



PROCESS ANALYSIS FOR THE INNOVATION CONTEST OF REMOTE HEALTHCARE SERVICES: FINAL REPORT

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The ‘Process analysis for the innovation contest of remote healthcare services: Final Report’ was prepared within the framework of the procurement contract concluded between Tallinn University of Technology and the Health Insurance Fund. The purpose of the analysis is to describe and analyse the innovation contest organised by the Health Insurance Fund and the related activities, and to assess the effectiveness of the competition in meeting the objectives of developing remote healthcare services. This report summarises the main findings and recommendations of the interim reports (3) and is also available in Estonian.

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We would like to thank all of the participants in the studies conducted throughout the analysis: members of the project teams, the members of the competition organising team, and the evaluation committee.

The e-Medicine Centre is the largest e-health research and study centre in Estonia. The aim of the Centre is to study information technology solutions related to innovation and the digitalisation of healthcare and the interoperability factors needed to implement them. The Centre’s team consists of renowned e-health and health and well-being experts, under whose direction master’s and doctoral studies in eHealth and various trainings, along with innovation projects and research work in cooperation with partner organisations, are carried out.



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THE INNOVATION CONTEST FOR REMOTE HEALTHCARE SERVICES

The innovation contest for remote healthcare services was an innovation competition organised by the **Estonian Health Insurance Fund**, which was launched in November 2020 and concluded with a final event in March 2024.¹ This was the first such competition in the Estonian health landscape, bringing together **healthcare providers, technology providers and research institutions, and the ideas of their remote service models** (Figure 1). These three parties, in cooperation with the Health Insurance Fund, set out to develop user-friendly remote service solutions with great potential that could increase the person-centredness of the health system, improve access to healthcare, and raise the quality of care.²

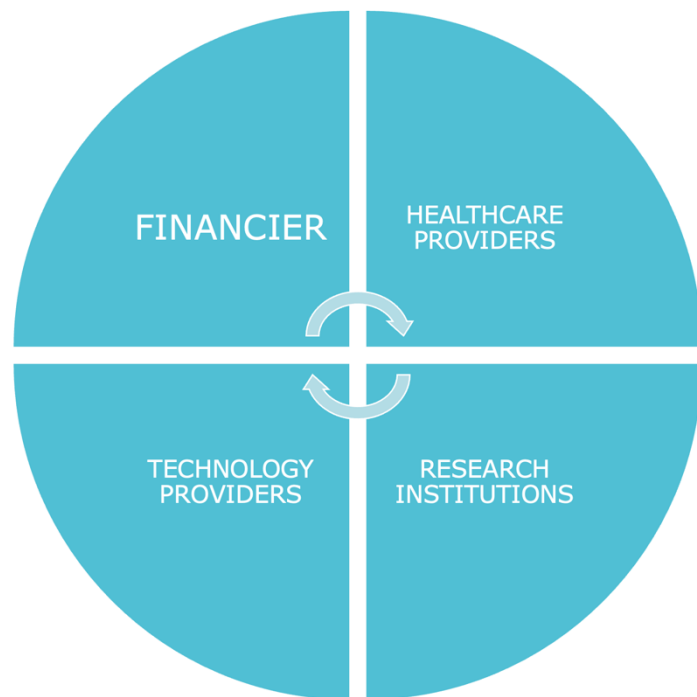


Figure 1. The main stakeholders in the innovation contest.

The competition had a number of goals. In addition to accelerating the uptake of remote

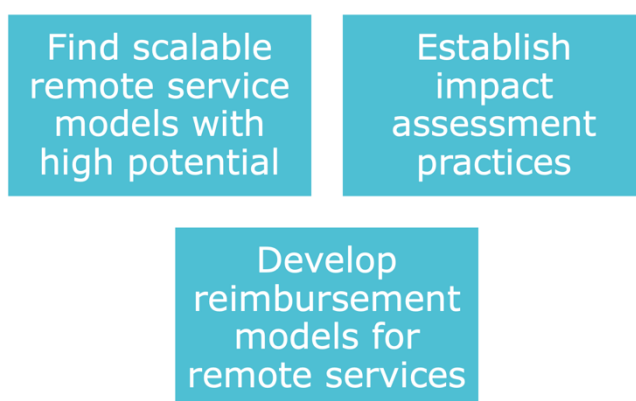


Figure 2. Sub-goals of the contest.

