

## Valorization addendum

Nowadays increasing attention is being paid to the impact of research findings on society, also referred to as valorization. Valorization can be defined as the “process of creating value from knowledge, by making knowledge suitable and/or available for social (and/or economic) use, and by making knowledge suitable for translation into competitive products, services, processes and new commercial activities.”<sup>1</sup> In this chapter, the activities that have been undertaken so far to disseminate the findings of this dissertation will be outlined. Additionally, the societal impact of the research conducted as part of this dissertation will be addressed. As the aims of this dissertation were twofold, this section will address both the societal value of the innovation inventory and the development and evaluation of a decision support App.

## **DISSEMINATION OF FINDINGS**

The findings of this research have so far been distributed via various channels to formal caregivers, care organizations, researchers, policy makers, students, and other stakeholders. Four of the five articles included in this dissertation have been accepted for publication or have already been published in international, peer-reviewed journals. The results have also been presented and discussed at national and international conferences focusing on research on aging in general or nursing. As such publications and conference presentations mainly reach researchers and international experts, other methods have been used to disseminate the findings locally to care organizations, caregivers, and policy makers. This has been done by presenting the findings at local symposia for formal caregivers, such as the yearly symposium of the Living Lab on Ageing and Long-term Care South Limburg and a symposium for district nurses and case managers. A report in Dutch for the Provincial Council for Public Health, which describes the innovation inventory, has also been published. In addition, an article in Dutch about the decision support App has been published in a journal for the employees of a long-term care (LTC) organization in the South of Limburg.

The results of the research conducted as part of this dissertation have also been integrated in different educational activities/programs. Lectures on the project have been given to the Master program Care & Technology and the Master Advanced Nursing Practice at Zuyd University of Applied Sciences. In addition, a web lecture was included in an international exchange program between Zuyd University of Applied Sciences and Chengdu Medical College (China). At Maastricht University, different bachelor students conducted their own research within the project and wrote theses, e.g. about interventions to reduce the burden of informal care, that could serve as input for the content development of the App.

Furthermore, a database containing an overview of innovations by LTC organizations has been published on the website of the Living Lab on Ageing and Long-term Care South

Limburg. On this website, the opportunity has been created for organizations to add new innovations to the database and share knowledge about them publicly. The database has been updated twice (two years after the initial inventory was carried out). However, no innovations have been added without an explicit call from us for updates. Moreover, the contact persons of organizations frequently change, making it difficult to ensure that the database remains updated. Therefore, new ways of sharing information about innovations should be considered.

## **POTENTIAL SOCIETAL VALUE AND IMPACT**

### *Innovation overview*

Internationally there is an increasing need for innovations to deal with the future challenges facing LTC, in terms of increasing demand for LTC, the changing expectations of care recipients, and the lower availability of skilled LTC workers. Both insights into innovations used and/or developed in LTC organizations for older people and the dissemination of this knowledge serve the societal need to find solutions to deal with these future challenges. The innovation database, which was set up as a result of the innovation inventory presented in chapter 1 of this dissertation and subsequently updated twice, makes knowledge about innovations available to the public and can be used by LTC organizations, caregivers, and policy makers. Sharing knowledge about innovations (e.g. in terms of goals, target population, effectiveness, and costs) can have an impact on the innovation management of LTC organizations and has several advantages. Organizations can learn from each other's experiences, which might prevent them from investing in parallel in similar developments or making the same mistakes. Another advantage of sharing knowledge is that it can accelerate the uptake of effective innovations and make more efficient use of promising ones. From a theoretical point of view, a database containing up-to-date information about innovations and their level of effectiveness seems an ideal medium for sharing knowledge and ensuring better use of scarce healthcare resources.

However, establishing and maintaining such a database is challenging as its content requires constant updating. Therefore, the database needs the constant attention of the organizations sharing their knowledge; hence, the process of updating the content needs to be embedded in their work processes. Finally, such a database should be highly user-friendly and as convenient to use as are other search engines, such as Google. The experience gained in this research may serve as a basis for developing other knowledge-sharing platforms. Developers of such a platform might find it useful to start thinking about updates and the integration of the platform/website into the work processes of organizations right from the beginning, in order to ensure that it is in line with the needs of the

target group. Even though the maintenance of a detailed database may be very time consuming and therefore, might not be the optimal measure for facilitating knowledge exchange, the idea of sharing experiences about innovations is still worthwhile. This is actively achieved within the organizations participating in the network organizations Living Lab in Ageing and Long-term Care (AWO) and the Centre of Expertise of Innovative Care and Technology (EIZT), for example by means of symposia, workshops, fact sheets, or projects in which innovations are developed through co-creation by healthcare professionals, researchers/teachers, and companies. In addition, knowledge exchange would ideally not be restricted to certain sectors, such as long-term care, or to a specific region, such as Limburg. It would be valuable to broaden the perspective and search for innovative practices in other sectors that could serve as examples of innovations in long-term care.

### *The decision support App*

As a result of the increased prevalence of dementia, more and more people in society are being confronted with the complex and emotional challenges relating to a dementia diagnosis.<sup>2</sup> A dementia diagnosis not only affects the person diagnosed but also has a major impact on the life of members of that person's social network. Therefore, there is an increasing need for support on how to deal with the consequences of dementia on the daily lives of persons with dementia (PWD) and their informal caregivers/networks. Formal caregivers can play an important role in detecting practical problems in the daily lives of PwD and their informal caregivers and in advising them on possible solutions.

