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Telecare Services for Older Adults in Israel

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Abstract

Background

Given the ongoing increase in life expectancy and the fast-growing population of older adults, the need arises for the development and adoption of technologies to support independent aging at home, in line with the aging in place policy and along with its implementation. The use of technologies such as computers, the Internet, smartphones, and smart appliances can support independent aging at home. These and other technologies are used to provide a variety of services for older adults, both telehealth services addressing health issues and other, non-medical telecare services, including telemonitoring activities of daily living (ADL) of older adults, remote daily care, and remote social activities. Telecare services thus support independent aging at home, providing round-the-clock ADL monitoring and enabling social engagement through remote social and leisure activities.

In 2020, the government of Greece set out to develop a national program for older adults and as part of the national program, it seeks to deploy telecare services, specifically community-based services. The University of Piraeus and the London School of Economics and Political Science, which assist the government of Greece in developing the national program for older adults, commissioned the Myers-JDC-Brookdale Institute to examine the telecare services in Israel.

Study Goals

The goals of this study were: (1) to identify and map the telecare services in Israel; (2) to identify the strategies used in Israel to promote the telecare services; (3) to identify challenges and barriers to the use of telecare services; (4) to present options for the large-scale deployment of telecare services in Greece, based on the Israeli experience.

Study Method

The study was based on two sources of information: (1) semi-structured interviews with 22 experts on telecare services and developers of telecare technologies from Israel; (2) a review of websites of companies developing telecare technologies for older adults.

Key Findings

The study showed that several government ministries in Israel promote tenders and initiatives for the development of telecare technologies and their integration in existing services. At the same time, a number of local companies have developed technology-based services for older adults and are implementing the services in hundreds of households of older adults in Israel. However, it seems that the telecare field in Israel is still in the preliminary stages of development and integration and that a single leading model for the provision of telecare services that is effective and has value for all the stakeholders concerned: the government entity, the technology / service provider, and the user, has yet to be established. Each of the stakeholders concerned is faced with specific challenges that have to be taken into account along with other considerations in the development of the technology-based services. The major challenges facing the state are the need to overcome bureaucratic barriers (e.g., the formulation of tender documents) and to bridge the gaps between the different organizational cultures of the state and the technology companies. The main challenges facing the technology / service providers are unfamiliarity with the needs of older adults and finding a profitable business model. One of the main challenges facing older adults is a low level of digital literacy.

Key Recommendations

1. The government has a key role in the initiation and funding of telecare services, and it can employ various means to promote the field. It is recommended that the challenges involved be considered in advance and that suitable mechanisms for coping with the challenges be developed.
2. When developing technology-based services, the recurrent built-in failures inevitably associated with the integration of technology have to be taken into consideration.
3. So far, no sustainable (effective) model has been developed defining the relationships between the three stakeholders concerned: the government, the technology / service provider, and the user. It is therefore recommended that efforts to integrate technology-based services for older adults be carried on and that the development of an optimal model for the provision of the services be thus promoted.
4. One of the challenges facing the government, the technology / service providers, and the users is the lack of awareness of the potential value of telecare services for older adults. It is thus recommended that awareness of the issue and of the added value for each of the stakeholders concerned be raised.

Executive Summary

Background

Given the ongoing increase in life expectancy and the fast-growing population of older adults, the need arises for the development and adoption of telecare technologies to support independent aging at home, in line with the aging in place policy and along with its implementation. The use of technologies such as computers, the Internet, smartphones, and smart appliances can support independent aging at home. These and other technologies are used to provide a variety of services for older adults, both telehealth services addressing health issues and other, non-medical telecare services, including telemonitoring activities of daily living (ADL) of older adults, remote daily care, and remote social activities. Telecare services thus support independent aging at home, providing round-the-clock ADL monitoring and enabling social engagement through remote social and leisure activities.

A report published in 2018 by the European Social Policy Network (ESPN) indicated that in Greece, long-term care services (including prevention and rehabilitation services) for older adults are an underdeveloped policy area and that there are no comprehensive, formal long-term care services guaranteeing universal coverage. The state's involvement is rather limited and consequently long-term care remains a family affair.

In 2020, the government of Greece set out to develop a national program for older adults and as part of the national program, it seeks to deploy telecare services, specifically community-based services. The University of Piraeus and the London School of Economics and Political Science, which assist the government of Greece in developing the national program for older adults, commissioned the Myers-JDC-Brookdale Institute to examine the telecare services in Israel. The study was conducted from April to November 2021.

This report presents initiatives for the development of technology-based services for older adults and describes the services provided in Israel.

Study Goals

The goals of this study were: (1) to identify and map the telecare services in Israel; (2) to identify the strategies used in Israel to promote the telecare services; (3) to identify challenges and barriers to the use of telecare services; (4) to present options for the large-scale deployment of telecare services in Greece, based on the Israeli experience.

Study Method

The study was based on two sources of information:

1. Semi-structured interviews with 22 experts on telecare services and developers of telecare technologies from Israel: five government policy makers (from the Ministry of Health, the Ministry of Welfare and Social Affairs, the Ministry for Social Equality, and the National Insurance Institute); two local authority policy makers (from the Tel Aviv-Jaffa and the Jerusalem municipalities); four representatives of NGOs; the CEO of an investment fund that promotes the development of disruptive technology solutions for aging; the technologies for older adults program manager in a major social sector organization; two representatives of the Health Management Organizations (HMOs, locally known as 'health plans'); a representative of a residential care home; and six representatives of companies that develop technologies for older adults.
2. A review of websites of companies developing telecare technologies for older adults.

Key Findings

1. Organizations supporting the development of technology-based services for older adults and for people with disabilities

There are currently three organizations in Israel that support and fund the development of technologies for older adults and for people with disabilities:

- The Israel Innovation Authority – an independent statutory authority in charge of promoting innovation as a lever for inclusive and sustainable economic development in Israel, entrusted with the role of developing services for all populations in Israel.
- The Aging IL innovation community – established to promote and accelerate the development of solutions to the present and future challenges of aging by developing an innovation ecosystem in this field and creating a network of all the stakeholders concerned, including entrepreneurs, investors, investment funds, organizations, government ministries, local authorities, the academia, and senior citizens.
- Mediterranean Towers Ventures – a publicly traded investment fund that invests in technology companies developing disruptive solutions in the field of aging. The fund also operates a chain of retirement community complexes and a consumer club for senior citizens.

2. Tenders and initiatives for the integration of technology-based services in existing services for older adults

Challenge Tenders, the Ministry of Health

The Ministry of Health encourages organizational initiatives for the development and integration of technology-based services, with the focus on adaptation to the needs of both the relevant organization (e.g., the HMO or the hospital) and the health system. Apart from the selection of technology, preference is given in the tendering process to relatively large-scale pilot programs, specifically those projected for implementation in a number of long-term care institutions, and emphasis is put on the establishment of criteria for participation in the pilot and the formulation of efficiency evaluation measures for the pilot, as well as on the basket of services to be delivered. In 2021, six pilot programs were implemented in various institutions.

Home Sensors Tender, the National Insurance Institute

In May 2022, the National Insurance Institute issued a tender for an innovative home installed telemonitoring system for older adults in need of long-term care. The system, designed to be offered to benefit recipients in exchange for some of the at-home care hours provided under the Long-Term Care Insurance Law, monitors vital signs and activity data of older adults, detects unusual or emergency situations, alerts about the situation, and orders a service to assist the person in distress. The system is based on a home sensor network, which operates without capturing any image or listening in (except in emergency situations), thus minimizing the violation of privacy.

Virtual Day Centers, the Ministry of Welfare and Social Affairs

In recent years, the Ministry of Welfare and Social Affairs has been developing virtual day centers, that is, remote day centers that broadcast lectures, physical training and fitness classes, and other online leisure activities for home-bound older adults. The technology used in the virtual day centers enables at-home live and interactive content viewing on TV. It is an easy-to-use system especially tailored for use by older adults.

The Dyad Initiative

The Dyad is an initiative for supporting the development of technological innovation in the service of society, aimed at quickly repurposing existing innovative technologies to address inadequately met needs. The Dyad (lit., pair) model is designed to pair entrepreneurs who have access to recent innovative technologies with need experts (any organization or individual with relevant knowledge of and significant access to the target populations).

Initiatives/Projects of Local Authorities

Given the mobility restrictions and closures imposed in Israel to respond to the COVID-19 pandemic, older adults were bound to stay at home. To address the situation, local authorities launched digital services for older adults, which included broadcast lectures, remote physical training and fitness classes, and other online leisure activities. The digital services were provided by Uniper Care and E2C.

Maccabi Telehealth Pilot Program, Maccabi Healthcare Services

Maccabi Healthcare Services launched a pilot program offering the option of remote medical consultation through video chats, online group meetings for diabetics (including online appointments with a diabetes specialist, a dietitian, and a social worker), and remote physical training and fitness classes.

3. Telecare Services for older adults in Israel

Emergency button

The emergency button system includes a fixed emergency button installed at home or a wearable device (a watch or a necklace) and an emergency response center, where the relevant medical data of the service user are stored. When pressed, the emergency button activates an emergency situation alert, received at the emergency response center. An agent responds immediately, talks with the service user, offers medical advice, or calls for help if necessary. In 2021, about 100,000 people used this service.

Online content and communication services

Uniper Care provides remote access services for older adults living in the community, including live and interactive content services, video-on-demand programs, online group activities, and enhanced social engagement with family and friends. The remote access services provided by Uniper Care are unique in that they are based on an innovative TV interface developed by the company, using a device that older adults are familiar with and commonly enjoy. The company provides the technological solution as well as a rich, personalized content library, led by the belief that an all-inclusive system has value for the users and best serves them. In 2021, about 10,000 people used this service.