services in Estonian healthcare, the focus was on three narrower objectives (Figure 2).² **The competition required the development of remote service solutions and the assessment of their impact.** The evaluation had to demonstrate the equivalence or superiority of the new approach compared to the previous treatment of

patients in terms of health outcomes, user convenience, applicability, and economic impact. The achievement of this was the measure of success of the projects at the end of the competition.²

CONTEST ANALYSIS

The analysis of the innovation contest for remote healthcare services was carried out in parallel with the activities of the competition in order to **describe the competition, record the experiences and lessons learned in the course of the competition, and assess the performance of the competition** in achieving the objectives set. The analysis is **divided into three phases**, each of which was the subject of a separate interim report. The first focuses on the launch of the competition and on the first phase of the competition, during which the projects that made it into subsequent rounds of the competition were screened out.³ The second report concerned the period during which the selected projects were preparing for piloting.⁴ The third report describes the piloting of remote service models, impact assessment, and the results of the competition (Figure 3).⁵ This report summarises the results presented in the interim reports.

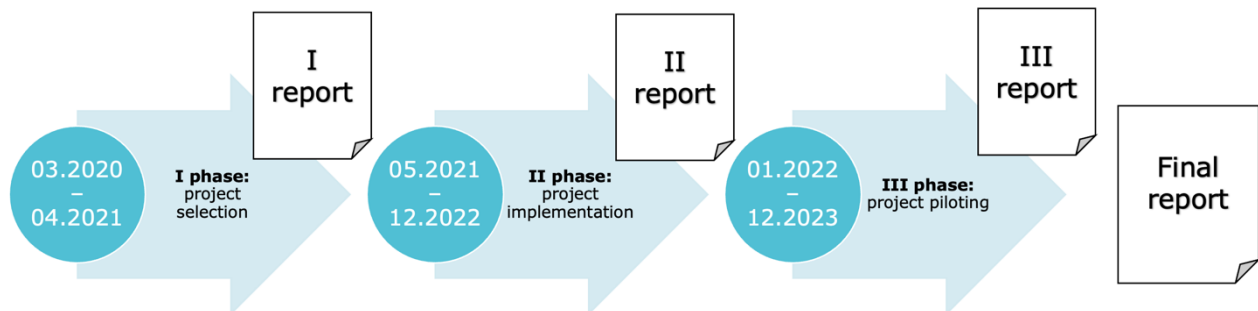


Figure 3. Competition analysis phases and reports.

Both quantitative and qualitative research methods were used in different stages of the analysis – online questionnaires, document analysis, individual and focus group interviews. The organisers, participants and members of the evaluation committee provided input to the preparation of the reports.^{3,4,5}

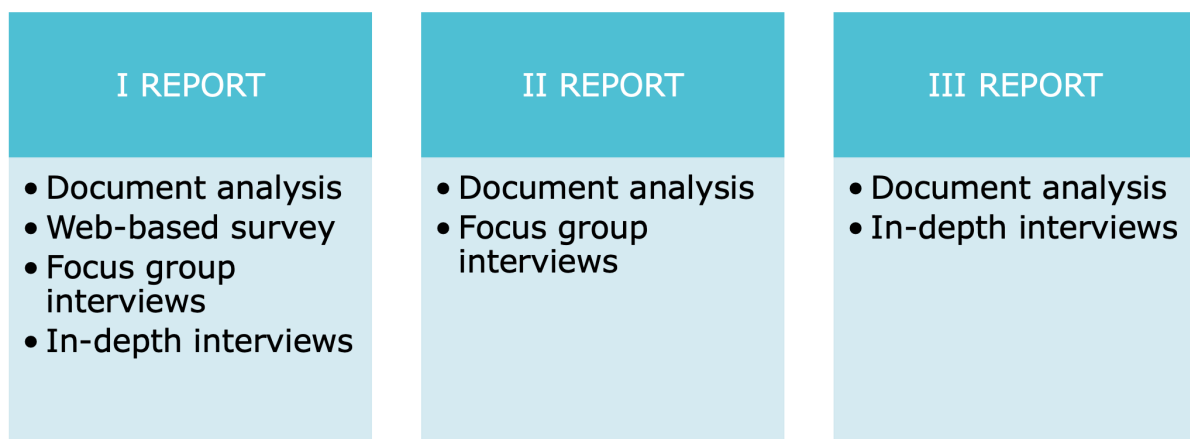


Figure 4. Research methods used in the competition analysis.

