

SUMMARY

# Health check of Danish health technology

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Through working on this report, it has become clear that the investments in development, testing and the implementation of new health technology have not yet fulfilled expectations. This is true for users at hospitals and nursing homes (patients and healthcare staff), or at the companies and universities which have staked heavily on the development of new solutions and products. There is a need to do more, and not least do it differently, to fully realize the potential of health technology.

In this sector development project, we have conducted a number of interviews and workshops with representatives of health technology companies, entrepreneurs, industrial associations, hospitals and municipalities in Denmark and abroad. As a result, a number of insights and trends have been identified for the technological development in the sector:

- Municipalities and regions want evidence and documentation of the benefits of implementing a new technology. Managers and healthcare staff in the health sector have a clear wish to see that health technology lives up to the requirements for clinical and financial evidence. Likewise, decision-making support is needed to make the right long-term investments in new equipment.
- Over the past ten years, hundreds of small pilot projects have been carried out that focus on the development and implementation of new health technology. The projects have taken place at hospitals, at general practitioners, and in nursing homes. A few of the projects have advanced from the pilot phase to full-scale implementation. However, the limited number of successful pilot projects has resulted in a widespread perception that technologies do not have the expected effect. Many of the stakeholders who have been interviewed for this report are calling for a new approach.
- The distribution of work and responsibilities between all the public owners of the healthcare system and the private suppliers of technology is changing at the moment. The introduction of new technology and the

increased digitization of the entire sector will probably intensify this trend.

- Digitization and new health technologies can contribute to a number of initiatives which are being made in the healthcare system to focus more on the patient, and which make the most of the resources that come from involving patients and relatives.
- Developments in health technology are particularly focused at linking information from medical equipment in large digital solutions and data platforms—platforms that gather and analyse data across departments and units. This is paving the way for completely new treatment possibilities, but is also a relatively new area within early diagnosis and prevention. System integration and data convergence are the umbrella terms for this development.

The described insights and trends have been translated into a number of recommendations:

## Recommendation 1:

### **Strengthened ecosystem for the development of health technology**

To realize the potential in health technology, the report argues that it must happen to a much greater extent through the combined efforts of public and private sector players. These efforts must be made across the many different domains and clinical disciplines in the health sector. It is thus absolutely necessary to create a coherent health technology ecosystem involving the right players at the right time in relation to the development, testing, and implementation of health technology and entrepreneurship.

## Recommendation 2:

### **Bigger strategic initiatives**

Over the past ten years, hundreds of projects have been carried out with the involvement of end-users. Often,

these have been smaller projects, where a hospital department, a company and university researchers work together to develop a new solution. Many of these projects and partnerships have not succeeded in taking the project beyond the pilot phase to full-scale implementation. Therefore, it is recommended that the parties are brought together to focus on fewer but larger strategic initiatives. These initiatives must help public and private sector players to work together to create solutions, which are of a better quality for patients and healthcare staff as well as clinical and financial evidence for the solutions.

### Recommendation 3:

#### **Greater critical mass. In general, there is a lack of critical mass**

The development of new products is characterized by being in the hands of a relatively small number of people. Although there are a wide range of leading researchers working within the field of health technology, altogether there are not that many of them. To exploit the potential of health technology, the report recommends building up a solid research base in the new types of technologies that have the potential to contribute to solving some of the challenges the healthcare system faces. This is especially true within research into how systems can be integrated. Here, there is a need for researchers who can navigate various academic competences.

### Recommendation 4:

#### **Clear frameworks for sharing and using health data**

The changes that will take place in the coming years in how roles are divided between public and private players and between the units in the healthcare system call for closer cooperation and the exchange of information, knowledge, and data. If the efforts being made to extend the initiatives in the healthcare system to units and people outside the hospital framework are to succeed, then health technology is necessary. A decisive factor here is that a secure and transparent framework exists for supplying and sharing data between individuals and organizations. The report therefore recommends that clear contracts are prepared on the production, access to, storage, and use of data, so that cooperative relations based on trust can be maintained. In this way, health technology and more extensive digitization could contribute to ensuring greater coherence in patient care during the transition from hospital to the municipal healthcare system and when continuing the treatment and rehabilitation outside hospital.



### Recommendation 5:

#### **Strengthened educational activities within health technology**

The dialogue with private companies, their industrial associations, hospitals as well as the public authorities and institutions has identified a need that the education and supplementary training of both technical experts and managers within health technology must be significantly strengthened. Several of the companies involved have moved or are moving their R&D activities out of Denmark because of the lack of engineers. There is, among other things, a shortage of people with expert knowledge about components, equipment, and digital solutions, as well as within areas such as quality assurance and the implementation of health technology in complex organizations.

### Recommendation 6:

#### **Better conditions for up-and-coming players**

A decisive factor for the development of health technology and a competitive business environment in the area is to create good conditions for innovation and entrepreneurship. Experience from growth areas abroad, for example Boston, USA, shows that the new technological breakthroughs within health technology come from high-tech start-ups, and that the breakthroughs often happen in collaboration with leading universities based on international cutting-edge R&D. An OECD report on future trends in Denmark identifies the health area as holding significant potential for entrepreneurship and the establishment of new start-ups. To establish more



growth-oriented start-ups that are based on research, for example research from DTU, it is necessary to invest more efforts and create better conditions for entrepreneurship. In particular, it is necessary to create a better framework for networks and communities where innovative researchers, start-ups, enterprises, professional serial entrepreneurs, investors, organizations, users, etc. all meet. Likewise, it needs to be easier for start-ups from universities and hospitals to become established—by quickly obtaining an overview of the possibilities and advice on the technical rules and requirements which are available, in particular within the health sector.

#### About DTU sector development projects

Sector development projects are one of the tools that DTU employs to cooperate with the business community and authorities to identify research and development needs in a sector or industry. A sector development project extends from an initial identification of ideas over the lobbying in relation to private and public funding sources to specific collaborations with companies and authorities. The result is a report on a series of interdisciplinary methodological challenges and a number of research and commercially valuable project opportunities within a technology and recommendations for actions.

#### Interviewed companies/authorities/research institutions and workshop participants

Medtronic, Cure4you, Netplan, Coloplast, Novo Nordisk, Ambu, Rehfeld, BK Medical, KMD, CSC, BridgeIT, eglu, Cortrium, fbc device, Sekoia, Monsenso, NNIT, Acarix, Region Hovedstaden, Steno Diabetes Center, Region Sjælland, Københavns Kommune, Lyngby-Taarbæk Kommune, Horsens Kommune, Herlev og Gentofte Hospital, Bornholms Hospital, Slagelse Kommune, Area9, Prophet, Imotions, StartupHealth, MIT Deshpande Center, Northeastern University, Harvard Medical School, Brigham and Women's Hospital

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