Sensor-based services

The use of sensors for telemonitoring is a promising field in telecare services. Several ventures in this area are currently underway in Israel, in various stages of development and experimentation. In 2021, a private company providing at-home health services launched a pilot sensor service, offered as a complementary service to the

company subscribers. A similar service is in place in Israel for use in institutional care centers (the Amity system). In 2021, some several hundred people used this service. Another approach to telemonitoring has been adopted by INVISICARE. The company uses smartphone data analysis to acquire routine activity data of older adults living alone, detect unexpected activity patterns and behaviors that may call for intervention, and notify family members or emergency services of signs of distress.

Accessible communication technology and content platform for virtual communities

E2C develops interfaces and software solutions for smartphones and tablets for older adults and their family members, thus supporting telecare services for older adults. Apart from simplifying communication technology by adapting the smart devices for use by older adults, the company has also developed a Simple Content Platform for organizing and managing virtual communities, aimed at relieving the loneliness of older adults through accessible group activities delivered on Zoom. The service is available in multiple languages, including Greek, and is offered for purchase as a senior-focused hardware-independent software as well as an integrated hardware and software solution in the form of a simple, user-friendly smartphone or tablet. In 2021, about 50,000 people used this service worldwide.

Daily routine management, empowerment, and preservation of cognitive function

MemoApp offers a solution for older adults with cognitive decline, which enables them to manage a daily routine and maintain orientation in time. The MemoApp solution is based on a computer screen with a user-friendly application and a home installed camera and serves to display personal daily information that helps the user to find his way around and communicate with family members and caregivers. The MemoApp solution includes 20 built-in modules designed to meet various aging-related challenges, restoring independent functioning, encouraging physical activity, stimulating the senses, bringing up memories, and contributing to the preservation of cognitive function– this, by presenting personally customized images, music, reminders, and tasks on the computer screen. In 2021, some several hundred people used this service.

4. Models for the provision of telecare services

The study findings indicate that there is virtually no private market of telecare services in Israel, where service providers offer their services directly to end customers. The starting point for the development of telecare services is thus a market failure. Most of the services provided are initiated and funded by government ministries and public sector organizations, and this is the case for the development of all other technologies for older adults. The intervention of the state is therefore required due to: (1) the growing need for the provision of accessible

technology-based services for older adults; (2) the fact that for the most part, the technology companies are unfamiliar with the unique needs of older adults; (3) the lack of economic incentives for the development of technologies and services for older adults.

Based on these findings, the study team identified various models for the integration and provision of telecare services for older adults. The models differ from each other in terms of the relationships between the three stakeholders concerned: the government, the technology / service provider, and the user.

Summary

This study was conducted with the aim of mapping the telecare services available in Israel for older adults living in the community. The findings show that online social engagement and leisure services for older adults in Israel offer diverse content and activities, including broadcast lectures and remote physical training and fitness classes. The services are provided by local authorities as well as by technology companies that develop and provide technology, content, and service, or delivered through virtual day centers operated with the support of the Ministry of Welfare and Social Affairs.

It was also found that the long-established emergency button telemonitoring service is the leading telecare service in Israel. Other technology-based communication and daily routine management services for older adults are used by hundreds to thousands of people. Some of the telecare services are still in the pilot stage while most of the initiated services in this field are not yet fully developed or widely deployed.

Given the findings, it seems that the telecare field in Israel is still in the preliminary stages of development and integration and that a single leading model for the provision of telecare services that is effective and has value for all the stakeholders concerned: the government, the technology / service provider, and the user, has yet to be established. Each of the stakeholders concerned is faced with specific challenges that have to be taken into account along with other considerations in the development of the technology-based services. The major challenges facing the state are the need to overcome bureaucratic barriers (e.g., the formulation of tender documents) and to bridge the gaps between the different organizational cultures of the state and the technology companies. The main challenges facing the technology / service providers are unfamiliarity with the needs of older adults and finding a profitable business model. One of the main challenges facing older adults is a low level of digital literacy.

Recommendations

Based on the interviews with telecare professionals and the insights gained thereby, the following recommendations are suggested:

1. The government has a key role in the initiation and funding of telecare services, and it can employ various means to promote the field. It is recommended that the challenges involved be considered in advance and that suitable mechanisms for coping with the challenges be developed.
2. When developing technology-based services, the recurrent built-in failures inevitably associated with the integration of technology have to be taken into consideration.
3. So far, no sustainable (effective) model has been developed defining the relationships between the three stakeholders concerned: the government, the technology / service provider, and the user. It is therefore recommended that efforts to integrate technology-based services for older adults be carried on and that the development of an optimal model for the provision of the services be thus promoted.
4. One of the challenges facing the government, the technology / service providers, and the users is the lack of awareness of the potential value of telecare services for older adults. It is thus recommended that awareness of the issue and of the added value for each of the stakeholders concerned be raised.
5. The high-tech industry is a dynamic, innovative, and constantly evolving industry. Apart from the technologies reviewed in this study, new technologies are currently introduced to the Israeli market, for instance, robots for the care of older adults and virtual reality for older adults, in particular, for older adults with cognitive decline. It is recommended that such emerging technologies be followed up on an ongoing basis.
6. It is recommended that telecare services be offered along with telehealth services. For instance, an ADL monitoring service using a home installed sensor network may be offered along with a health monitoring service, e.g., a service for monitoring blood pressure indicators. Older adults are more inclined to subscribe to an integrated telehealth service than to a stand-alone ADL monitoring service. It is also recommended that complementary rehabilitation services be offered along with the basket of telecare services.
7. It is recommended that services be managed on the municipal level and that the needs of the local population be mapped. It is also recommended that a dedicated coordinator for telecare programs be appointed to maintain contact with the service users and to help create online communities for older adults based on shared areas of interest.
8. It is recommended that telecare services under development be integrated in existing services, such as day centers, or that they be based on supportive entities, for instance, family members.

9. Given the importance of social engagement for older adults, it is recommended that hybrid communities be created, offering both on-site and online meetings and shared activities. It is also recommended that a managing coordinator be appointed for each hybrid community to run the activities and to maintain personal contact with each of the community members. As communities are developed and experience is gained, the optimal combination of on-site and online activities may be found.
10. When planning telecare services for older adults, it is recommended that a local pilot be conducted to test feasibility and identify challenges and that the program be expanded to other localities based on the pilot findings. It is also recommended to review similar programs and to learn from the mistakes made by other companies as well as from their success stories.
11. It is recommended that teams of professionals be set up to discuss the digitization of services. A number of such teams have been set up in Israel; one of the teams deals with aging and specifically with geriatrics.
12. It is recommended that the target population of a projected service be predefined. The unique characteristics of the target population should be evaluated in advance so as to offer an optimal solution.
13. The participation of the target population in the planning and development process is essential to success. It is thus recommended that older adults be invited to take part in the planning of technology-based services, specifically telecare services designed for them.
14. It is recommended that the bureaucracy involved in the integration of technology-based services for older adults be reduced and streamlined so as to enable companies that serve customers worldwide to offer their services in Israel as well.
15. It is recommended that in addition to the guidance for older adult users of technology-based services, the professional teams working with the service users be trained to provide technological assistance as needed. It is also recommended that volunteers be mobilized to familiarize older adult service users with the technology at the introduction stage and personally help them on an ongoing basis.
16. It is recommended that simple, user-friendly technologies be used, such as customized tablets with only few buttons, high-volume audio, and large font size.
17. It is recommended that older adult service users take part in the service, initiate activities, set up virtual communities based on shared areas of interest, and even manage the communities by themselves.

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1. Preface

1.1 Background

Given the ongoing increase in life expectancy and the fast-growing population of older adults, the need arises for the development and adoption of technologies to support independent aging at home, in line with the aging in place policy and along with its implementation. In recent years, we have observed a wave of innovation and technological development, known as the Fourth Industrial Revolution. The use of computers, the Internet, smartphones, and smart appliances is changing the way we relate to one another, search for information, do our shopping, and consume health services. The application of these technologies can enable older adults, in general, and older adults with disabilities, in particular, to continue living safely and securely at home, aging in place, while improving their quality of life and enhancing the availability and accessibility of health services (Lee & Lim, 2017).

The technology-based services for older adults are of two types: (1) telehealth services addressing health issues; (2) non-medical telecare services, including telemonitoring activities of daily living (ADL) of older adults, remote daily care, and remote social activities. Telehealth services enable the transmission of health information from the patient's residence to the health care entity, with no need for actually visiting a clinic. There are also treatments, e.g., rehabilitation treatments, that can be administered remotely. Telecare services support independent aging at home, providing round-the-clock ADL monitoring, and enabling social engagement through remote social and leisure activities (DeSalvo & Petrin, 2018; Solli et al., 2012).

Doughty et al. (1996) mapped the evolution of care services based on information and communications technology (ICT), identifying three generations of telecare services. The first generation of telecare services include personal response services that allow a person in distress to alert an emergency response center by means of a customized telephone or an electronic device, e.g., an emergency button worn on a strap around the wrist or on a chain around the neck. The second generation of telecare services use sensors that enable ongoing monitoring and thus detect changes in the user's environment (extreme temperature, smoke, flooding) as well as unexpected movement patterns of the user such as falls. The third generation of telecare services are designed to acquire health and activity data of the user based on communication infrastructures that may also serve to facilitate users' decision-making and lifestyle adaptation and to provide solutions in response to various psychological and social needs (for instance, in case of loneliness, anxiety, or cognitive decline), this, by connecting the service

user with a virtual community of peers. Various third generation services are still under development and only a few are currently available on the market (Damant et al., 2022).

ADL monitoring services use various types of sensors to continually monitor the routine daily activities of older adults, acquire vital signs and habits data, detect unexpected activity patterns and behaviors, and alert relevant entities about deviation from the routine or about any predefined situation (e.g., falls) that calls for intervention. The social engagement services include one-on-one and group video calls, broadcast lectures, online group activities, and shared leisure activities through online meetings (Solli et al., 2012).

The distinction between telehealth and telecare services is not clear cut and the two types of services may overlap since functioning and health status are interrelated. Thus, for instance, a functioning problem detected by sensors used for ADL monitoring may indicate a change in health status. Also, some sensors, such as pulse sensors, provide both functionally significant and clinically significant information. The type of information derived depends on the mode of analysis and the conclusions drawn. Furthermore, a service provider may provide various services, including health services and other, non-medical telecare services, and in this case, the distinction between the two types of services is rather vague and of less significance for either the service user or the service provider (Gokalp et al., 2018).

