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Conversational Artificial Intelligence in Social and Health Care

From individual experiments to national development and reaching full potential

Accenture has made an analysis for the Finnish Ministry of Social Affairs and Health to map out how conversational Artificial Intelligence (AI) is used in Finnish social and health care services at the moment and to create a vision for future goals.

The analysis has taken into account different views from both public and private social and health care service providers, NGOs, universities and other learning institutions as well as organizations developing conversational AI.

Based on the analysis

- **Existing solutions are mostly virtual assistants used in service guidance and counselling.** 12 cases of these were found, and common features include clearly defined and simple need for information, not requiring identification for using the service and the aim to give automated answers to frequently asked questions.
- Using conversational AI has the potential to improve cost efficiency and effectiveness as well as to help dismantle administrative silos – provided the solutions created are ethical, comprehensive and steer towards co-operation. **A mutual goal for the future should be holistic, integrated and networked conversational Artificial Intelligencies.**
- **A national innovation network for need and phenomenon based development of conversational AI** should be created in order to reach the full potential of conversational AI in Finnish social and health care services. It is important to **nationally support and steer the digital development in social and health care services** in order to ensure national equality.

What is Conversational AI?

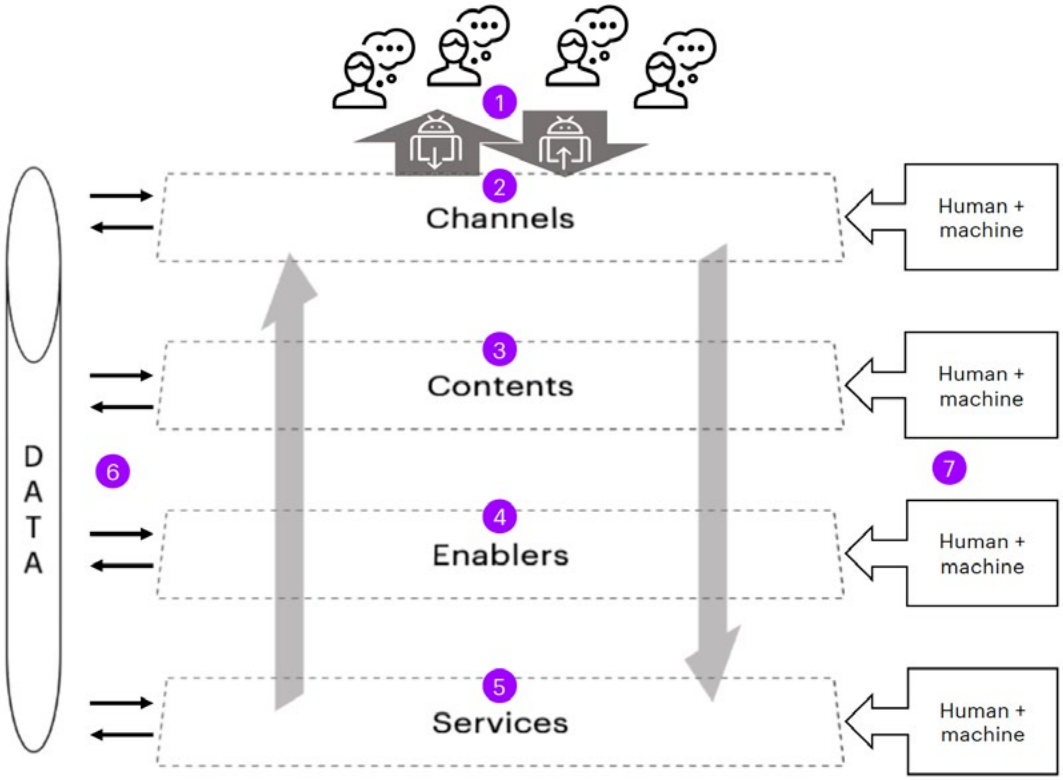
Conversational AI is, in its simplest form, an interaction interface between human and machine using text or speech. AI has been taught to understand human language, usually through educational data from interaction between human beings. AI has an unlimited ability to learn new things, but data is needed both to teach it and to test its abilities.

Holistic, integrated and networked conversational Artificial Intelligencies as a goal

Taking advantage of conversational AI has the potential to improve cost efficiency and effectiveness as well as help dismantle administrative silos – provided the solutions are ethical, holistic and steer towards co-operation. AI does not replace people but gives people the chance to increase the effectiveness of their work.

Taking advantage of conversational AI in the Finnish social and health care services is still in its early stages. In addition to mapping out the current situation of conversational AI use, the analysis aimed to creating a vision for how to take advantage of conversational AI in the future.

The goal was set to creating holistic, integrated and networked conversational AI solutions within social and health care services in Finland.



1. Conversational AI offers a new automated interaction interface between the service user and service provider.

2. To make the service as easily accessible as possible, it should be accessible through existing digital services. People should also be guided to these services via physical services. The best-case scenario is that the conversational AI is a part of an intelligent service entity seamlessly connected to other digital services, such as symptom evaluation and remote consultations.

3. The information content of an AI consists mostly of content relevant to the target audience. When it comes to parallel contents, the AI creates a network with other conversational Artificial Intelligencies. This results in a holistic network that covers the content areas both in width and in depth.

4. Integration with the background systems, such as electronic patient and health records or location information, enables an individually tailored user experience, where AI for example recognizes the user's situation in advance and has the ability to effectively guide the user towards the right service. This helps in making the social and health care system more efficient as a whole.