STRUCTURE OF THE CONTEST

The form and activities of the competition were based on the formal competition procedure developed for the competition.² The preparations for the competition in 2020 were followed by its announcement and the opening of the **first application round**. A total of 33 applications for remote service solutions were submitted, all of whom were given the opportunity to present their ideas to the evaluation committee in the style of pitching. Of these, 10 projects were selected, for which initial funding (EUR 10,000) was secured in the framework of the competition to further develop ideas before the **second application round**. After the second round, four out of 10 projects received funding (each between EUR 130,000 and EUR 330,000) for the development of the solution and its implementation in the healthcare system. In the first half of the year, four projects had thus emerged and passed the remaining stages of the competition (Figure 5).

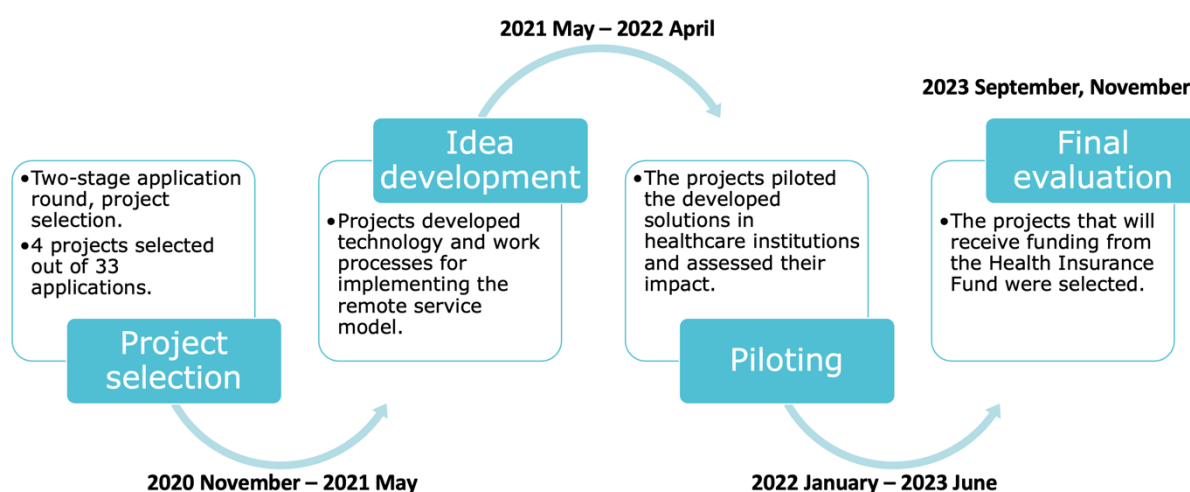


Figure 5. The main activities of the competition.

The development of remote services, reimbursement models and impact studies lasted seven months, until a **mid-term evaluation** of projects took place in November 2021. Its aim was to determine whether the projects were ready for implementation, including for the testing of reimbursement models and impact assessments. Out of the four projects, two received recommendations from the panel as a result of the mid-term evaluation, which had to be addressed before piloting.⁴ **Two of the projects began piloting in January 2022, and the other two in April 2022.** The pilot period differed from project to project, depending on the design and start of impact studies. The first project was completed in January 2023, with the latter projects being completed in June. This was followed by a 3-month period for analysing the data collected in the impact studies, the formulation of the results, and the final evaluation.⁵

CONTEST EVENTS

The main activities of the competition were **supported and supplemented by a programme** consisting of various events, trainings, and meetings (Figure 6).^{3,4,5}