1.2 Welfare and Health Services in Israel

General Information

At the end of 2021, the population in Israel was 9.44 million, of whom 1,093,500 were aged 65 and over. Life expectancy in Israel is high: 84.7 years for women and 81.0 years for men.

The aging in place policy is reflected in the development of a variety of community-based services designed to address the needs of older adults in diverse spheres of life and on various levels of functioning. There are services for independent older adults as well as supportive services for older adults with a serious functional disability living at home. However, ensuring adequate quality of life for all in an aging society is a challenging task. The main entities in charge of providing services for older adults are: the Ministry of Welfare and Social Affairs, the Ministry of Health and the providers of health services, the Ministry for Social Equality, and the National Insurance Institute. The development, provision, and evaluation of the services are based on close cooperation between the government and the third sector. The main services provided are:

Health Services

In Israel, health services are provided under the National Health Insurance Law, 1995. The law ensures universal health insurance coverage for every Israeli citizen (including community-based health care, hospital care, and medications). The Ministry of Health is in charge of regulating community-based health care and hospital care, including accreditation of health care institutions, publication of guidelines (including procedures) in the relevant areas, ongoing follow-up of services, and enforcement as required. The main providers of community-based health care services are the four Health Management Organizations (HMOs; locally known as 'health plans') operating under the National Health Insurance Law. The basket of services includes health promotion, community-based health services, rehabilitation, care programs for people with dementia, and end-of-life care.

Social Services

The Senior Citizens Administration at the Ministry of Welfare and Social Affairs provides services for more than a quarter of older adults through the social services departments. The services developed over the years meet the needs of older adults in everything related to daily functioning, social life, finances, food security, and safety and security. The main services provided are:

Supportive communities: The supportive community program provides older adults across Israel with a network of safety and security and a range of supportive services to enable them to continue living an independent life at home, aging in place, and to safeguard their quality of life in various personal and family situations and on various levels of functioning. The main services provided by the program are emergency button service, health care services (home visits by a doctor and ambulance calls), assistance by the community caretaker (for minor home repairs and social support), and social activities.

Day centers: The day center model was developed to address the need of older adults with a functional disability for social interaction and social activity. The day centers are usually open six days a week and provide meals, socio-cultural activities, and personal and professional care. Some of the day centers are designed to serve older adults with dementia. There are also MOFET clubs, which provide food security and a comprehensive social framework for independent older adults with no supporting family who cope with poverty, poor nutrition, loneliness, and social isolation. The service includes shuttles back and forth, breakfasts and lunches, and a variety of social activities. A pilot program is underway in some of the day centers, offering social activities and support through online meetings.

At-home daily care for older adults with a functional disability: Under the Long-Term Care Insurance Law, the State of Israel has provided since 1988 at-home daily care for older adults with a functional disability, ensuring eligible service recipient comprehensive coverage for at-home daily care. About 210,000 older adults (21% of older adults in Israel) are currently receiving the service (Shnoor & Cohen, 2021). Under the law, eligible service recipients are entitled to choose the appropriate services from the following basket of services: personal home assistance, visits to day centers, distress call service, provision of disposable absorbent products for adults, and laundry services.

Volunteers: A professional division at the National Insurance Institute uses the services of volunteers to locate older adults at risk or in distress. The volunteers visit home-bound older adults, offering social support. They also organize informational meetings for people about to reach retirement age, widows and widowers, and families of people with dementia. The volunteer activity is conducted in cooperation with the social services departments.

Family caregivers: Government ministries and third sector organizations have developed several unique programs for supporting family caregivers.

Integrated care: Provision of services by several different service providers makes it difficult for older adults and their family members to receive care, maintain the continuity of care, and exercise their rights in full. To help solve the problem, a pilot model of personal care management has been developed. The model is based on the local system of services for diagnosis and referral to existing services and solutions.

1.3 Welfare and Health Services in Greece

A report published in 2018 by the European Social Policy Network (ESPN) (Ziomas et al., 2018) indicated that in Greece, long-term care services (including prevention and rehabilitation services) for older adults are an underdeveloped policy area and that there are no comprehensive, formal long-term care services guaranteeing universal coverage. The state's involvement is rather limited and consequently long-term care remains a family affair. In 2014, Greece allocated only 2% of the overall health spending to long-term care, which is far lower than the EU-27 average of 15%. Long-term care in Greece is based on a mixed system of services comprising formal care (provided by public and private entities) and informal care, with the primary responsibility for the financial and practical support resting squarely on the family (Ziomas et al., 2018).

The main services available for older adults living in the community in Greece are: 'Help at Home' – a service for older adults living alone who are in need of long-term care, provided by the local authorities around the

clock or several hours a day, as needed; 'Day Centers for older adults' – a service available mainly in the big cities, offering help to older adults whose family members cannot look after them; 'Open Protection Centers for older adults' – a service that provides social support and a place for recreational activities as well as certain complementary medical services such as physiotherapy and occupational therapy for the over-60 age group.

In 2020, the government of Greece set out to develop a national program for older adults aimed at offering solutions to selected challenges related to the aging of the population and providing policy tools for the development of programs to ensure a long and healthy life for every citizen in Greece as well as higher quality health services and improved long-term care.

The national program for older adults in Greece is projected to focus on the promotion of a healthy aging policy that would forestall future dependency of older adults, improve employment skills, extend working years, enhance the pension system, strengthen the long-term care system, and upgrade the community-based services for older adults. As part of the national program, the government of Greece seeks to deploy telecare services, specifically community-based services. The University of Piraeus and the London School of Economics and Political Science, which assist the government of Greece in developing the national program for older adults, commissioned the Myers-JDC-Brookdale Institute to examine the telecare services in Israel. The study was conducted from April to November 2021.

2. The Study

2.1 Study Goals

The goals of this study were:

1. to identify and map the telecare services in Israel;
2. to identify the strategies used in Israel to promote the telecare services;
3. to identify challenges and barriers to the use of telecare services;
4. to present options for the large-scale deployment of telecare services in Greece, based on the Israeli experience.

2.2 Study Method

The study was based on two sources of information:

1. Semi-structured interviews with 22 key actors in the field of technology development and telecare services in Israel: five government policy makers (from the Ministry of Health, the Ministry of Welfare and Social Affairs, the Ministry for Social Equality, and the National Insurance Institute); two municipal policy makers from the Tel Aviv-Jaffa and the Jerusalem municipalities; four representatives of NGOs (one that provides long-term care services, another one that provides services for people with cognitive decline and their families, and a social benefit organization that issued a tender for the promotion of technology-based services for people with disabilities); the CEO of an investment fund that promotes the development of disruptive technology solutions for aging; the technologies for older adults program manager in a major social sector organization; two representatives of the HMOs – one from Clalit Health Services and the other from Maccabi Healthcare Services; a representative of a residential care home; and six representatives of companies that develop technologies for older adults. The interviewees were selected on the basis of previous professional contacts as well as through referral by other interviewees. Toward the end of the study, the study team issued a call for professionals in the field to present relevant initiatives and programs so as to ensure maximum coverage of the enterprises and companies active in technology development and telecare services in Israel. The study team contacted by phone the key actors selected for interviewing to explain the study goal. Once their consent to be interviewed was secured, a date was fixed for each interview. All the interviews were conducted online (on Zoom) and lasted about an hour each.

2. A review of websites of companies developing telecare technologies for older adults in Israel. The search for information was conducted using Google search based on the following key phrases: technology-based services for older adults; technologies for older adults; providers of technologies for older adults. Technologies that are not specifically designed for use by older adults, such as Zoom, or products that are offered for sale on the private market and independently purchased, such as GPS watches, were not examined in the review. The review focused particularly on telecare services provided for older adults in Israel. Other services for older adults that are not based on telecare technologies or services provided elsewhere and the technology / service providers concerned were not specifically addressed in the review.

2.3 Study Tools

The study team prepared an interview guide for the present study, including questions on the telecare services in Israel, the main reasons for the development of telecare services in Israel, the key actors in the field, the major technologies developed and their characteristics, and the main challenges involved in the development of telecare services in Israel.

2.4 Data Analysis

The interviews were analyzed using content analysis (thematic analysis), following the common six-step process (Braun & Clarke, 2006; Clarke & Braun 2013): familiarization with the data; coding; generating themes; reviewing the themes; defining and naming the themes; and writing up, producing a final integrative report that gives a full account of the analysis. At first, the study team carefully read through the transcripts of the interviews, identifying preliminary themes (meaningful patterns with relevant information to the research question) (Braun & Clarke, 2006). To better understand the narrative, each of the interviews was analyzed separately. Subsequently, initial codes were generated, based on the topics raised in the interviews. The initial codes were then sorted, reorganized, and combined into overarching themes by labelling the topics (e.g., the tenders, the projects, the current pilot programs, the technology companies, challenges on various levels). Next, the themes were reviewed to verify that they are accurate representations of the data. Finally, writing up the themes, a final integrative report of the thematic analysis was produced. The goal of the process was to learn about the existing telecare services, the companies that develop the services, and the challenges involved in implementing the services in Israel.

2.5 Research Ethics

The study was approved by the ethics committee of the Myers-JDC-Brookdale Institute. The interviewees gave their consent to take part in the study after being informed of the study goal.

3. Findings

3.1 Public Sector Development of Technology-Based Welfare and Health Services for older adults

The interviews indicated that government ministries and public sector organizations may have an important role in the development of technology-based services for older adults, in general, and for older adults with a functional disability, in particular. Yet, while Israel is a startup nation in the tech and business ecosystem, new socially oriented ventures are regrettably few. Furthermore, most entrepreneurs are unfamiliar with the social sector and the social sector is likewise unacquainted with the entrepreneurial world.

The present study was focused on telecare services for older adults. At the same time, the study showed that the distinction between telecare services and telehealth services is not clear cut.

