

Gerontechnology: Research push and innovation pull for a sustainable humanity

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Keywords: sustainability, innovation, gerontechnology, ISG2016

The specificity of research in gerontechnology is based on its multidisciplinary and cross methodical feedback of a technology solution with issues addressed by the cognitive, social or health sciences. This special edition, with the 1-page papers of ISG2016, comes to testify.

The 10th World Conference of Gerontechnology (ISG2016) took place in Nice, September 28-30, 2016, 25 years after its first version and 19 years after the official establishment of the International Society for Gerontechnology (ISG). With 350+ participants from various regions (*Table 1*) and 250 presentations it has been a successful event. Contributions to the conference spread over symposia, moderated oral sessions, moderated e-poster events and the gerontechnoplatform. Contrary to earlier world conferences, the submission of a 1-page paper was not required, but about 2/3 of the authors still prepared such a paper that could be published in this issue.

CHANGES

In the last 25 years gerontechnology has changed. Initiated by research on technologies from an industrial push and intended for dependent elders, it produced no specific gerontechnological market. Recently demographic pressure promoted the emergence of the issue of needs and desires of seniors, and has gradually pulled the market. The design for all and the refusal of a stigma of 'products for the old' refers currently to the market of a global society, intergenerational, senior economy

that makes sense in a vision of sustainability, ethics and rights. In addition the prevention aspects of gerontechnology got more emphasis¹.

RESEARCH PUSH FOR PROGRESS

The conventional offer of research and gerontechnology to industry still keeps its place as can be seen in the following papers. But powerful technological waves arrive. Pierre Giorgini² distinguishes six 'actants' that will transform the lives of humans and therefore elders:

- (i) The computing power and storage and big data;
- (ii) The connected human in real time;
- (iii) Smart agents, machines, robots and drones;
- (iv) Virtual reality and 3D simulation;
- (v) 3D printing; and
- (vi) Nanoscience electronics, chemistry and biology.

Some of these developments showed itself in ISG2016 in the section ICT – ROBOTS – DRONES. In 26 one-page papers you will find products, and engineering plans or ideas that may shape the new future, as well as basic knowledge and technology to be included in a magnitude of services with some to be imple-

Table 1. Geographic distribution of participants, presentations and published 1-page papers of ISG2016

Geographic region	Nations	Participants	Presentations	Papers
France (host country)	1	72	39	20
Europe, without France	21	171	117	85
Africa	1	1	1	1
Asia	5	49	40	24
Oceania	2	4	3	3
North America	3	55	46	30
South America	1	2	4	4
World total	34	354	250	167

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mented in robots and drones. Drones itself are not mentioned.

PULL FOR INNOVATIVE SOLUTIONS

Beyond research that is one of its components, innovation comes in response to the needs and desires of citizens. It is indeed based on a triptych or a triangle making vis-à-vis the offer (research and industry), the demand (needs and desires) and the implementation (societal by the use, and economic by a business model).

Innovation does not necessarily imply the use of the latest technology, provided that the new implemented solution is to meet the needs. The emergence of Living Labs or the growing involvement of policy makers in local or territorial regions, illustrate the innovation dynamics.

The 40 contributions in the section COMMUNICATION – MANAGEMENT – GOVERNANCE show this pull of innovative solutions and treat communication among stakeholders, the acceptance, adoption and domestication of digital technologies, and governance of the process, including promotion of training.

FUNCTIONAL HEALTH

The field of health illustrates profound changes of gerontechnology. Biotechnology is to meet very specific needs related to disease. But the aging population, which increases the number of patients, also causes an increase in chronic conditions, often multiple in one person and creating a complexity of needs, each person ultimately representing a particular case. Here emerges the concept of functional health needs. The aging person with diseases accepts that s/he will not necessarily be cured, but expresses the need to function, to be active, to be present and included in society and burden as little as possible her or his family, preferably until the end of his or her life. This is a profound change in health paradigms that adds to medical health, a functional health³. Innovative technological solutions respond rather well to these functional requirements.

The presenters at ISG2016 treated different aspects of the health complex. First of all, in the

section HOUSING – BUILDING – DAILY LIVING the focus of the 34 contributions is on the role of the 'hardware' and software of housing in its broadest sense. It includes the total built environment and daily living tasks. Here services, such as apps (local or in the cloud) and construction have been studied with older persons playing a role in the research or design process.

Secondly, the health importance of MOBILITY – TRANSPORT – TRAVEL is treated in 16 contributions. This is mobility by any means of transport (from walking to driving) and including travel for work and leisure, navigation and preventing mobility-related falling with again older persons playing a role in research or design.

The next health related section, WORK – LEISURE – VOLUNTEERING, consists of 24 contributions on the pleasures of life as well as activities and education of the older worker, the older volunteers, and the professional. Here you may find designs and processes from leisure related games to work related education.

The remaining aspects of health are combined in the section HEALTH – COMFORT – SELF ESTEEM of 27 contributions about loneliness, social networks, good sleep, muscle and cognitive training, memory support, serious games, telmedicine and support for fallers. Older adults are prominent in each contribution. It shows the natural diversity among this group of citizens.

ETHICS AND RIGHTS FOR A SUSTAINABLE HUMANITY

In classical economics of ageing nations the societal burden of care for seniors appears unsustainable. The solution could lay in a strong emergence of new cooperative economic paradigms of solidarity convergence of networks, cooperative mode, participatory finance, participatory creation, and a functional economy³.

The individual acceptance of risks, human rights and ethical dimensions will give meaning to the vision of a sustainable humanity, in respect to all ages and all vulnerabilities, as we experienced in Nice at ISG2016.

References

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