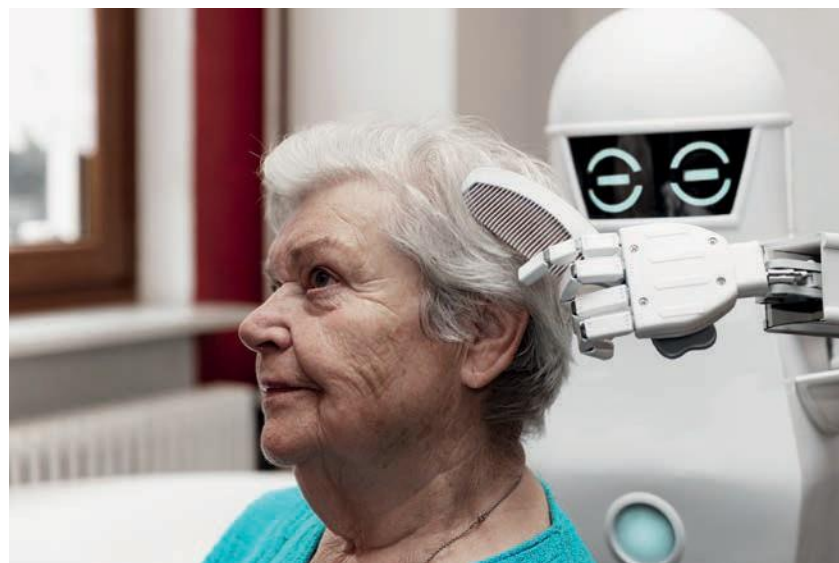


ROBOTS AS SUPPORT IN OLD AGE

**WHITE PAPER FROM
THE GARBALD TALKS**
OCTOBER 2020

White Paper as the result of an interdisciplinary reflection process involving relevant and affected stakeholders, with the aim of identifying at least 3 recommendations for action with specific implementation which can be used as the basis for socially responsible and socially accepted solutions for the use of robots in old age.



ROBOTS AS SUPPORT IN OLD AGE

1. Initial Situation

Due to the demographic change, the proportion of people over 65 is increasing sharply internationally and Switzerland specifically. In 2019, the proportion of people over 65 was 18.1% within Switzerland's total population¹. This share is expected to rise to at least 25.6% in 2050².

As a result of this development, more people will need support in the foreseeable future and the shortage of skilled workers in the care sector will become even more acute³.

At the same time, many seniors have a strong desire to remain independent in their familiar living environment for as long as possible. **Rapidly advancing technological developments are opening new possibilities. For example, robot technologies can be used for support in old age to maintain the independence and well-being of seniors and to relieve caregivers.** Here, the use of robotic solutions meets different needs and wishes of various stakeholders⁴:

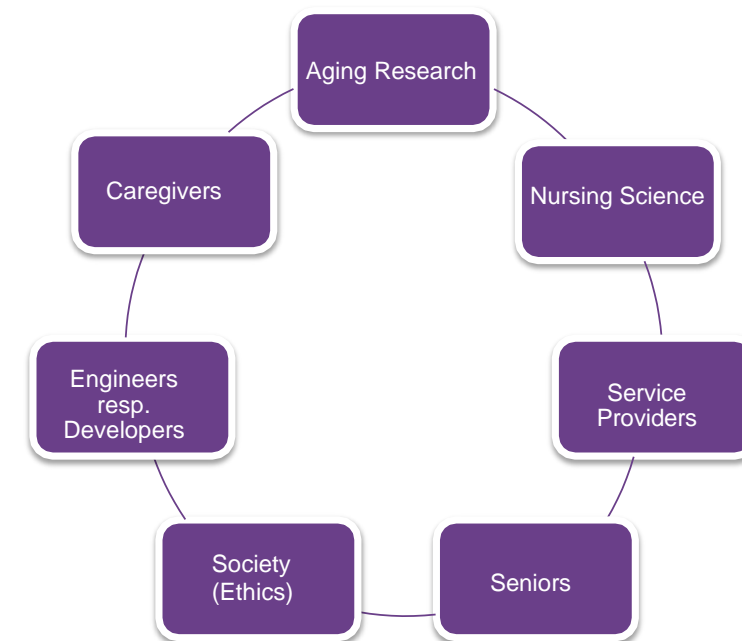


Fig. 1.: Stakeholders, represented at the Garbald Talks.