3.1.1 Organizations supporting the development of technology-based services for older adults and for people with disabilities in Israel

There are currently three major organizations in Israel that support the development of technology-based services for older adults and for people with disabilities:

1. **The Israel Innovation Authority** – The Israel Innovation Authority is an independent statutory authority in charge of promoting innovation as a lever for inclusive and sustainable economic development in Israel. The Israel Innovation Authority in collaboration with the National Insurance Institute funds launched the Ezer-Tech initiative with the aim of encouraging R&D of assistive technologies for people with physical, mental, or cognitive disabilities (accounting for about 5% of the population).
2. **Aging IL** – The Aging IL innovation community was established to promote and accelerate the development of solutions to the present and future challenges of aging by developing an innovation ecosystem in this field and creating a network of partners. JDC-Eshel, and Ashoka Israel are partners of the Aging IL innovation community. The community works to bring together all stakeholders relevant to the field of aging challenges: entrepreneurs, investors, innovators, technology developers, business sector and social sector organizations, government entities, policy makers, and naturally, the older adults themselves.
3. **Mediterranean Towers Ventures** – a publicly traded investment fund that invests in technology companies developing disruptive solutions in the field of aging – this, by inviting applications for funding and investing

in a small number of select companies per year as well as by organizing 'Startup of the Year' competitions aimed at promoting the Israeli initiatory ecosystem and specifically, technological startups for older adults. The fund also operates a chain of retirement community complexes and a consumer club for senior citizens.

3.1.2 Initiatives for the promotion of integrated technology-based services

Several government bodies in Israel, including the Ministry of Health and the National Insurance Institute, have initiated tenders for pilot programs with the aim of promoting collaboration between the industry and organizations that develop dedicated technologies designed to improve the quality of life of older adults. Organizations such as Aging IL are developing and/or supporting tenders, projects, and pilot programs for the promotion of integrated technology-based services for older adults. The initiatives currently underway are presented below. The initiatives presented are not necessarily focused on telecare technologies and services. However, their inclusion provides a broad picture of the range of methods and means used to promote technology-based services for older adults (for a summary of the initiatives, see table 1).

Challenge Tenders, the Ministry of Health

The Ministry of Health promotes organizational initiatives for the development and integration of technology-based services, with the focus on their adaptation to the needs of both the relevant organization (e.g., the HMO or the hospital concerned) and the health system. The challenge tenders issued by the Ministry of Health present a broad definition of the need for technological solutions while the solutions called for are not predefined, allowing room for digital solutions derived from various content worlds. At the same time, preference is given to relatively large-scale pilot programs, specifically those projected for implementation in a number of long-term care institutions, and emphasis is put on the establishment of criteria for participation in the pilot and the formulation of efficiency evaluation measures for the pilot as well as on the basket of services to be delivered. Once a pilot is successfully implemented, the options for its expansion nationwide may be considered. The tenders described in this study are just one of the means the state can employ to promote the use of technologies to address the challenges involved in the care of older adults.

In this respect, the Ministry of Health has a twofold role. First, it has to identify the challenges that have to be addressed and that can be addressed by technology (for instance, prevention of falls) or places where the integration of technology-based services is called for (for example, long-term care institutions). Second, Health Ministry professionals, both technology experts and need experts, have to follow the implementation of the tenders on an ongoing basis and advise the technological and medical teams on the ground.

In 2017, the Ministry of Health issued a challenge tender for fall prevention in old age and in 2018, another tender was issued for the improvement of care quality in geriatric long-term care institutions, and several pilots were subsequently conducted.

Two companies won the challenge tender for fall prevention in old age:

a. MediTouch – The company developed an advanced technology designed to help patients practice safe walking on a dedicated treadmill allowing customized postural control by means of random postural perturbation in all directions. At the time the study was conducted, about 200 patients, selected on the basis of predefined criteria, participated in the pilot. Each participating patient was allotted 14 therapy sessions. The system was installed in four rehabilitation centers of Clalit Health Services.
b. GaitBetter – The company developed an innovative technology for safe motor-cognitive gait training using a standard treadmill equipped with a virtual reality component. At the time the study was conducted, about 200 patients, selected on the basis of predefined criteria, participated in the pilot. Each participating patient was allotted 14 therapy sessions. The system was installed in five rehabilitation centers of Maccabi Healthcare Services.

The other challenge tender issued by the Ministry of Health is focused on long-term care in geriatric institutions and calls for the development of improved old age care services without specifying a predefined care service.

Four companies won the challenge tender. The four respective pilots are described below. The first three were launched in the course of 2021 – one of the pilots is focused on telecare services and the other two address health care management (one deals with medication management and the other is focused on human resources management); the fourth pilot, in the field of staff training, has still not been launched at the time of writing.

a. Deloitte – The company developed a telemonitoring system comprising sensors and an AI-based software, which alerts about the risk of pressure ulcer development as well as about falls. The system is installed under the patient's bed or wheelchair. The system also alerts about the risk of fall in case the patient turns over in bed.
b. Seegnal – The company developed a clinical decision support platform for clinicians, pharmacologists, and nurses. The platform interfaces with the patient's electronic medical record and alerts about drug interactions, delivering patient-specific analysis with high accuracy and offering alternative medication options.
c. BetterCare – The company developed a digital communication system for caregivers' management and control in long-term care institutions. The system is available in several languages. It is installed on dedicated smartphones, providing caregivers with accurate information at the point of care, enabling ongoing management and control of caregivers' daily schedule, and alerting caregivers to problems in resident care.

d. Amalio – The company developed an online training system for caregivers in institutional care centers. It includes dozens of study units for nurses, caregivers, paramedical staff, and family members. The system is designed to enhance the training programs in place in institutional care centers by interactive courseware and knowledge tests in the course of and at the end of training.

Home Sensors Tender, the National Insurance Institute

Government tenders of another kind call for specific solutions to address specific needs. A case in point is the tender for technology-based telemonitoring services for older adults with disabilities. Under the Long-Term Care Insurance Law, the National Insurance Institute provides a basket of long-term care services for older adults with disabilities, including at-home daily care, day centers, and an emergency button system. In order to expand the basket of services and add a sensor-based telemonitoring service, the National Insurance Institute issued in May 2022 a tender for a telemonitoring system for monitoring the routine daily activities of older adults, detecting unexpected activity patterns and behaviors, and alerting family members and/or an emergency response center about deviation from the routine or about any distress situation (e.g., falls) that calls for intervention. The tender requires that the user's privacy be maintained as far as possible – this, by a sensor-based system operating without capturing images or listening in (except in emergency situations).

It should be noted that a few years ago, the National Insurance Institute issued a similar tender; however, the technological requirements were too specific (down to the level of each sensor location), and no company bid for the tender. The recent tender describes the required services but does not specify any technological requirements. Companies selected in the tender are guaranteed a contract with the relevant government entity.

The Dyad Initiative

Another way to promote technological innovation in the social sector is through tenders that pair technology companies with need experts who have relevant knowledge and significant access to the target populations. The Dyad initiative is a procedure for supporting the development of technological innovation in the service of society, aimed at quickly repurposing existing innovative technologies to address inadequately met needs. The products developed are designed to serve people with disabilities, at-risk populations; especially those in social isolation, and disadvantaged populations due to social, geographical, or financial circumstances. The Dyad (lit., pair) model is designed to pair entrepreneurs who have access to existing innovative technologies with need experts (any organization or individual with relevant knowledge of and significant access to the target populations). The Dyad initiative is a collaborative effort with government entities, the third sector, and a philanthropic foundation. The tendering process is multi-stage. At the beginning of the process (October 2020), about 200 entrepreneurs

and companies submitted proposals; 126 proceeded to the next stage; 30 proceeded to the third stage; and finally, eight initiatives for the development of a technological product for special populations were selected. The winning companies receive accompaniment and support along the development and integration process. The pilots are scheduled to be completed in the course of 2022.

Apart from issuing tenders to promote the use of technology in the social/health care field, the state, the local authorities, and the HMOs can contract with relevant companies (one or more) to provide services addressing a specific need. The COVID-19 pandemic was a catalyst for the development of such initiatives. Three of the initiatives are presented below.

Provision of accessible online social support services, the Ministry of Welfare and Social Affairs

In recent years, the Ministry of Welfare and Social Affairs has been engaged in the development and provision of accessible online social support services. The first project launched by the ministry is the YACHAD (lit., Together) program offering social support for older adults aged 80 and over (Holocaust survivors or those ineligible for long-term care benefits) by volunteers who visit older adults at home or meet with them online. The technology enabling the online services was developed by Uniper Care. The company also offers at-home live and interactive content viewing on TV, based on an easy to use, user-friendly system (for details on the technology, see clause 3.2).

Another project launched by the Ministry of Welfare and Social Affairs is that of a virtual day center. The service offers broadcast lectures, remote physical training and fitness classes, and other online leisure activities for home-bound older adults and Holocaust survivors. Initially, the online activities were delivered from six day centers across Israel. Following the outbreak of the COVID 19 pandemic, the online service was expanded and delivered from 50 day centers located throughout the country, and even today, when the closures have been lifted and the mobility restrictions removed, home-bound older adults can take part in the online activities instead of visiting one of the on-site day-centers.

In 2021, the Ministry of Welfare and Social Affairs conducted in collaboration with the National Digital Israel Initiative and JDC-Eshel a pilot for the promotion of digital literacy among older adults in 12 local authorities, with the focus on content designed to enhance personal strength, promote the consumption of online services, and alleviate loneliness. As part of the pilot, the ministry funded the purchase of tablets for 1,000 participants.

At the time of writing this report, the Ministry of Welfare and Social Affairs and JDC-Eshel planned to issue a tender for a local community service of hybrid, on-site and online communities, as part of a broader initiative

of age-friendly communities. The goal is to create geographically based communities for older adults, with both on-site and online meetings and shared activities. The pilot is projected for implementation in 36 local authorities of low socio-economic status, 15 of which Arab local authorities, as the digital gap is most evident in the population of these localities.