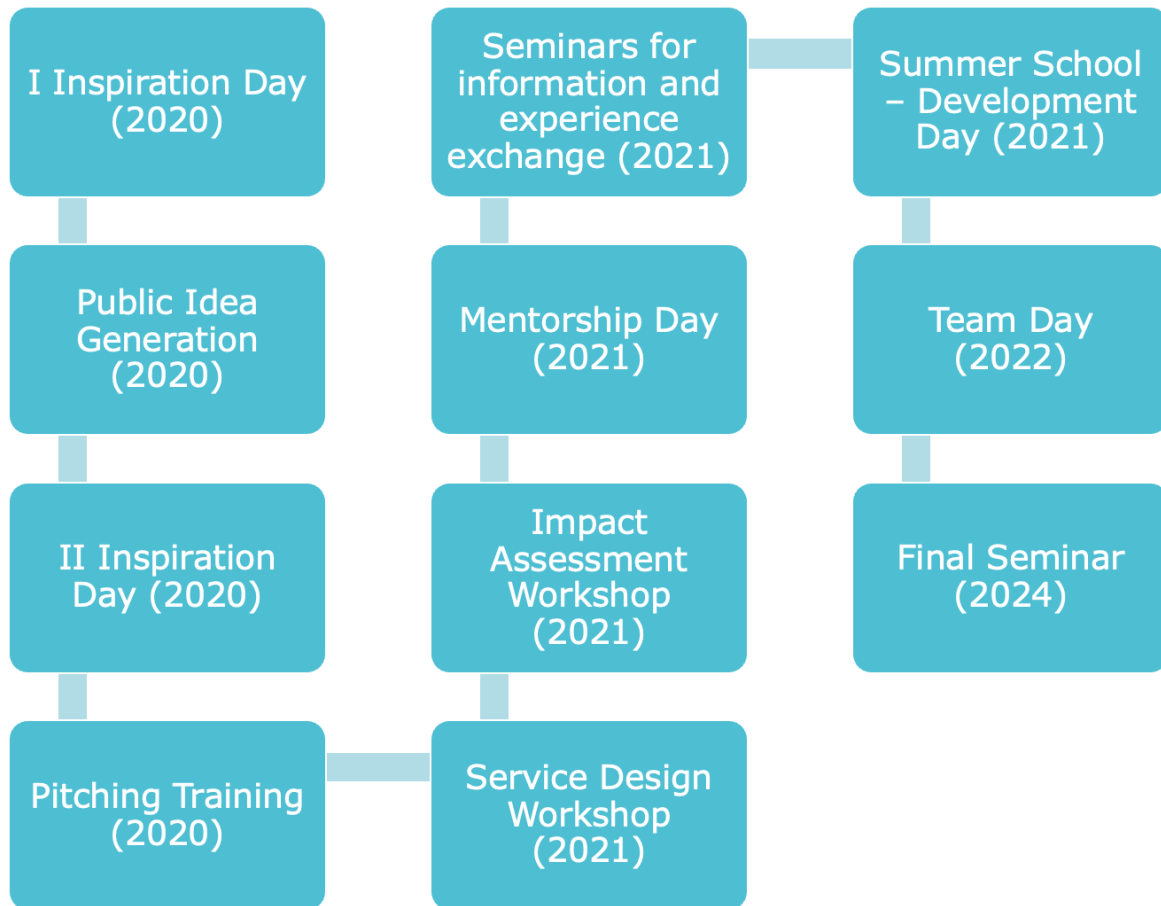


Figure 6. The events that took place during the competition.

took place, aimed at shaping the idea of the competition and bringing together the different players in the remote services landscape. Pitching training prepared projects for the first round of applications, while service design and impact assessment courses were prepared for the design of a remote service model and impact study.^{3,4} Project experiences were shared on Summer School-Development Day and Team Day, and the results of the competition were summarised in a final seminar that included the wider public.^{4,5} **In addition, project teams were offered the opportunity to consult selected mentors during the competition and regular meetings with the Health Insurance Fund were held.**^{3,4,5}

PARTICIPANTS

While 33 ideas were initially submitted to the competition, four of these projects were selected for piloting. Two of them – the projects **Oma Tervise Teekond** and **Eelvisiit** – were only aimed at the **primary care**. The other two, **OnKontakt** and **Psoriaasi kaugjälgimine** included a level of **secondary care** (Figure 7).³



Figure 7. Projects that reached the piloting stage.

The **OnKontakt** project provided support to cancer patients receiving active care through the e-solution and helped them report side effects. The **Psoriaasi kaugjälgimine** project focused on ensuring comprehensive monitoring of the patient throughout the care pathway using Pildivaatur software. In the **Oma Tervise Teekond** project, a personalised treatment plan was prepared in the digital environment for at-risk patients, with the monitoring and supporting of patients taking place. In **Eelvisiit**, patients described their problems through an information technology solution, and the most appropriate care pathway was chosen for the patient by the family health centre. All applicants had technology and research partners (Figure 8).

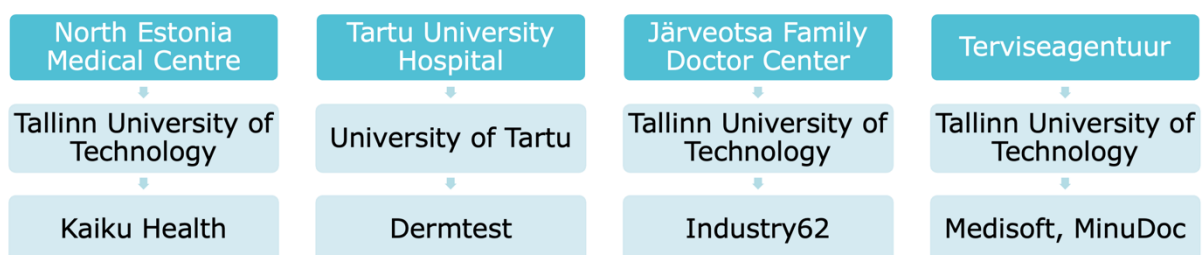


Figure 8. Applicants and their research and technology partners.