1 Bundesamt für Statistik (2020). Bevölkerungsentwicklung im Jahr 2019: provisorische Ergebnisse. Die Bevölkerung der Schweiz ist 2019 erneut gewachsen und gealtert. <https://www.bfs.admin.ch/bfs/de/home/statistiken/bevoelkerung.assetdetail.12247181.html>.

2 Bundesamt für Statistik (2020). Künftige Bevölkerungsentwicklung. Szenarien zur Bevölkerungsentwicklung der Schweiz und der Kantone 2020 –2050. Bundesamt für Statistik, Neuchâtel.

3 Mercay C., Grünig A. (2016). Gesundheitspersonal in der Schweiz – Zukünftiger Bedarf bis 2030 und die Folgen für den Nachwuchsbedarf (Obsan Bulletin 12/2016). Schweizerisches Gesundheitsobservatorium, Neuchâtel.

4 Stakeholders are defined as all parties with an interest in the implementation of robotics solutions. Seniors, relatives, caregivers, political representatives, institutional representatives, developers, research, industry, and the public.

For these new robotic solutions to be socially and societally accepted, it is essential that suitable framework conditions and technical solutions are actively and participatively co-designed by various stakeholder groups from the very beginning.

For this, representatives of various stakeholder groups met in Castasegna (GR) in August 2020 for a multi-day retreat (Garbald Talks) under the leadership of the Institute for Ageing Research (IAF) of the OST – Eastern Switzerland University of Applied Sciences. **The Garbald Talks allowed a comprehensive, interdisciplinary consideration of the topic. With these elaborated results and recommendations for action, it is now providing a cornerstone for prospective viable solutions for the society of the future and for a public discussion of this relevant topic.**

It was determined that no autonomous, humanoid robots will replace humans. Instead, specific solutions will be used for clearly defined areas. Each specific use case must include:

- defined concrete needs,
- suitable robotic solutions developed for the user groups involved,
- presented fields of application,
- demonstrated added value of the application,
- robotic solutions that were developed compatibly with other technical solutions.

Robot Technology

- promotes the autonomy of aging people,
- allows situation-appropriate care and support of people in need of support,
- and relieves the burden on caregivers.

This working definition was established by the participants of the Garbald Talks for the use of robotic solutions that aim to assist older adults.

In the following, the focus of all statements regarding robot development or robot technologies is always on this working definition.

2. Current Situation: Expectations and Fears

All representatives of the respective stakeholder groups reported from their field of expertise, shared their knowledge, and addressed their expectations and concerns regarding the use of robot technologies in the field of aging. The results are listed in the following table below.

Stakeholders	Expectations	Concerns
Representatives of Seniors	<ul style="list-style-type: none">• For older generations "appealing, understandable, comprehensible and experienceable" robotics solutions.• User-friendly and easy-to-operate solutions even for inexperienced people.	<ul style="list-style-type: none">• Increase in loneliness and isolation.• That shrewd salespeople take over robot development.• Danger of paternalism through robots.• Social inequality due to differences in financial strength.
Representatives of Aging Research	<ul style="list-style-type: none">• Enable autonomy and provide freedom of choice.• Developing participatory robotics solutions oriented towards the needs of the stakeholders.	<ul style="list-style-type: none">• Savings in care.• Realization of too much technological support with the result that users' abilities are reduced.
Representatives of Nursing Research	<ul style="list-style-type: none">• Robotics solutions make an essential contribution to promoting health.• Use for specific applications with clear added value and not as a substitute for care.	<ul style="list-style-type: none">• Potential areas of application are not yet ready; a great deal of preparatory work is still needed.• Unstructured, primarily financially driven use of robot technology.
Representative of Caregivers	<ul style="list-style-type: none">• Strengthening the autonomy of older persons.• Relieving the burden on nursing staff in favor of quality care.	<ul style="list-style-type: none">• Too many different individual interests.• Too many modular solutions.
Representatives of Service Providers in the Field of Old Age	<ul style="list-style-type: none">• Convincing society of the benefits.• Good solutions can act as multipliers.	<ul style="list-style-type: none">• The advantages are not being communicated successfully.• Mobile operation of robot technology in private households is too costly.
Representatives of Engineers resp. Developers of Robotics Solutions	<ul style="list-style-type: none">• Growing range of diverse and comprehensive robotics solutions.• Added value by using robotics for caregivers and care recipients.	<ul style="list-style-type: none">• High complexity and diversity in potential robot applications.• Lack of target formulation by potential users of robot technologies.• Insufficient acceptance by customers.
Representative of Ethical Considerations	<ul style="list-style-type: none">• More self-determination for people in need of care and support.• Better care for people in need of care and support.	<ul style="list-style-type: none">• Less self-determination for people in need of care and support.• Poorer care for people in need of care and support

