfare, the Social Insurance Institution of Finland, the Finnish Medicines Agency Fimea, the National Supervisory Authority for Welfare and Health Valvira, the Regional State Administrative Agencies, Findata and the Digital and Population Data Services Agency), which results in highly diverse regulation (regulations, recommendations, mandatory requirements, MDR, use of social welfare and health care data across the boundaries of individual registers, secondary use of data, and permits). For example, finding answers to questions that are not clearly within the competence of a specific agency is time-consuming. Legislators and decision-makers possess no big picture of the challenges associated with implementing and scaling data-based and platform-based solutions in the health sector. Slow legislative work prevents faster development in companies.
- **It is difficult for small actors to gain a foothold in the market.** Small health sector actors that offer platform-type and data-based solutions have few opportunities for dealing with large public or private health service providers. In public procurements, large actors are often in a dominant position and can dictate to smaller suppliers how integration into their platform must be done. The emergence of new platforms alongside the existing ones is also difficult because the public sector and large private actors dominate the market. This restricts the entry of new actors into the market and the creation of innovative platform-type solutions. Financing investments in platforms is often also considered too risky.
- **There are no incentives for cooperation between service providers.** The contrast between public and private healthcare arising from legislation slows down cooperation and erodes trust. The challenges lie in agreeing on common standards, integration of data systems and public procurement practices. These challenges result in costs for society that could be avoided through platform-based operation. While exclusive rights to a solution are often the objective in procurements, this does not promote the scaling of the solution. In addition, the current procurement legislation and public-private partnership agreements prevent the creation of scalable platform-based solutions. Cooperation and dialogue between different parties have proven difficult. This has prevented the emergence of national or international peer communities in which the actors could help each other and engage in co-development. Unlike private actors, public service providers are unable to participate in co-development within the framework of innovation and development funding. The focus areas and funding for the development also vary by government term, and the funding is often limited to specific use.

Recommendation 1. Prerequisites for platform-based healthcare should be created

- **Prioritising the citizen's point of view.** The criterion for deploying new healthcare solutions should be whether they concretely contribute to better public health through services that are less expensive, more effective and of higher quality. Platform-based and data-based solutions are effective in customer-oriented development. Their advantages include data accumulating over time that can be used effectively to create complementary and alternative health services.
- **Harmonising and clarifying healthcare requirements.** The fragmented regulation can be clarified by stepping up cooperation between the actors (the Ministry of Social Affairs and Health, the Finnish Institute for Health and Welfare, the Social Insurance Institution of Finland, the Finnish Medicines Agency Fimea, the National Supervisory Authority for Welfare and Health Valvira, the Regional State Administrative Agencies, Findata and the Digital and Population Data Services Agency). This can also include reassigning responsibilities between the authorities. Clear and up-to-date guidelines should be provided for applying provisions. Regulation and legal acts should be harmonised between countries. For example, the EU Data Governance Act, EU's Strategy for Data, data space and GAIA-X project will contribute to streamlining the safe use of data across state boundaries and to creating a common market area through harmonised practises, legislation, structures and standards. In public procurements, common interface standards should be used to promote public-private partnership activities, allowing for the existence of parallel platforms without exclusive rights to the solution. At the system level, the change means dismantling silos across administrative boundaries, also in steering and funding activities.
- **Creating orchestrators for healthcare platform ecosystems.** Operational prerequisites should be created for credible healthcare platform and data ecosystem orchestrators who would be responsible for promoting the use of platform-type solutions in the welfare and healthcare sector. Peer communities may support the development and act as channels for international benchmarking. Customer benefits should be at the centre of developing platform ecosystems. A precondition for platform-type service provision is that the customers can make choices on the platform. Incentives for development and innovation should aim for benefiting the patient, ensuring that they support the development of platforms across administrative branches and boundaries. Similarly, innovation funding should be developed through cooperation, for instance on developing, piloting and scaling new platform economy solutions by the Ministry of Social Affairs and Health, the Ministry of Employment and the Economy, Business Finland and Sitra. Their interaction should aim for specifying common standards and drafting legislation more rapidly. A centre of expertise with representatives from different fields could play a key role in this.

Challenge 2. Little innovative and effective solutions using health data are created

Fragmented and siloed healthcare solutions prevent the creation of innovative and effective solutions that use health data. Health and welfare data are not accumulated, the patient cannot control their data, and the data are not transferred along as the treatment process progresses. Legislation and the different types of earnings logic of public and private actors in the healthcare sector have contributed to this situation.

- **Current legislation makes the secondary use of data in platform solutions difficult.** Under the Act on the Secondary Use of Social Welfare and Health Data, the secondary use of data is handled by Findata, which results in considerable delays. Service providers are additionally unable to combine sensitive social welfare and healthcare data with other types of welfare data. However, the possibility of combining data would be valuable for individuals and the developers of new services. It is unclear to companies what they may do and how, in what situation permissions are needed, and when the product they have developed is a medical device. There is no one-stop shop for help in managing the whole process, and the answers given even by the same agency are not always consistent. A consistent data model for health data has not been defined nationally. Practical solutions under anonymisation rules and general security requirements are unclear. The use of data which crosses the boundaries of different registers is also challenging. In home care, for example, the transfer of information between occupational groups across the boundaries of social welfare and healthcare is a significant problem, for example between practical nurses and support services.
- **Individual patients' health data cannot be used for developing innovative and platform-type solutions.** Individual patients' health data could be used much more efficiently in services that promote health, welfare and the quality of life. Patient data not registered in the Kanta services mainly remain in the individual service providers' information data systems or in internal use of hospital districts. Other service providers cannot readily use the collected data in their services because the patient data systems are closed or incompatible, and there are no incentives to share the data. Such services could include monitoring services for patients and the benefits of treatment. The administrative boundaries of healthcare do not encourage data sharing, high-quality data production or the development of a common data sharing model. Creating uniform treatment practises is also difficult as the data quality is not consistent. It is difficult for the patient to manage their health data, such as their X-ray images, located in many different information systems. Similarly, it is not always possible for the patient to promote the accessibility of data, for example by allowing the free use of their anonymised or unanonymised data by certain service providers.
- **The accumulation of health data with large actors slows down the development of new platform-type solutions.** The accumulation of health data gives an advantage to large actors in the private and public sector. Large actors have no incentives to share the accumulated data, especially as health and welfare data give them a competitive advantage. The accumulation of data in the closed systems of large actors is particularly detrimental to new actors who wish to develop platform-based solutions based on health data.