Initiatives/Projects of Local Authorities

During the COVID-19 pandemic, social services departments launched digital programs for older adults forced to stay at home, including broadcast lectures, remote physical training and fitness classes, and other online leisure activities, which were conducted on Zoom, a technology that is not specifically designed for older adults. However, some of the social services departments, mainly in the big cities (e.g., Tel Aviv-Jaffa and Jerusalem), offered accessible digital services for older adults based on unique systems developed by Uniper Care and E2C (for details on the technologies, see clause 3.2). The remote access services were delivered through a customized TV interface or a tablet adapted for use by older adults. Uniper Care provided a rich, personalized content library. Online live or prerecorded content tailored to the specific interests and needs of older adults by voluntary bodies, technology companies, and local authorities offered users a range of activities to choose from. Some of the activities have been available even after the closures. In addition, many of the local authorities offered online activities for older adults as part of the loneliness dispelling programs funded by the Ministry of Welfare and Social Affairs while regional councils independently offered their older adult population online social support and engagement activities.

Maccabi Telehealth Pilot Program, Maccabi Healthcare Services

The four HMOs providing health services in Israel have recently launched hybrid telehealth services, for instance, a digital diagnosing service based on the TytoCare medical exam kit. However, these services are not specifically designed for use by older adults.

Seeking to customize the services for older adults, Maccabi Healthcare Services launched a pilot program based on the Uniper Care technology, offering users the option of remote medical consultation with a family doctor through video chats, online group meetings (with original content provided by Maccabi Healthcare Services as well as by Uniper Care), online consultation meetings for diabetics with a diabetes specialist, a dietitian, and a social worker, and remote physical training and fitness classes. Online group meetings proved to be more popular among users, with higher participation rates.

Table 1: Tenders and Projects – Telecare Services

Type of Initiative	**Body in Charge**	**Goal of Initiative**	**Initiative Description**	**Target Population**	**Telecare/ Combined with Telehealth**	**Status** (at the time of the interview)	**Number of User** (at the time of the interview)
Tenders							
Challenge tender	The Ministry of Health	Improvement of care quality in long-term care institutions	Technologies for fall prevention and care quality improvement in long-term care institutions	Older adults in long-term care institutions; medical and paramedical staff	Combined with telehealth	Some pilots are underway Other pilots scheduled to begin in the coming months	Hundreds
Tender for a specified service	The National Insurance Institute	Telemonitoring services for home-bound older adults	A home installed sensor network	Older adults living in the community and eligible for long-term care benefits	Telecare	Tender issued in May 2022	
Tender	Dyad	Repurposing existing innovative technologies to address inadequately met needs	Subject to technology	At-risk populations (not necessarily older adults)	Telecare	Development stage	
Projects and Pilots							
A project and a pilot	The Ministry of Welfare and Social Affairs	A project for the provision of online social support services and leisure activities. A pilot for the promotion of digital literacy and the development of hybrid, on-site and online communities	Provision of accessible online social support services and leisure activities, by volunteers or through a virtual day center. Promotion of digital literacy; creation of a space for both on-site and online meetings and activities.	Older adults aged 80 and over; older adults visiting day centers. Older adults of low socio-economic status	Telecare	The project is underway. The pilot scheduled to begin in the coming months	Hundreds

Type of Initiative	Body in Charge	Goal of Initiative	Initiative Description	Target Population	Telecare/ Combined with Telehealth	Status (at the time of the interview)	Number of Users (at the time of the interview)
Projects and pilots							
Project	Local Authorities	Accessible digital services for home-bound older adults, offering various online leisure activities	Online leisure activities delivered through accessible technology	Both independent and home-bound older adults; Holocaust survivors	Telecare	The project operates in some local authorities	Hundreds
Pilot	Maccabi Healthcare Services	Enabling online communication with patients through one-on-one and group meetings	Video chats and online group activities delivered through accessible technology	Home-bound older adults and people with chronic diseases	Combined with telehealth	The pilot is underway	Dozens

3.2 Telecare Services for older adults in Israel

The strategies used by the State of Israel to promote telecare services are described in detail in section 3.1. This clause presents a picture of the telecare services for older adults in Israel as emerging from the interviews with technology developers and the review of websites of companies developing telecare technologies. The review is focused on telecare technologies developed or adapted specifically for use by older adults. Telecare technologies that may be used to serve older adults but are not tailored for use by older adults, such as Zoom, are excluded (for a list of the telecare services for older adults in Israel, see table 2).

Emergency Button

The emergency button service is designed to enhance the sense of safety and security of older adults and to ensure prompt response in emergency situations. The emergency button system includes a fixed emergency button installed at home or a wearable device (a watch or a necklace) and an emergency response center, where the relevant medical data of the service user are stored. When pressed, the emergency button activates an

emergency situation alert, received at the emergency response center. An agent responds immediately, talks with the service user, offers medical advice, or calls for help. The service is usually provided by private companies and covered by the long-term care benefits but may also be purchased individually. About 118,000 older adults are currently using the service. It is estimated that about 18,000 people receive the service as part of the basket of services provided under the Long-Term Care Insurance Law; another 70,000, through the supportive community service[1]; about 20,000, as part of a project for the provision of sensors conducted jointly by the Ministry of Welfare and Social Affairs and Yad Sarah; and about 10,000, through private services.

Online Content and Communication Services

Uniper Care provides remote access services for older adults living in the community, including live and interactive content services, video-on-demand programs, online group activities, and enhanced social engagement with family and friends. The online content and activities offered include free discussion groups, physical training and fitness classes, broadcast lectures, leisure activities, and enrichment courses. The remote access services are available through a dedicated TV set, a tablet, a PC, or a smartphone.

The remote access services provided by Uniper Care are unique in that they are based on an innovative TV interface developed by the company, using a device that older adults are familiar with and commonly enjoy. The company offers subscribers a kit that includes a mini-PC (Android TV box), a camera, and an easy-to-use remote control equipped with a microphone, which can be plugged into any TV set and transform it into a bidirectional means of communication between the user and the online communities and content worlds of interest to him. An online support center offering users guidance and troubleshooting services is also provided.

Uniper Care provides the technological solution as well as a rich, personalized content library, led by the belief that an all-inclusive system has value for the users and best serves them. In most cases, the company provides its services in collaboration with bodies that provide services for older adults, e.g., day center services. The system enables online communication between the service providing body and the service recipient, with no need for actual home visits. In these cases, the content is provided both by Uniper Care and by the body providing services for older adults, which develops original content and activities tailored to the specific interests and needs of older

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[1] The service has been developed for older adults who wish to carry on with their familiar daily lives in their natural surroundings. The supportive community provides its members with a basic basket of services, including home repairs by the community caretaker, who also offers social support and responds to calls for assistance in various areas; round-the-clock monitoring through the emergency button service; medical services at home; and a range of social activities.

adults. For instance, day centers may deliver the classes and activities taking place on site through the remote access system, enabling service users to take part in the activities and virtually interact and connect with their community even when they cannot be actually present.

The organizations and bodies currently using the system developed by Uniper Care are: the Ministry of Welfare and Social Affairs, NGOs, local authorities, and the HMOs. The system serves about 10,000 people. It is available in Hebrew, Arabic, Russian, English, and Spanish and is offered to users in Israel and the United States.

Telemonitoring Services

The use of sensors for telemonitoring is a promising field in telecare services. Several ventures in this area are currently underway in Israel, in various stages of development and experimentation. The National Insurance Institute issued in May 2022 a tender for the inclusion of a sensor-based telemonitoring system in the basket of services provided under the Long-Term Care Insurance Law (see clause 3.1.2 above). The goal is to encourage private companies to adapt their services to the needs of older adults receiving long-term care in Israel, and to promote collaboration between those companies and long-term care organizations so as to develop a comprehensive service that would adequately address unmet needs.

In addition, in 2021, a private company providing at-home health services (Natali) launched a pilot sensor service, offered as a complementary service to the company subscribers. The service is still in preliminary implementation stages and the company considers its expansion once the pilot is completed and the findings are evaluated.

A similar service is in place in Israel for use in institutional care centers. Xorcom. developed the Amity system, which enables care center staff to monitor the patients' whereabouts (awake/asleep, sitting/lying down, etc.) and receive updates of the care-taking activities required according to the schedule at each point of care (feeding, changing bedclothes or absorbent products, etc.). The Amity system is based on video motion detection rather than on sensors.

Another approach to telemonitoring has been adopted by INVISICARE. The company uses smartphone data analysis to acquire routine activity data of older adults living alone and detect unexpected activity patterns and behaviors that may call for intervention. The INVISICARE service is currently implemented as a pilot in collaboration with JDC-Eshel and offered for older adults with a medium to high level of functioning who are using a smartphone. The relevant smartphone data is obtained through the mobile service provider rather than directly from the device held by the service user.

Accessible Communication Technology and Content Platform for Virtual Communities

E2C develops interfaces and software solutions for smartphones and tablets (Simple Smartphone and Simple Tablet solutions) as well as dedicated platforms for older adults and their family members, thereby supporting telecare services for older adults. For instance, authorized family members can use the Simple Caregiver Platform to remotely access the care receiver's smartphone, monitor his whereabouts and current status, start video chats, remotely switch the phone from OFF / silent mode to ON mode / ring tone, and initiate burst calls to the care receiver's smartphone in case of emergency, when there is no response on the other side of the line. In addition, the company developed a Simple Content Platform aimed at alleviating the loneliness of older adults through accessible group activities delivered on Zoom. Social organizations and care providing organizations can use the platform to organize and manage virtual communities of service recipients and create content and shared group activities for their clients. Thus, over and above the value offered to the individual user and his family members, the solutions developed by the company can be used to connect the service user with a virtual community of peers and serve as a comprehensive means of online communication and leisure activities. The Simple Content Platform offers fun group games, among other accessible social activities. Currently, some 50,000 older adults are using the solutions offered by E2C worldwide – about 3,000 of whom are using the Simple Content Platform in Israel and in the former Soviet Union. The service is offered in more than 20 languages (including Greek) and can be purchased as a senior-focused, hardware-independent software as well as an integrated hardware and software solution in the form of a simple, user-friendly smartphone or tablet.