Résumé

- The **expectations and fears of all stakeholders** must be addressed and **taken very seriously**. They must be considered during the implementation and development of robotics solutions.
- The affected **stakeholders must conduct a needs analysis**, for which specific tasks robotic technologies are required. In order to have solutions available in the medium term, it must also be evaluated what is already available and where there is a need for development.
- A clear position must be taken, **that robotic solutions are not desired as a substitute for social exchange**, but instead support is sought to allow more space for core nursing tasks (including social contact).
- Staff of both outpatient and inpatient service providers must be able to take advantage **of training in the use of robotic technologies** and older persons must be educated in a targeted manner about the possibility of robotic assistance and its function.
- The **strengthening of the autonomy of aging people** through robotic solutions must be addressed as well as the **relief of care**, both in the home environment and in institutions. Research must be directed accordingly.
- **Environmental factors** must take greater account of the future requirements of robot technology.
- An **accompanying ethical discussion** must be conducted. Data protection and self-determination are important aspects of the entire development process and must be considered.

3. Outlook: Recommendations for Action

In the course of this intensive exchange, three common goals were identified that must now be implemented. Here, it is important that all stakeholders cooperate institutionally.

1. ESTABLISHMENT OF AN INFORMATION-PLATFORM

Starting point:	Knowledge of existing robotics solutions is currently insufficiently disseminated among stakeholders. There is hardly any exchange between users, researchers and the private sector's own initiatives, and an up-to-date, efficient overview is almost impossible.
Demand:	Provision of a central, independent, and comprehensive information service.
Opportunity:	Publicly accessible and neutral evaluation. The needs of the stakeholders can be covered individually, new opportunities are made known at an early stage.
Implementation:	A platform is established that provides comprehensive, neutral, and independent market offers and information to the public while guaranteeing transparency regarding safety and certification. Professional and service organizations from the field of aging should jointly tackle the implementation as independent institutions.

2. DEMAND FOR PARTICIPATION AND PUBLIC RELATIONS WORK

Starting point:	Only few user groups participate in the discourse on the development of useful robotic solutions and contribute their perspective(s). The general public has vague knowledge about the border between reality and fiction of robotic solutions, which can fuel fear, especially among older adults.
Demand:	Active discourse of all stakeholders as well as increased public relations in order to clearly distinguish reality and fiction of robotics solutions and to build up knowledge about feasibilities.
Opportunity:	All stakeholders can participate in the process and contribute their wishes. A realistic picture of current and future robotic solutions can be presented in an understandable way.
Implementation:	Strong public relations via media, lectures, e-learnings, etc., to inform user groups and the general public about available possibilities.

Goals

- Ensure that all stakeholders can participate.
- Clarify limitations of robotic assistance.
- Promote public discourse on this topic so that, based on specific needs and technical possibilities, the public's rather vague ideas can be replaced by specific knowledge and their diffuse fears can be reduced.

3.

ESTABLISHMENT OF A NATIONAL RESEARCH FOCUS

Starting point:

The developers of robotic solutions have insufficient knowledge of which user groups need which type of solutions in specific situations and where specific support and thus development needs are present. This makes the development process insufficiently target-oriented and inefficient.

Demand:

Establishment of a national research focus for (inter)national, inter-, and transdisciplinary research on the topic of robotic solutions for older adults. This aims to give the topic strategic importance within a defined framework. strategic importance to the topic within a defined framework.

Opportunity:

Based on the stakeholders' needs, robotic solutions will be developed in an interdisciplinary way and with greater thrust, addressing existing problems and thus contribute to the support of the autonomy of older adults and relieve the burden on caregivers.

Implementation:

Establishment of a national research focus at the SNF, in order to enable innovative, interdisciplinary research projects with corresponding knowledge and technology transfer, in which inter alia specific requirements for certain areas of application are defined, described and developed.