FINAL EVALUATION

The final evaluation of the projects took place for the primary care projects in September 2023, and for other projects in November 2023. **The final evaluation process was multi-stage** (Figure 9).⁵



Figure 9. The process of final evaluation of projects.

The projects submitted their impact study reports for the final evaluation and they were reviewed by the Department of Analytics of the Estonian Health Insurance Fund. **Both reports and reviews were first submitted to the evaluation committee for individual examination.** An **evaluation meeting** was then held, where the project teams were given the opportunity to present their results and members of the evaluation committee to ask questions. During the evaluation meeting, a **discussion** took place on whether the results of the project impact studies met the criterion set out in the formal competition procedure, i.e. whether the remote service model demonstrated that it provided equivalent or better health outcomes, user convenience, applicability and economic impact compared to the previous treatment of patients. **The results were decided by a vote and were communicated to the projects by the organiser of the competition.**⁵

RESULTS

On the basis of the results of the project impact study, the competition evaluation committee recommended that **one of the four solutions that completed the piloting phase would be submitted to the health services list advisory committee (TTL)**, where further assessment would be carried out on whether and under what conditions the Health Insurance Fund will finance the solution (Figure 10).⁵

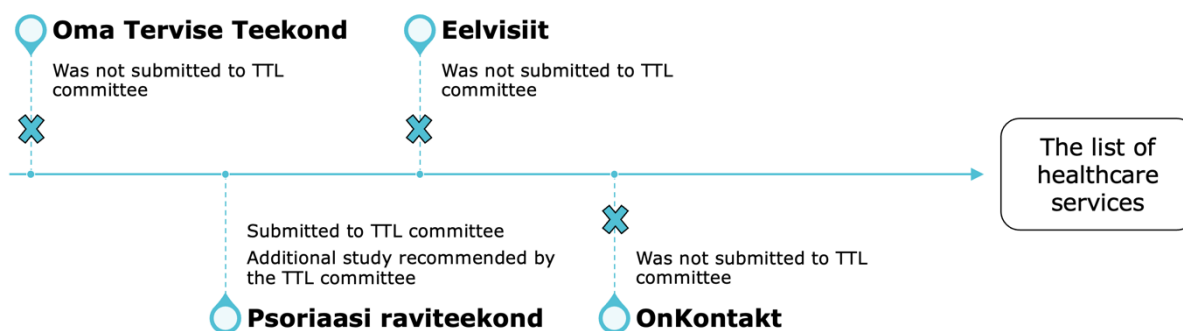


Figure 10. Submitting projects to TTL committee.

For the three projects that did not reach funding, it was not possible, in the opinion of the members of the evaluation committee, to claim that remote service models are equivalent or better than the previous treatment of patients and that these projects **would require additional studies**. The psoriaasi kaugjälgimine project, which was submitted to the TTL, required further study to assess its economic impact. **The project received conditional funding from TTL**, i.e. the target group for the service was narrowed to the group of patients with moderate and severe psoriasis, as the impact assessment indicated the best results for them.⁵

The competition brought together numerous ideas for remote service models. Out of the 33 original applicants, four were able to develop remote service models. In addition to the four projects, other remote service solutions have also reached the market in Estonia in parallel with the launch of the competition. In the view of the participants, **the competition fulfilled its broader goal of accelerating the adoption of remote services.**⁵

Impact assessment was one of the biggest challenges of the competition. Several general areas for development were identified in the assessment of digital technologies, which, if addressed, can advance impact assessment practices in Estonia. For example, there is a shortage of experts, knowledge, and understanding of assessment need to be harmonized across different institutions, and the nature of impact studies needs better awareness among healthcare workers. Issues with data quality and accessibility should continue to be addressed. Furthermore, basing

impact study designs on the NICE Evidence Standards Framework proved unsuitable. Decisions on healthcare service funding are currently based on different evaluation principles, such as a preference for randomized controlled trials. In addition, as a result of the competition, it was clarified that **feasibility studies and the impact assessment of new services should be conducted separately.**⁵

The **reimbursement models developed during the competition were applied and tested throughout the pilot.** The projects were funded based on these models until the final evaluation results arrived. The piloted reimbursement models covered the costs, but in the future it is necessary to specify the target groups more precisely. **Many participants in the competition see the need to continue implementing such programs in Estonia. It is important to consider the lessons learned from the competition and to build new programs accordingly.**⁵

Based on the lessons of the competition, the Health Insurance Fund has launched a number of new activities and programmes (Figure 11).