Daily Routine Management

MemoApp offers a solution for older adults with cognitive decline, which enables them to manage a daily routine and maintain orientation in time. The MemoApp solution is based on a computer screen with a user-friendly application and a home installed camera and serves to display personal daily information that helps the user to find his way around and communicate with family members and caregivers. The system enables family members and caregivers to monitor the service user's daily schedule and write and edit reminders of daily activities and tasks, e.g., reminders related to medication taking. The system also enables family members and caregivers to initiate video calls with the service user with no action required on the part of the service user. The MemoApp solution includes 20 built-in modules designed to meet various aging-related challenges, including restoring independent functioning, encouraging physical activity, stimulating the senses, bringing up memories, and contributing to the preservation of cognitive function – this, by presenting personally customized images, music, reminders, and tasks on the computer screen.

Table 2: Telecare Services

Type of Service	Name of Service	Service Description	Body in Charge	Funding Entity	Status & Number of Users (at the time of the interview)
Telecare services underway					
Telemonitoring	Home installed emergency button	Emergency button for alerting an emergency response center and calling for help	Several private companies	Public or private	Underway More than 100,000 users
Online content and communication services	Uniper Care	Remote access content and communication services; live and interactive content; video-on-demand; and online group activities	Private company (Uniper Care)	Public	Underway About 10,000 users
Pilot or small-scale telecare services					
Telemonitoring	Amity	Nurse alerting system; patient and resident monitoring in institutional care centers	Private company (Xorcom)	Public	Underway Hundreds of users
Telemonitoring	Home sensor network, the National Insurance Institute	Telemonitoring older adults living alone who are in need of long-term care, covered by the long-term care benefits	Several private companies	Public	Pilot
Telemonitoring	Sensor service, Natali	Telemonitoring older adults living alone who are in need of long-term care	Private company (Natali)	Private	Pilot
Telemonitoring	INVISICARE	Monitoring the status of older adults living alone based on routine activity data acquired by smartphone data analysis	Private company (INVISICARE)	Public or private	Pilot

Type of Service	Name of Service	Service Description	Body in Charge	Funding Entity	Status & Number of Users (at the time of the interview)
Accessible communication technology and content platform for virtual communities	Simple Content Platform	Senior-friendly smartphone/tablet interface that can be used to connect the service user with a virtual community of peers through the Simple Content Platform	Private company (E2C)	Public or private	Underway Some 50,000 users of the company's technological solutions – about 3,000 using the Simple Content Platform
Daily routine management	MemoApp	Daily routine management and video chats – for home or institutional use	Private company (MemoApp)	Public or private	Hundreds of users

3.3 Development and Provision of Telecare Services

The study findings indicate that there is virtually no private market of telecare services in Israel, where service providers offer their services directly to end customers. The starting point for the development of telecare services is thus a market failure. Government ministries and public sector organizations play a key role in the promotion, development, and funding of telecare services, and this is the case for the development of all other technologies for older adults ('age-tech' / 'silver-tech').

The intervention of the state is therefore required due to: (1) the growing need for the provision of accessible technology-based services for older adults; (2) the fact that, for the most part, the technology companies are unfamiliar with the social sector and specifically, with the unique needs of older adults; (3) the lack of economic incentives for the development of technologies and services for older adults.

Based on these findings, the study team identified various models for the integration and provision of telecare services for older adults.

3.3.1 Models for the provision of telecare services in Israel

Two of the models identified deal with social and leisure services while the other two are models for telemonitoring services.

The models describe the relationships between the three stakeholders concerned (see figure 1):

The government: government ministries and agencies, such as the Ministry of Health and the National Insurance Institute; and public sector entities, such as the HMOs.

The state plays a key role in the promotion and funding of technology-based services that drive the market and facilitate the development of services. Third sector organizations collaborating with the government, for instance, JDC-Eshel, also play a major role in the promotion of such services.

Technology / service provider: technology companies that develop and provide technology, content, and service. When it comes to telecare services, more than just technology is required. Service is an essential part (for instance, an emergency response center where emergency situation alerts are received and handled or a virtual community management service), Some of the companies provide content services as well (for example, broadcast lectures or remote physical training and fitness classes). A single company may provide the technology-based service as well as content services or offer its special services in collaboration with another provider of aging or health services.

Users: older adults, family members.

Models for the provision of accessible online or hybrid social and leisure services

Technology-enabled social and leisure services offer one-on-one and group video calls, online meetings, broadcast lectures, and shared leisure activities. The services under discussion are telecare services developed or adapted specifically for use by older adults. General technology-enabled services that may serve as telecare services for older adults but are not tailored for use by older adults, such as Zoom, which gained popularity following the outbreak of the COVID-19 pandemic, are excluded.

Model no. 1

The technology company provides accessible technology as well as content services such as broadcast lectures or management of an online or a hybrid community. The role of the government in this case is to initiate and fund the project. This model is implemented, for instance, by social services departments (see clause 3.1).

Model no. 2

The technology company provides accessible technology while the government initiates and funds the project and also provides the technology-based service as well as content services. This model is implemented, for instance, in virtual day centers (see clause 3.1).

Models for the provision of telemonitoring services

Telemonitoring services use technologies that monitor the routine daily activities of older adults and alert about deviation from the routine or about any distress situation (e.g., falls) that calls for intervention as well as about unexpected activity patterns and behaviors that may indicate a decline in functioning.

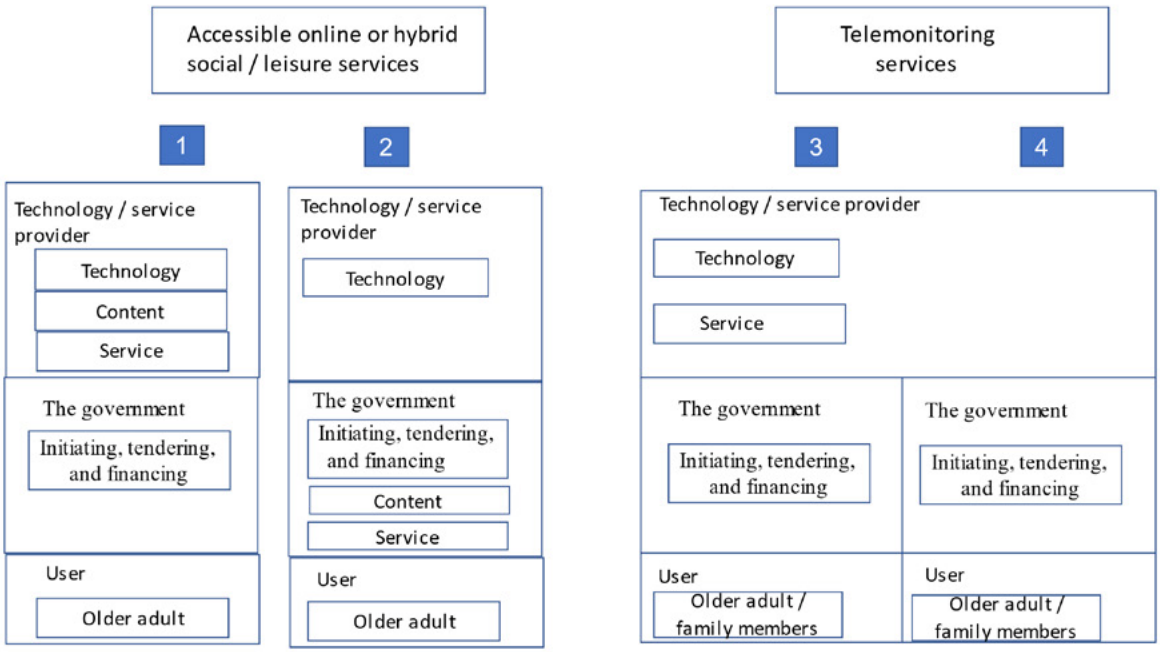
Model no. 3 and Model no. 4

The technology-enabled service uses home installed or wearable sensors or smartphone data analysis to acquire routine activity data of older adults, detect unexpected activity patterns and behaviors that may call for intervention, and notify family members or alert emergency services (e.g., an ambulance). The technology-enabled service and the emergency response center may both be provided by the technology company or alternatively, the technology company may partner with a company specializing in the provision of emergency response services.

In model no. 3, the government initiates and funds the service (as is the case, for instance, in the sensors tender of the National Insurance Institute) while in model no. 4, the service provider offers the service directly to the end customer (for instance, the service offered by Natali).

Unlike the social and leisure services, where the end customer is the older adult himself, the customers of telemonitoring services include family members, who are notified of any change in the health or functioning status of the monitored older adult. Telemonitoring services are thus designed mainly for older adults with a functional disability or for those who show first signs of cognitive or physical decline.

Figure 1: Models for the Development and Provision of Telecare Services in Israel



3.3.2 Development of a Single Model for the Provision of Telecare Services

One of the major challenges indicated by the present study is the lack of a **single** leading model for the provision of telecare services that is effective and has **value** for all the stakeholders concerned: the government, the technology / service provider, and the user.

The interviews conducted as part of the study as well as the findings of another study conducted at the Myers-JDC-Brookdale Institute (Berg-Warman et al., in press) show that numerous challenges are involved in the development and integration of telecare services. Various other considerations have to be taken into account as well in the development of technology-based services.

The diverse considerations and challenges that have to be taken into account in the development of a model for the provision of telecare services are presented below. General considerations are presented first, and specific consideration, challenges, and barriers are discussed next. Finally, recommendations are suggested based on the interviews conducted.

General Considerations

Based on the analysis of the interviews, three general challenges involved in the development of the model were identified: (1) the need to define the target population; (2) the need to understand the added value of the model for each of the stakeholders concerned; (3) the need to understand the nature of the high-tech industry.