Goals

- Establishment of a long-term, national research focus on the topic of "Robotics as Support in Old Age", which builds on the already existing excellent capabilities in Swiss science and will be of strategic importance, both for Switzerland as a research location and for the future of Swiss society.
- Establishment of interdisciplinary courses of study and cooperation between health science and technical disciplines.
- Development of a catalog of requirements based on the identified concrete support needs, in cooperation with engineers and developers of robotic solutions.
- Establishment of innovation hubs as an interface between research and practice.
- Creation of Swiss-wide (and international) competence and research networks in the field of gerontechnology.

Participants at the Garbald Talks

(Representatives of Various Stakeholder Groups)



Prof. Dr. Sabina Misoch
Institute for Ageing Research (IAF), OST, Content director, Event's initiator together with the Fondazione Garbald



Prof. Dr. Marco Hutter
Institute for Robotics and Intelligent Systems, ETH Zürich



Marianne Pfister
Spitex Schweiz



Claudio Senn
Pro Senectute Graubünden



Prof. Dr. Maria Schubert
Research Unit Nursing Science, ZHAW



Dr. Esther Ruf
Institute for Ageing Research (IAF), OST



Dr. Thekla Brunkert
Institute for Nursing Science, Universität Basel



Stephanie Lehmann
Institute for Ageing Research (IAF), OST



Prof. Dr. med. Dr. phil. Nikola Biller-Andorno
Institute for Biomedical Ethics & Medicine History, UZH



Hans Joss
Bündner Kantonalverband der Seniorinnen und Senioren



Denise Moser
Representative of Seniors formerly Innovage Schweiz



Charlotte Gubler
Fondazione Garbald



Dr. Johannes Flury
Fondazione Garbald



Stephan Klapproth
Moderation

Conclusion/ Outlook

The above mentioned three recommendations for action indicate an immediate, a medium-term as well as a long-term feasibility. However, all participants of the Garbald talks agree that no time must be lost in this socio-politically important and increasingly relevant topic of socially responsible use of robotics as support in old age.

The responsible persons of the IAF of the OST, Mrs. Prof. Dr. Sabina Misoch (sabina.misoch@ost.ch), and the Fondazione Garbald, Mrs. Charlotte Gubler (gubler@garbald.ch), are now engaged in various discussions, public relations as well as with relevant functionaries in order to create the necessary framework for the implementation of the individual proposals. Both are available under the aforementioned email addresses for written inquiries.

«Even the longest journey begins with the first step».

Lao Tzu, Chinese philosopher, 6th century B.C.

The Institute for Ageing Research (IAF) - OST

The Institute for Ageing Research (IAF) of the OST - Eastern Switzerland University of Applied Sciences exists since 2015 and deals with fundamental and application-oriented research and development around issues of age and aging. Key topics include inter alia innovative technologies (AAL and robotics), Living Labs 65+, digitalization and digital skills, identity transitions, work models in old age, maintaining health in old age and longevity research. Through its interdisciplinary professional and methodological expertise, national and international collaborations, and participatory approach with active involvement of end-users, socially acceptable solutions for the challenges of demographic change are researched and put into practice.

The Fondazione Garbald

The Fondazione Garbald is the owner and administrator of the cultural and architectural heritage of the Garbald family and is charged with not only preserving this heritage, but also making it accessible and actively supporting it. With the renovation of the historic Semper Villa and the addition of the Roccolo and Cascina, the Fondazione has created a powerful place to work and think, where science and art, global and local views on life, future and past, as well as high-tech and tradition meet in a fruitful way.

The Garbald Talks

Since 2011, the Fondazione Garbald has been holding Garbald Talks at the Villa Garbald seminar center in Castasegna, where complex and relevant academic, scientific and social topics are addressed and discussed in an open-minded manner by a small group of decision-makers, experts and specialists. The findings and results obtained in this way are intended to contribute to strengthening Switzerland as a center of industry and knowledge. At the same time, thanks to the Garbald Talks, implications can also be made evident and visionary impulses can be set.

The Garbald Talks 2020 on the topic of "Robots as Support in Old Age" were supported by private donors as well as the Gebert Rüf Foundation, Pro Senectute Switzerland, and the Fondazione Garbald.

GARBALD



THE GARBALD TALKS TOOK PLACE
IN THE SEMINAR CENTER VILLA GARBALD, CASTASEGNA.