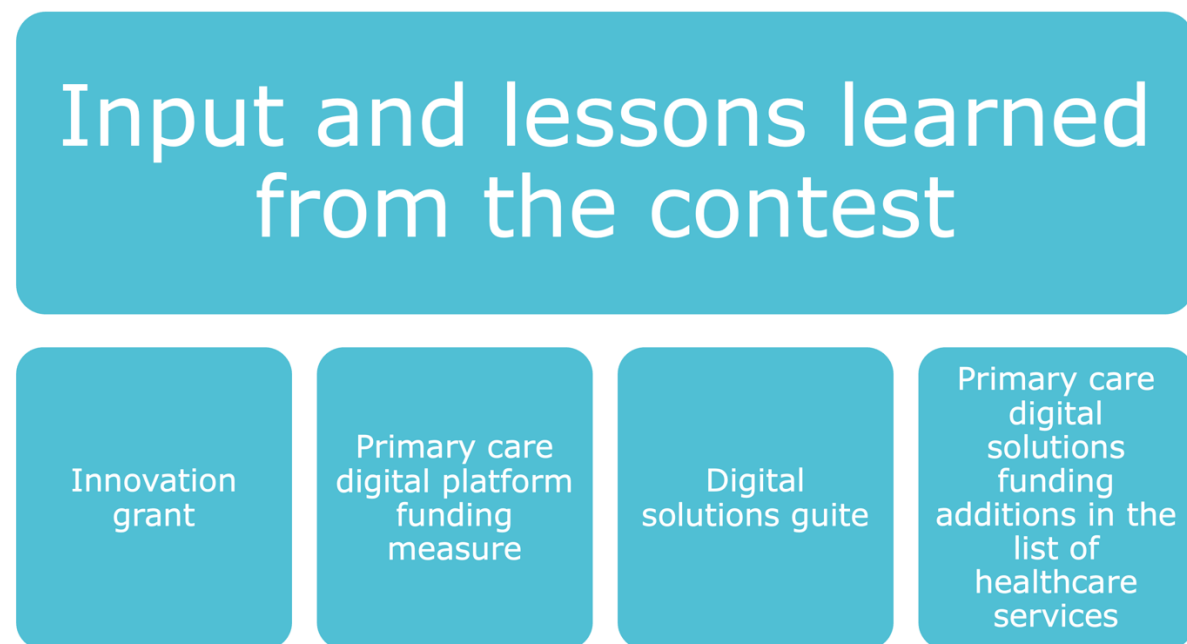


Figure 11. Initiatives where the lessons from the competition have been taken into account.

The [innovation grant](#) is intended to support the carrying out of impact studies on already developed health services, and the procedure for innovation regulates the provision of such support.⁶ Through the [primary care digital platform](#) funding measure, the Health Insurance Fund is funding the use of digital platforms in primary care, allowing for safe digital channels for communication between patients and primary care centres.⁷ The [Digital Solutions Guide](#) gathers information that digital solution creators should take into account when developing the

solutions.⁸ The [healthcare services list](#) has been amended to support the financing of primary care digital solutions, including funding for registrar or clinical assistant services and the preparation of a care plan and follow-up visit for at-risk patients.⁹

RECOMMENDATIONS

The list of recommendations has been drawn up on the basis of the proposals and recommendations described in the three reports on the analysis of the content. All recommendations are based on lessons and challenges related to the various stages and activities of the competition, which can be thoroughly examined in each separate report.^{3,4,5} The list of recommendations is not only intended for the Health Insurance Fund as the organiser of the competition, but also for everyone who is or will be involved in the implementation of such innovation programmes or competitions.