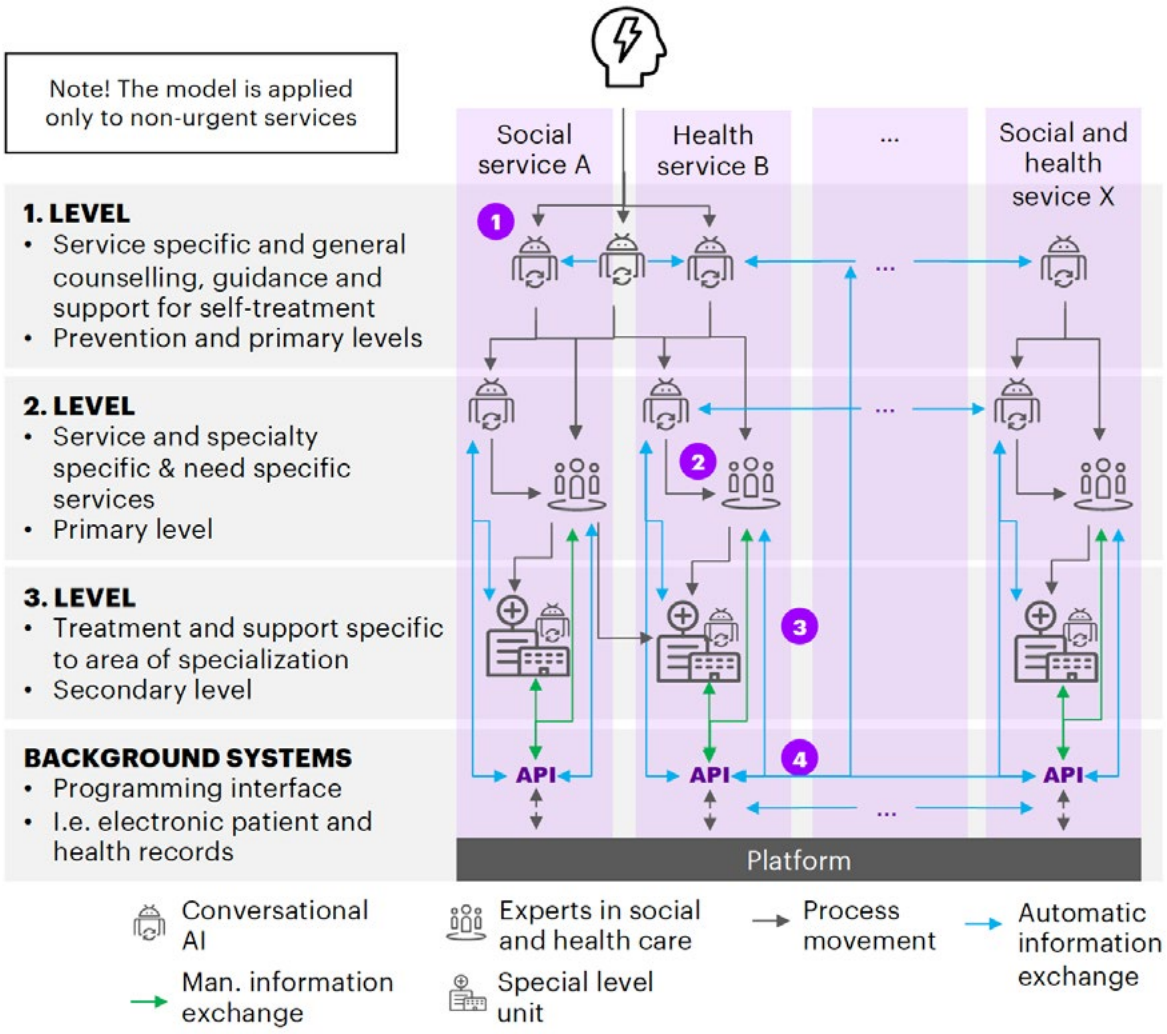
5. AI is a linked part of the integrated service chain within social and health care services, and it produces information and guides its users both within the service chain and between service areas. Phenomenon based AI is naturally linked to several service areas, supporting multi-professional and systemic ways of working.

6. AI takes advantage of and produces information continuously, which makes it both self-learning and self-teaching. The operational data helps develop AI based on genuinely user-driven needs. The information received can help in for example developing physical services meet the customers' and patients' needs more effectively.

7. Taking advantage of conversational AI requires new ways of working on all stages, making people and machines work efficiently together.

The picture below showcases one model for how the process and information exchange could look like in an integrated system. This kind of ideal information exchange is not fully enabled by the current legislation.

From siloed service pathways to intelligent integrated networks



1. In non-urgent cases the customer primarily interacts with an omnichannel AI solution.

   The primary level AI counsels, guides and supports the customer, or if needed, transfers them to another primary level AI better suited to the subject in question. When needed, the customer is transferred further to a secondary level expert or to a more specialized AI.

2. The secondary level expert(s) function in multi-professional co-operation with the conversational AI and other technological solutions to solve the need for service and to guide the customer further. If the situation requires direct expert contact, it is arranged primarily via a remote contact or face to face, if needed.

   When needed, the customer is transferred further to 3rd level or between levels.

3. On specialist level the treatment and support are mainly expert-based and conversational AI functions in the background supporting the expert in i.e. decision making.

4. Actors on all levels are connected to the background systems, i.e. electronic patient and health records, taking advantage of the users' background information in guidance and decision making.

How can the goals be reached?

The analysis shows that in order to ensure equality it is important to support and steer the digital development in social and health care services on a national level. A national innovation network for developing conversational AI from a need and phenomenon based perspective should be created to reach the full potential of using AI in Finnish social and health care services.

What's next?

After the analysis it is to be determined what kind of a control system will be used to carry out the conversational AI systems in social and health care, and how the innovation network is connected to the implementation.

There are several ongoing development projects that the national development of conversational AI can be a part of. For example, the national AuroraAI-program offers a structure for creating networks, collaborative development and learning together.

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