1. Defining the target population. The target population of the technology-based services has to be predefined with reference to three aspects:
   - Functioning – Is the service designed for independent older adults or for older adults with a functional disability or with cognitive decline?
   - Digital literacy – What is the level of digital literacy of older adult users and to what extent service accessibility has to be provided?
   - Family support – To what extent family members are taken into account in the implementation model? (Family members are generally considered to be an integral part of the model for telemonitoring services.)

Defining the target population would enable the development of customized technology and help ensure its accessibility for older adults.

2. Understanding the added value of the model for the government, the technology / service provider, and the user. When planning a technology-based service, it is of importance to understand the added value of the model for each of the stakeholders concerned, as well as their motives, and the benefit they expect to obtain. If a model has added value for the user but not for the technology-based service provider, the service provider will have no incentive to promote the integration of the technology. Furthermore, in the case of assisted living residences in the community, there is another entity involved in providing the service for older adults. It would seem that developing a model for telemonitoring services could be of benefit in such facilities. However, the model is even more complex in that case since some of the facilities are privately owned and the owners may not necessarily be interested in the development of telemonitoring services, given the effort required and the cost involved in the service provision (including the need for ongoing monitoring and for the development of intervention plans in response to alerts). It thus may well be that providing the customer with quality service would not be the prime motive of the service provider.
3. Understanding the nature of the high-tech industry. When planning a technology-based service, the nature of the high-tech industry has to be taken into account. It is a dynamic, entrepreneurial, fast-changing industry, so that developers of technology-based services are often required to modify the service. In addition, the high-

tech industry is characterized by innovation; however, many of the innovative initiatives prove to be infeasible and the companies concerned cease operations. Thus, for instance, two initiatives for the development of telecare services in Israel – a social/community application and a telemonitoring service based on wearable sensors, designed for use by a long-term care provider – have both failed.

Considerations and Challenges Involved in the Development of Telecare Services

The government's perspective

To successfully implement a technology-based service, the challenges and barriers facing the government bodies and public sector organizations involved in initiating, tendering, funding, and/or developing the service should all be taken into account.

Challenges and barriers

1. Legal, organizational, and bureaucratic barriers. The government is faced with significant legal, organizational, and bureaucratic barriers. These barriers may be attributed to the gap between the fast-moving high-tech industry and the slow-paced, bureaucratic practices characteristic of the public sector as well as to differences in organizational culture and corporate language between the two sectors.
2. Approach gap. While government bodies and public sector organizations tend to predefine narrowly and specifically the required and/or tendered services, the enabling technology is essentially flexible, adaptive, and constantly evolving. Thus, for instance, the first tender issued by the National Insurance Institute for a sensor-based, home installed telemonitoring system was too specific to attract potential bidders (detailing requirements down to the level of each sensor location), and no company bid for the tender. Furthermore, the technology sector encourages innovation through technological incubators, grants for open-ended product development projects, etc., an approach that fundamentally differs from that of the public sector. In addition, given the complex nature of technological development and hence, the difficulty to estimate the cost of the end product, the allocation of budgets for development projects is a related challenge, which likewise calls for flexibility.
3. Lack of experience. Given the lack of experience in the development and provision of accessible technology-enabled services for older adults, the limits of legal liability of either the technology developers or the government are still unclear and have yet to be established. A related challenge is the lack of experience in the formulation of legal agreements between public sector entities and technology companies. It is expected that as more services of this kind are developed, suitable legal solutions will be found.

Recommendations

1. Tendered services should be broadly described, without specifying the required technology.
2. The tendering process should be expanded to include an additional preliminary bidding stage that would allow as many companies as possible to bid without committing to a significant initial investment.
3. A technology trustee should be appointed to promote project development, to facilitate communication and cooperation between the government and the technology developers, and to bridge gaps between the two sectors related to corporate language and product specification.

The technology / service provider's perspective

Developers of technology-based services interviewed as part of the present study noted the challenges facing technology companies in the development as well as in the integration and delivery of the services.

Challenges, considerations, and recommendations

1. Defining the target population. Some of the entrepreneurs interviewed noted that they were motivated to enter the field of technology-based telecare services by the actual need of an aging family member. However, while they are highly motivated and thus, committed to the cause, they are not always familiar enough with the needs of the target population and hence, are not in a position to accurately define the target population (in light of the criteria listed above). Consequently, they target a wider population of potential customers.

   Furthermore, even in those cases where the need is accurately identified (for instance, the need for telemonitoring services), the offered solution is not always tailored to the habits and preferences of older adults (for example, an awkwardly designed watch with embedded sensors may not appeal to older adults) or is not necessarily customized to the capabilities of older adults (for example, the need to charge the smartphone once a day may be burdensome for older adults).
2. The universal design principle. To increase the number of potential users and the economic feasibility of the product, it is recommended that products accessible to and usable by diverse target populations be developed. The more diversified the population of potential users the greater the prospects of success.
3. User privacy. Maintaining the privacy of older adults when using technology-based services is one of the main challenges involved in the development and provision of the services. Older adults are concerned about the possible violation of their privacy by home installed telemonitoring devices (e.g., cameras or microphones). To minimize the violation of privacy, a sensor-based, home installed telemonitoring system can be used. The use of sensors rather than image capturing or listening in devices would thus facilitate the home installation of telecare systems for older adults.

4. Developing a business model. One of the challenges mentioned by the interviewees is the need to develop a business model that meets the needs of each of the stakeholders concerned while being profitable for the entrepreneur. Various related considerations and some suggested recommendations are presented below.
    - Reliance on support by public sector entities. The extent of reliance on support by the public sector should be evaluated in light of the welfare policy in the target country for the integration of technology-based services.
    - Profitability for the entrepreneur. The higher the difference between production costs and consumer price, the higher the profitability for the entrepreneur
    - Development and distribution of new products. The development and distribution of new products require a significant investment. Software development costs are usually lower than hardware development costs.
    - Knowing the competition. Entrepreneurs are encouraged to get to know the competitors, to study the market, and to learn from the mistakes made by competing companies as well as from their success stories. Knowing the market is the first step to successful development and distribution of new products.
    - Product validation. Product validation should be performed to demonstrate the feasibility of a new product and to ensure that it meets the expectations and needs of a wide range of different users, such as older adults, people of different socio-economic status, and people from different cultures.
    - Frequent technological modifications. Given the dynamic, fast-changing nature of technological development, frequent modifications are required in technology-based services for older adults, entailing investment of time and resources.
5. Service provision. Along with the challenges involved in the development of a business model, challenges involved in the provision of services to older adults and their family members were also mentioned by the interviewees.
    - The need for technical support. Older adults using smart devices often need technical support. The need for technical support entails higher product maintenance costs and hence, higher service costs. Furthermore, given the social, cultural, and ethnic diversity of Israel's population and specifically, older adults, technical support has to be provided in various languages, including Hebrew, Arabic, Russian, English, and Amharic, which entails additional costs.
    - Wear and tear. Hardware wear and tear and hardware replacement costs have to be taken into account.
    - Infrastructures. Notwithstanding the technological progress and infrastructure development in Israel, Internet infrastructure is still not equally available across the country, and specifically missing in assistive

living residences and homes of older adults. Furthermore, even when available in assistive living residences, it is not always available in every housing unit, so that telecare services cannot be deployed in these or similar institutions.

The user's perspective

The interviews indicated that the use of technology-based services by older adults and their family members involves various challenges and barriers. The challenges and barriers as well as suggested recommendations are detailed below.

1. Negative views regarding the use of technology. Older adults may be unwilling to consider the use of technology. In many cases, they have negative views about the use of technology and manage quite well without it. A study conducted at the Myers-JDC-Brookdale Institute on the attitudes of older adults regarding technology and the use of technology (Berg-Warman et al., in press) indicates that many older adults have negative views about the use of technology and that such views are prevalent among older adults with a functional disability. The study also shows that the views held about technology and the use of technology are reflected in practice. That is, people with positive views tend to use technology more than others with negative views, regardless of demographic characteristics such as age or education. Older adults generally attribute their difficulties in using technology and hence, their reluctance to use technology to poor physical condition, e.g., poor eyesight or trembling hands, or to memory decline. They often cannot remember how to use technology-based products and give up further attempts. The fear to fail, feelings of shame, embarrassment about the way they are seen by their grandchildren, the difficulty to focus on tasks or to remember operating procedures, and the fear of causing damage, stemming from past failures, are all at the root of their negative views. Another contributing factor is the digital gap. Finding it difficult to learn new things, older adults are left behind, unable to keep pace with fast-changing technology.
2. Reluctance to purchase and use 'age-tech' products and services. Older adults are disinclined to use technologies labeled as 'age-tech' or 'silver-tech' such as assistive devices, this, due to the associated stigma and the difficulty to acknowledge and accept their aging. However, they are more willing to use technology tailored for older adults when health needs arise. At the same time, many older adults are unwilling to pay for telemonitoring services. They should thus be advised of the importance of the offered technology-based service and its value for older adults. Also, the service should be offered along with other services perceived as health-related services.
3. Inability to pay for the services. Some of the older adults have financial difficulties and thus give up subscription to Internet services; consequently, they cannot use online technology-based services.

4. A low level of digital literacy. The level of digital literacy of some of the older adults is rather low. Older adults may thus find it difficult to operate technology-based products, whether it is an online communication system or a smart device that has to be charged once a day. This is true, in particular, for older adults with a cognitive or physical disability. Thus, accessible technology (e.g., a simple remote control) or alternatively, transparent, passive technology (e.g., sensors in place of an emergency button) would add value for the user and ensure feasibility of use. Also, to facilitate troubleshooting, the technology-based service should offer technical support through a remote support application that can access and control the user's device.

   Family members, especially those caring for older adults with disabilities, have an important role in this respect. The level of digital literacy of family members and the extent to which they can assist older adult users in overcoming operating difficulties may affect the use of technology-based products and services by older adults and should thus be taken into account as well.

5. Service-related preferences. Older adults and family members are generally interested in technology-based services that offer content services as part of the subscription. As noted by the interviewees, companies that originally developed an exclusively technological service subsequently expanded the service to include integrated content services tailored to the specific interests and needs of the various target populations using the service.