1. Prepare the competition thoroughly.

- ◆ **To place great emphasis on setting out the conditions of the competition in detail**, in order to avoid changes in essential principles during the course of the competition, to ensure that the objectives and expectations are unambiguously understood, and that the evaluation process is objective.
- ◆ **Involve all relevant stakeholders from the planning stage**. The experience of the competition shows that several questions about the organisation of the competition (ambiguity regarding expectations, communication problems) could be avoided by involving the right parties in the planning phase of the competition.
- ◆ **Take into account the specificities of the sector and of the companies operating in it**. Many healthcare providers have a public procurement obligation. In this context, it is necessary to consider describing and clarifying the obligation of public procurement in the formal process documentation of a competition, to take account of public procurement in the design of the time frame of the competition and, more broadly, to increase the expertise related to procurements in the public sector as well as among healthcare providers.
- ◆ **Take into account the processes supporting the conduct of impact studies when setting the time frame of the competition**. When conducting a research with human subjects, the competition time frame must take into account an additional period of 3–4 months after the final approval of the study protocol, which is necessary to obtain the approval of the Ethics Committee.

2. Choose the right focus.

- ◆ **Focus either on one level of healthcare (primary care, secondary care) or on one type of technology at a time**, which would allow for more accurate involvement of experts, mentors, members of the evaluation committee and more detailed planning of the competition.
- ◆ **Focus on one stage of technology and service development at a time.** Based on the example of the contest, it is recommended to distinguish between the development and feasibility study of project ideas and a more in-depth assessment of the impact of the healthcare service model in the future.
- ◆ **Share support for different stages of technology and service development among different stakeholders.** For example, the development of ideas would be supported by accelerator programmes and a more in-depth assessment of the impact of healthcare services by the Health Insurance Fund.

3. Ensure that competition documentation supports the activities of the competition.

- ◆ When creating **the competition's procedure, application forms, evaluation reports and other documents**, take into consideration that they **support projects in describing and developing their ideas and solutions.**
- ◆ **Limit the number of characters or pages to the documentation to be completed by applicants (application forms) or to be created (final report)** so that they can be easily managed and understood by evaluators.
- ◆ **Define eligible costs for the applications**, which would facilitate the preparation of budgets for projects and their evaluation by the evaluation committee.
- ◆ **To reflect the issue of conflict of interest in the terms and conditions of the competition and in the application forms.** The description of the conflict of interest must be set out in the terms and conditions of the competition, be clearly declared and explained by a reference to the relevant legislation. This will allow participants to better

identify conflicts of interest and give members of the evaluation committee certainty in the event of a potential conflict of interest resulting in the project not receiving support.

- ◆ **Avoid making substantial changes to the competition's activities that are not in accordance with the rules of the competition.** The impact of such changes on the results of the competition may be difficult to assess.
- ◆ **In case of inconsistencies between the actual processes and the documentation of the competition, communicate this to all participants in the competition.** Timely and well-founded communication ensures the transparency of the process and allows for an open debate.

4. Provide projects and the organising team with a support programme to support the achievement of the objectives of the competition.

- ◆ **Set up a support programme consisting of various thematic events and trainings.** The experience of the contest showed that participants in the competition highly value the existence of supporting activities and that the offer of such a programme fits well with the concept of organising an innovation competition.
- ◆ **To provide support from Estonian and foreign specialist mentors throughout the competition.** The competition revealed that offering mentoring in a voluntary form at different stages of the competition supported project teams. Make sure that mentors cover competition-specific competencies.
- ◆ **Involve experts from the Health and Welfare Information Systems Centre** in the development phase of projects containing digital solutions to better ensure that technologies can be expanded and applied across Estonia.
- ◆ **To form an advisory body supporting the organising team of the competition,** which would assist in the consideration and resolution of legal, technological, and other issues requiring specialised knowledge of the competition. The aim is to provide accurate and consistent information to the project teams.

5. Establish a clear and simple evaluation process for evaluation committee members and ensure transparency of the evaluation process for participants.

- ◆ **Plan the involvement of all relevant competencies in the evaluation committee according to the focus, requirements and purpose of evaluation of the competition and ensure that they are present at all stages of the evaluation.** When assessing projects with a digital component, include IT competence representing the Estonian national system in the evaluation committee. Involve external experts in the evaluation committee in areas where there are few experts in Estonia (technological assessment) and where there may be a conflict of interest.
- ◆ **Select clear, sufficiently precise and unambiguous evaluation criteria and describe them in detail in the competition procedure.** It is recommended to conduct an international screening of the evaluation processes and criteria for other innovation competitions in order to develop the most optimal classification of categories and components to be assessed and a suitable system for determining the weight of the components.
- ◆ **Involve an external expert in the evaluation process to allow for thorough project budgeting.** Additional input for budgets evaluation would assist the members of the evaluation committee in making a full or partial funding decision for projects.
- ◆ **Ensure that the requirements, recommendations and feedback of the evaluation committee on the projects do not conflict with the conditions of the competition.** Ensure that the implementation of the recommendations required in the formal contest procedure is in line with the time, financial and expertise possibilities available for this purpose.
- ◆ **Provide comprehensive feedback on project decisions at each stage of the contest.** Clear and well-founded feedback is important for beneficiaries as well as for those who do not receive support. Providing feedback allows projects to develop their ideas regardless of the results of the competition and thereby contribute more broadly to the achievement of the objectives of the competition.