Detecting practical problems and providing well-informed advice on possible solutions are also complex and challenging tasks for formal caregivers. The results of this dissertation could help those with an advisory role in community-based dementia care, such as case managers and district nurses, in different ways. Equipped with knowledge about the most important practical problems preventing PwD from living at home, formal caregivers could pay particular attention to detecting these problems and ensuring that they are up-to-date regarding possible solutions. Ideally, this knowledge would be integrated in the standard work procedures of these professionals. This could be achieved by, for example, referring to the most important practical problems preventing PwD from living at home in the care standard for community-based dementia care. Moreover, this knowledge should be integrated into the curricula of nursing education and that of other formal caregivers with a coordinating role in community-based dementia care, such as general practitioners. General practitioners are often the ones responsible for the early detection of dementia and the referral of PwD to a case manager; therefore, they too should be aware of the practical problems that can prevent PwD from living at home. The focus on facilitating aging in place is also in line with the new program from the Dutch Ministry of Health, Welfare and Sports, "Longer at Home," which was recently proposed to the Dutch House of Representatives. The main goal of this program is to enable older

persons to grow old in their own, familiar, home environment with a good quality of life, by focusing on the major preconditions of good care and support at home—support from informal caregivers and volunteers, and suitable living conditions.<sup>3</sup>

In accordance with its definition, a core element of valorization is the process of making knowledge suitable and/or available for social (and/or economic) use. With the user-centered development of the App knowledge about practical problems preventing PwD from living at home was translated into a decision support tool for formal caregivers in community-based dementia care. Moreover, the App aims to provide tailored insight into problems and possible solutions based on various sources of (evidence-based) information (such as guidelines, databases for assistive technology, etc.). The App makes this knowledge available to formal caregivers at the point of care. Using it, formal caregivers can conduct a problem assessment that is partly based on validated questionnaires and then are automatically directed to an overview of possible solutions pertinent to the problems detected. An important prerequisite is that the content of the tool be constantly updated, as knowledge is continuously evolving. The work of district nurses, who play a key role in community-based care in the Netherlands and are responsible for performing care needs assessments among other things, is expected to be evidence based.<sup>4</sup> This means that they should use validated instruments when making clinical judgments and be aware of the latest evidence when making decisions about nursing interventions. As the overall body of evidence is continuously growing and new solutions developed, it is very challenging for nurses to meet these expectations in everyday practice. Decision support tools can therefore be seen as an ideal medium for facilitating evidence-based problem assessment and advising on solutions.

The decision support App presented in this dissertation is, in its current version, a tool that can be used only for research purposes. However, the current prototype could serve as a basis for the development of a product that could be used in practice. However, before the practical implementation of the App could be realized, certain factors must be considered. First, a decision must be made on whether it is worthwhile investing in its further development. A lack of efficacy, on the one hand, could lead to the conclusion that it is not worthwhile. However, the enduring enthusiasm of formal caregivers and their perception of its potential added value on the other, underpin the strong need for the App amongst the target group. This need was recently articulated in a proposal for the Dutch quality framework for district nursing (*de kwaliteitskader wijkverpleeging*),<sup>5</sup> which was submitted for approval to the National Health Care Institute on 1st May 2018. In this document, the need for information technology that can give nurses access to the latest information on care and support options, guidelines, and protocols, as well as technology to monitor the situation of clients, was stressed. The decision support App presented in this dissertation and specifically developed for this target group can be seen as one example of how ICT could be used to provide access to information and, moreover, allow the situation of a PwD living at home to be monitored over time. This could be the

motivation needed to pursue development of the App into a commercial product. The information gathered in this dissertation could be used to develop the business case. As part of that business case, what parties might be/are interested in being possible owners of the App and who can provide back-office support and constant up-dates of its content need to be investigated. For this purpose, collaboration between the eventual owner (e.g. an (ICT) company, LTC organization, network organization, interest organization for persons with dementia, health insurance company) and a research institute will be necessary, as ideally the App should ensure that the latest insights from research are available to formal caregivers working in community-based dementia care and ultimately PWD and their informal caregivers.

Overall, decision support tools in the form of apps can be seen as a valuable means of facilitating the dissemination of up-to-date knowledge. They can present information in a tailored way, at the point of care delivery, so it can be used immediately. With an ever-increasing body of (scientific) knowledge and greater pressure on formal caregivers to base their decisions on (scientific) evidence, the need for decision support is expected to increase. The development process of a decision support App for formal caregivers in community-based dementia care, as presented in this dissertation, could be seen as a blueprint for the development of decision support tools for other care problems. Several steps have been undertaken to develop a usable tool that would be of added value to users. First, the core problems to focus on were identified in consultation with the target group. In the second step, the content of the App was developed involving researchers as well as potential end-users. In the third step, the technical development, a step-wise process was followed in which ICT developers built several prototypes that were continuously improved based on feedback from usability evaluations by researchers, experts, and end-users. The continuous involvement of the target group in the different phases of development and evaluation of the App is regarded as the most crucial factor in developing a tool that will be embraced by the target group. The various district nurses and case managers involved in its development or its evaluation remained enthusiastic about it and can therefore be seen as ideal ambassadors for its implementation in practice. The involvement of users in its development ensures that the tool is in line with the professional norms and values of the target group and creates a sense of co-ownership. All these factors could facilitate the actual implementation of the App in practice. To further increase the chance of success, it is recommended that thinking about content updates and tool ownership begin early in the development phase. This could be done, for example, by means of co-creation between researchers, a commercial ICT company, the end-users, and the organizations for whom they work, all of whom share a common interest in implementing the App in practice.

## REFERENCES

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