Recommendation 2. Individuals' right to manage their health data and promote its use should be strengthened

- **Strengthening the role of individuals in health data management.** To facilitate data sharing, the individual should be defined as the owner of the data in stronger terms. The management of data by individuals would promote the development of platform-type health services, such as identifying the need for treatment, finding a physician, assessing the impacts of treatment and effectively guiding rehabilitation. Individuals should be able to grant a permission for using their health data to platform-based companies based on a mutual agreement. Individuals should also be able to export data to Kanta services. Better management of health data can be partly based on existing services (including Suomi.fi, Omaolo, Päivystysapu, My Kanta, Terveyskylä.fi).
- **Improving the practises for the secondary use and anonymisation of data.** Legislation should allow the integration of health data with other wellbeing data. As practises are developed, the possibility of transferring data across register boundaries should also be considered. Denmark is a good example of how data can be made available to research and research industry through the Forskerservice services. Combining sets of big data would make sense for society, as this could enable better targeted treatment, reduce the number of duplicate analyses, and potentially help diagnose hidden diseases. For the purposes of data quality assurance, the Finnish Institute for Health and Welfare should publish a guide on the recording of treatment and patient data for all groups of social welfare and health care professionals, specifying what should be recorded and where, and whether the guidelines are recommendations or obligations. Adherence to the recording recommendations should also be improved.
- **Supporting the use of consistent data standards.** A national data model for health data should be created. It should be harmonised with international standards (including openEHR and OMOP data models). The national data model should include the necessary identifiers, such as components, laboratory results, the identifiers of physicians and nurses, and technical authentication. Treatment processes and all health and wellbeing devices should be compatible with this jointly determined data model. The data models should be updated as the medical science advances, similarly to open source code.

Challenge 3. Closed and incompatible data systems hamper the development of platform-type health services

Closed healthcare systems slow down the creation of new, platform-type applications and services that can be used across information systems. Platform-type solutions should be highly tailored to be compatible with the treatment process. This creates additional costs for actors engaged in development and restricts the amount of available data and number of use cases, such as treatment programmes.

- **Adapting platform-type solutions to different interfaces takes up resources.** Health sector actors have mainly developed their information systems for their own needs, which is why their interfaces are numerous and not compatible with other information systems. It is difficult to create scalable solutions when the same platform services must be adapted to different systems. Maintaining interface compatibility requires a great deal of resources and is complicated. Rather than simply being a challenge for organisations, incompatibility affects different areas of healthcare, including the patient data system and assessment of the effectiveness of treatment. If we do not make national decisions on common standards, small actors can only settle for integrating into the platforms of larger ones on terms that are not equal to all parties.
- **Small private actors have little opportunities of participating in treatment paths.** Private actors do not have sufficient access to or possibilities for being involved in public service provision. The reasons for this include strict data protection and information security requirements. Descriptions of use cases and services are not available for all services provided by public healthcare, which makes it impossible to develop compatible solutions. The technical and qualitative requirements and approval practises related to treatment are particularly unclear. The linear and rigid ‘clinical pathway’ thinking makes it more difficult to provide and find new services as it does not allow for exceptions and flexible changes to a treatment plan once produced.

Recommendation 3. Access to public health data systems should be opened up and interface compatibility should be developed

- **Opening up involvement and access to public health record systems and processes.** Use case and service descriptions, such as workflow descriptions, should be openly available. The Finnish Institute for Health and Welfare has already promoted this as part of the social welfare and healthcare reform (THL, 2021). Based on the use case and service descriptions, actors can create suitable services for care processes and promote the mobility of data. Public health service providers should also be open about the effectiveness of treatment (including the input/output ratio), quality and their indicators.
- **Developing interface compatibility.** The aim is to create clear practises for implementing functional interfaces that do not need to be tailored separately each time. The interfaces must be easy to use and suitable for health sector processes. It is also important to openly publish interface descriptions. We recommend a model in which a third party’s digital services can be integrated into service processes if they meet the legal and technical conditions for this. The integration conditions would serve as a firewall between basic healthcare infrastructure and the services. There could also be a test environment for social welfare and healthcare data and data systems in Finland, in which new platform-based solutions could be simulated. The development could be directed by a neutral actor who facilitates the creation of common interfaces with health sector actors.

Conclusions

In this report, we give three recommendations aiming to accelerate the platform economy in the health sector for the benefit of citizens, businesses and society. Our recommendations aim to address structural and legislative constraints in the health sector, emphasising cooperation while dismantling organisational and regional barriers.

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