6. Support the development of the area of impact assessment of healthcare service models with digital components.

- ◆ **Find a central organisation that brings together the parties involved in the impact assessment on a regular basis and initiate discussions on this issue.** This is important both in the area of health technology impact assessment and for sharing, harmonising and agreeing on principles for issues related to reimbursement models and the implementation of performance based reimbursement models.
- ◆ **Support the development of common terminology in the field** in order to enhance a common understanding of impact assessment and communication between different stakeholders.

7. Raise awareness of the application of digital technologies in healthcare among the different actors in the healthcare system.

- ◆ **Carry out continuous introduction and explanation (events, field analyses and articles) work among parties in the healthcare sector and organise direct teaching in specialty study programmes within the healthcare sector.** Reshaping people's attitudes about the potential role of digital technologies in the healthcare system and providing sufficient evidence of the impact of using digital technologies can also ensure better funding opportunities for such competitions.
- ◆ **Organise events that bring together healthcare providers, technology providers and researchers** on a consistent basis to facilitate finding suitable partners for the development of such service models.
- ◆ **Share the challenges and successes of the contest with new programmes like this.** The competition confirmed that the development of the field of remote healthcare services will be good for many people and is considered important. It is therefore necessary to share the lessons learned and the successes of the competition more broadly so that future programmes can build on existing experiences.

SUMMARY

The main goal of the innovation contest of remote healthcare services was to accelerate the adoption of user-friendly remote services with high benefit potential, which the participants of the contest believe was fulfilled. The contest had three more specific sub-objectives.

Objective 1: To find scalable remote service models with high potential.

The contest brought together a considerable number of different remote service solutions. The 33 applications received for the contest undoubtedly showed the interest of market participants in developing remote services. During the contest, it was decided to pilot four remote service models that were seen as having great potential. Although only one of these services reached the funding stage of the Health Insurance Fund and could thus be scaled up, as its impact was sufficiently proven in the contest, all four projects that passed the piloting stage were able to develop their remote service models and may have the potential for nationwide scaling in the future. In parallel with the contest, services also entered the market from among the ideas that did not make it to the piloting stage of the contest.

Objective 2: To establish an impact assessment practice.

The impact assessment of the remote service models carried out in the contest did not provide the desired evidence for several projects as to whether the piloted approaches are equivalent or better than previous patient treatment in terms of health outcomes, user-friendliness, applicability and economic impact. This could be due to several reasons, including a shortage of experts and a need to harmonize the understanding of assessing service models that include technology components. At the same time, the contest helped clarify the processes for how such assessments could take place in Estonia going forward. Firstly, it became evident that feasibility studies must be carried out separately from impact assessments of new services. Secondly, it was found that a study design based on the NICE Evidence Standards Framework does not fit the current principles for making funding decisions in Estonia. Based on the lessons learned, the Health Insurance Fund set up a new process for applying for innovation funding, which allows the Health Insurance Fund to financially support the assessment of healthcare services that have already been developed and gone through a feasibility study.

Objective 3: To develop reimbursement models for remote services.

In cooperation between the Health Insurance Fund and the project teams, project-specific service reimbursement models were developed, which were tested throughout the pilot period, and the projects were reimbursed based on these models until the contest results arrived. As a result of the piloting, it was found that the tested reimbursement models worked in terms of covering costs, but would need further specification, for example, in terms of target groups. Out of the four piloted reimbursement models, only one was eventually implemented in practice, where the service is reimbursed for a narrower target group than during the project piloting.

One of the most important outcomes of the contest, which was not articulated as a goal at the beginning, could be considered the bringing together of different stakeholders. Such close cooperation between healthcare providers, technology providers, researchers and the Health Insurance Fund in promoting remote service models was unique in the Estonian context and allowed all parties to gain important knowledge to accelerate further development of the field. Many participants in the contest found that the implementation of such programs should continue in Estonia. It is important to take into account the lessons learned from this contest and build new programs accordingly.

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