   Another point noted by the interviewees is that older adults prefer face-to-face meetings rather than online meetings. Following the outbreak of the COVID-19 pandemic, when mobility restrictions and closures forced them to stay at home, older adults, having no better choice, settled for online meetings. Recently, with the change of policy, face-to-face meetings and leisure activities shared in person have regained popularity and are currently the option preferred by older adults.

   While online meetings may be more accessible for older adults, face-to-face meetings have an intrinsic value. When expecting a home visit by a professional or a volunteer or preparing to go out for a social gathering, the older adult has to get ready, tidy up, and dress up, thus staying alert and fit. Besides, social engagement has added value in itself as it helps to maintain and enhance the functioning and well-being of older adults.

3.4 Study Limitations

The present study is based on interviews with aging experts and technology developers, on the information they provided drawing on their professional knowledge and experience, and on the review of websites of companies developing telecare technologies for older adults. The study team sought to cover the whole range of companies operating in the telecare field in Israel. However, some technology developers and service providers may have been left out. A more comprehensive study, including quantitative data on the scope of use of telecare services, may be conducted in the future, with the growth of the industry and the expansion of the market.

4. Summary and Key Insights

4.1 Summary

This study was conducted with the aim of mapping the telecare services available in Israel for older adults living in the community. The study was based on interviews with 22 professionals in the field of aging and developers of technology-based services as well as on the review of relevant websites.

The study was conducted in the light of: (1) the technological advances in recent years, which enable improvement of the quality of life of older adults; (2) The rapid growth of the technology industry in Israel, the country known as the startup nation.

Following the outbreak of the COVID-19 pandemic, online consumption of content and communication services through applications such as Zoom and Microsoft Teams increased significantly. Local authorities used the applications to facilitate communication between older adults and family and friends and to deliver dedicated content for older adults. However, these communication platforms are not specifically designed for use by older adults, so that people lacking digital literacy or those not skilled in the use of the technology cannot access and enjoy the offered services.

Online social and leisure services for older adults in Israel offer diverse content and activities, including broadcast lectures and remote physical training and fitness classes. The services are provided by local authorities as well as by technology companies that develop and provide technology, content, and service or delivered through virtual day centers operated with the support of the Ministry of Welfare and Social Affairs.

It was also found that the long-established emergency button telemonitoring service is the leading telecare service in Israel. Other technology-based communication and daily routine management services for older adults are used by hundreds to thousands of people. Some of the telecare services are still in the pilot stage while most of the initiated services in this field are not yet fully developed or widely deployed.

Given the findings, it seems that the telecare field in Israel is still in the preliminary stages of development and integration and that a single leading model for the provision of telecare services that is effective and has value for all the stakeholders concerned, the government, the technology / service provider, and the user, has yet to be established.

Each of the stakeholders concerned is faced with specific challenges that have to be taken into account along with other considerations in the development of the technology-based services. The major challenges facing the

state are the need to overcome bureaucratic barriers (e.g., the formulation of tender documents) and to bridge the gaps between the different organizational cultures of the state and the technology companies. The main challenges facing the technology / service provider are unfamiliarity with the needs of the older adults and finding a profitable business model. One of the main challenges facing older adult users is a low level of digital literacy.

4.2 Key Insights

To ensure the successful development and provision of telecare services for older adults, several parameters have to be taken into account:

1. **Market failure**. The lack of economic incentives for the development of technologies and services for older adults and the fact that, for the most part, the technology companies are thus not interested in and unfamiliar with the unique needs of older adults are at the root of the market failure. It is thus required that the state encourage the private sector to promote initiatives and invest in the development of telecare services for older adults.
2. **Unfamiliarity with the needs of older adults**. The study shows that in many cases, the developers of telecare services were motivated by the actual need of a family member and that the telecare technologies developed are not adequately supported by data or knowledge of the field of aging.
3. **Defining the target population and examining its needs**. The target population of the technology-based services has to be predefined so as to maximize customization for older adults. At the same time, the suitability of the technology for both older adult users and family members is also a parameter to be evaluated. That is, the target population, i.e., the customers, and its needs have to be mapped.
4. **Only few socially oriented telecare services are available**. The emergency button telemonitoring service is the leading telecare service in Israel.
5. **Only few telecare services are privately funded**. Most telecare services developed in Israel so far have been initiated and funded by government ministries and public sector organizations. Only few telecare services have been funded by private sector entities.
6. **Collaboration**. To ensure the successful integration of the technology, collaboration between the developing company, the funding government entity, and the user is essential.

7. **Participation of the older adults in the planning of technology-based services, specifically telecare services**. The participation of the target population. i.e., the older adults, in the planning and development process is essential to success. Older adults can provide information about the solutions they are in need of and thus contribute to the successful development of the required services.
8. **Reducing the bureaucracy involved in the integration of technology**. Reducing and streamlining the bureaucracy involved in the integration of technology-based services for older adults would enable companies that serve customers worldwide to offer their services in Israel as well.
9. **Technology in itself is insufficient**. When it comes to telemonitoring services, more than just technology is required. For instance, an emergency response center and/or family members ready to receive emergency alerts form an essential part of telemonitoring services.
10. **Flexible, adaptive approach**. The technology companies have to adopt a flexible, adaptive approach to ensure ongoing customization of the product in line with the evolving needs of the target population.
11. **The need to adapt to changing circumstances**. Companies that originally developed a socially oriented technological service subsequently expanded the service to include integrated content services in response to demand. Further adaptations were made in view of the COVID-19 pandemic.
12. **The need to adapt the service to the fast-changing technology**. Given the fast-changing nature of technological development, the need for ongoing modification of the technology-based services has to be taken into account.

5. Recommendations for the Deployment of Telecare Services in Greece

Based on the interviews with telecare professionals and the insights gained thereby, the following recommendations are suggested:

1. The government has a key role in the initiation and funding of telecare services, and it can employ various means to promote the field. It is recommended that the challenges involved be considered in advance and that suitable mechanisms for coping with the challenges be developed.
2. When developing technology-based services, the recurrent built-in failures inevitably associated with the integration of technology have to be taken into consideration.
3. So far, no sustainable (effective) model has been developed defining the relationships between the three stakeholders concerned: the government, the technology / service provider, and the user. It is therefore recommended that efforts to integrate technology-based services for older adults be carried on and that the development of an optimal model for the provision of the services be thus promoted.
4. One of the challenges facing the government, the technology / service provider, and the users is the lack of awareness of the potential value of telecare services for older adults. It is thus recommended that awareness of the issue and of the added value for each of the stakeholders concerned be raised.
5. The high-tech industry is a dynamic, innovative, and constantly evolving industry. Apart from the technologies reviewed in this study, new technologies are currently introduced to the Israeli market, for instance, robots for the care of older adults and virtual reality for older adults, in particular, for older adults with cognitive decline. It is recommended that such emerging technologies be followed up on an ongoing basis.
6. It is recommended that telecare services be offered along with telehealth services. For instance, an ADL monitoring service using a home installed sensor network may be offered along with a health monitoring service, e.g., a service for monitoring blood pressure indicators. Older adults are more inclined to subscribe to an integrated telehealth service than to a stand-alone ADL monitoring service. It is also recommended that complementary rehabilitation services be offered along with the basket of telecare services.
7. It is recommended that services be managed on the municipal level and that the needs of the local population be mapped. It is also recommended that a dedicated coordinator for telecare programs be appointed to

maintain contact with the service users and to help create online communities for older adults based on shared areas of interest.

8. It is recommended that telecare services under development be integrated in the system of existing services, such as day centers, or that they be based on supportive entities, for instance, family members.
9. Given the importance of social engagement for older adults, it is recommended that hybrid communities be created, offering both on-site and online meetings and shared activities. It is also recommended that a managing coordinator be appointed for each hybrid community to run the activities and to maintain personal contact with each of the community members. As communities are developed and experience is gained, the optimal combination of on-site and online activities may be found.
10. When planning telecare services for older adults, it is recommended that a local pilot be conducted to test feasibility and identify challenges and that the program be expanded to other localities based on the pilot findings. It is also recommended to review similar programs and to learn from the mistakes made by other companies as well as from their success stories.
11. It is recommended that teams of professionals be set up to discuss the digitization of services. A number of such teams have been set up in Israel; one of the teams deals with aging and specifically, with geriatrics.
12. It is recommended that the target population of a projected service be predefined. The unique characteristics of the target population should be evaluated in advance so as to offer an optimal solution.
13. It is recommended that in addition to the guidance for older adult users of technology-based services, the professional teams working with the service users be trained to provide technological assistance as needed. It is also recommended that volunteers be mobilized to familiarize older adult service users with the technology at the introduction stage and personally help them on an ongoing basis.
14. It is recommended that simple, user-friendly technologies be used, such as customized tablets with only few buttons, high-volume audio, and large font size.
15. It is recommended that older adult service users take part in the service, initiate activities, set up virtual communities based on shared areas of interest, and even manage the communities by themselves.

Additional Related Publications by the Myers-JDC-Brookdale Institute (MJB)

Berg-Warman, A. & Cohen, Y. (2020). *An Upgraded Supportive Community: Evaluation Study*. Myers-JDC-Brookdale Institute. RR-802-20. (Hebrew)

English abstract: https://brookdale.jdc.org.il/en/publication/an-upgraded-supportive-community-evaluation-study/

Berg-Warman, A. & Cohen, Y. (2020). *Incorporating the Supportive Community Program in the Basket of Services for Recipients of Long¯Term Care Benefits: An Evaluation Study.* Myers-JDC-Brookdale Institute. RR- 835-20. (Hebrew)

English abstract: https://brookdale.jdc.org.il/en/publication/incorporating-the-supportive-community-program-in-the-basket-of-services-for-recipients-of-long%d6%beterm-care-benefits-an-evaluation-study/

The publications can be downloaded free of charge from the MJB website: https://brookdale.jdc.org.il/en/

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