A.L.M. van Eekelen (Convener). ***Paradigm shift in construction and care.*** *Gerontechnology 2012;11(2):101;* doi:10.4017/gt.2012.11.02.660.00 **Participants**: *D. Grau (USA), K. Chen (Hong Kong), J. Leikas (Finland), A.L.M. van Eekelen (Netherlands).* **ISSUE** Adding new leading edge technology to existing work procedures leads to resistance among end-users, even when the new technology is better suited to the job at hand, in comparison to existing work processes[1]. **CONTENT** This symposium will present examples from both the construction and care industry of (un-)successful innovations and the nature of resistance to the adoption of new technologies. **STRUCTURE** From the USA comes a review of innovation practices in construction. Acceptance of new technologies in care is presented with the situation in Hong Kong as an example. Explanations of the resistance towards adoption are shown for care in Finland and for construction as well as Ambient Assisted Living in The Netherlands. **CONCLUSION** This symposium aims at ways to support the adoption of needed innovations in both construction[2] and care. A paradigm shift appears to be needed. This symposium delivers also an insight in the relation between various types of innovation. The proposed structure will be applicable in all kind of sectors, more than just care or construction. It gives an introduction in the preparation of decision making.

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Keywords: decision making, adoption, ambient technology
Affiliation: Eindhoven University of Technology, Eindhoven, Netherlands;
E: bert.vaneekelen@arcadis.nl

D. Grau, J. Kirk. ***What drives innovation in construction? A project management team perspective.*** *Gerontechnology 2012;11(2):101-102;* doi:10.4017/gt.2012.11.02.501.00 **Purpose** Based on real project data and field observations, this study aims to characterize the drivers that can create adequate conditions for project management to consider undertaking an innovation and automation effort in construction equipment and methods. **Method** Following a literature review on innovation both in- and outside the construction engineering and management body of knowledge, we recorded in the field observations and data on the innovation process (led by a project team) for a large extreme-batter pile driving operation (*Figure 1*). Additional data was collected by means of feedback from project team members and questionnaires they completed in order to fully characterize the conditions or drivers that are key to promoting innovation, including the innovation effort and its field implementation. Such drivers were then triangulated with the existing literature for validation purposes. **Results & Discussion** While the topic of innovation in construction equipment and methods is well understood by owners, contractors, and subcontractor organizations[1-3], to the best of our knowledge, there is no study that characterizes at the level of the project team management the conditions that are conducive to innovation of current equipment and methods. This study found conventional technologies, risk mitigation, ownership of the process, and incentives are all relevant factors. The opportunity offered by these factors needs to be very clear to the project team (e.g. the importance has to be overwhelmingly clear) to lead to the decision to undertake an innovation endeavour. This is contrast to innovation in corporate organizations, which can *continuously* innovate because of a strong corporate culture towards progress.

Figure 1. Extreme pile batter with two cranes, template, and swinging leads

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Keywords: automation, construction equipment, innovation, project management, construction methods

Affiliation: University of Alabama, Tuscaloosa, AL, USA; *E:* dgrau@eng.ua.edu

Full paper: No

K. CHEN, A.H.S. CHAN, S.C. CHAN. ***Gerontechnology acceptance by older Hong Kong people.*** *Gerontechnology 2012;11(2):102-103;* doi:10.4017/gt.2012.11.02.524.00

Purpose Technology develops at tremendous speed and its impact on our daily life is immense. However, studies have found that older adults are less likely to use technologies than younger people[1]. The purpose of this study was to investigate the gerontechnology acceptance by the older population in Hong Kong. Acceptance was examined in terms of attitude and usage behaviour. **Method** Using extended Technology Acceptance Model (TAM) which incorporates health abilities and quality of life constructs, we investigated the contributing factors to the use of general gerontechnology by older adults in Hong Kong. Usage behaviour was measured in terms of degree and domains of use. Data in this study were collected at six centres for the elderly in Hong Kong through a questionnaire survey administrated by a structural interview approach. Items in the questionnaire were developed based on the previous research[2-3]. **Results & Discussion** A total of 104 seniors, aged between 60 and 91, participated in the study. The Statistical Package for the Social Sciences software was used to analyze the data. The results show that basic technologies such as television and mobile phones had a high level of adoption by the respondents. However, the usage rate of high technology products, like health monitoring system and telemedicine was very low. Generally, older adults had a positive attitude towards gerontechnology, but they thought technological products and services were difficult to use and expensive. Multiple regression results indicated that older adults who were younger, females, better educated, and had higher incomes were more likely to use gerontechnology (*Table 1*). Usefulness, ease of use, attitude, and behavioural intention were found to have no direct effects on actual usage. Mobility was negatively related to usage, whereas health satisfaction and participation in social activities increased usage. Implications and suggestions of this study are discussed.

Table1. Multiple regression on usage of gerontechnology

Independent variables	Model1 (β)	Model2(β)	Model3(β)
Age	-0.404	-0.338	-0.399
Gender	0.371	0.322	0.291
Education	0.502	0.406	0.302
Monthly income	0.322	0.228	0.189
Perceived usefulness		0.050	0.006
Perceived ease of use		-0.029	-0.120
Attitude toward using		0.204	0.199
Behavioural intention		0.047	-0.123
Living environments			0.014
Financial satisfaction			0.109
Life satisfaction			-0.054
Learning ability			-0.074
Health satisfaction			0.426
Movement ability			-0.148
Social activities			0.291
F-value	41.045	23.987	24.600
R^2	0.624	0.669	0.807

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Keywords: communication & governance, technology acceptance and usage, Hong Kong
Affiliation: City University of Hong Kong, Hong Kong; *E:* kechen2@student.cityu.edu.hk
Full paper:10.4017/gt.2012.11.02.524.691

J. LEIKAS, P. SAARILUOMA. ***Life-based design methodology for gerontechnology.*** *Gerontechnology 2012; 11(2):103-104;* doi:10.4017/gt.2012.11.02.288.00 **Purpose** One measure of the benefit of technology is the extent to which the technology enhances the quality of people's lives[1]. The specific reason for adopting and using technology is to help people achieve the general or specific goals that they have set for themselves. Technology's role is to serve as a tool to help people achieve these goals, and to be able to do so easily, safely, reliably, or comfortably. Even technology that is developed merely for entertainment purposes should fulfill these criteria. Today most of ICT-design paradigms, such as 'human factors', 'ergonomics' and 'usability engineering', are targeted at the immediate usage situation only, i.e., intended to guarantee smooth and unproblematic use of ICT-products and services. In this traditional design model, the technology determines the way tasks have to be completed to achieve the goals. As such there is little space for concepts that include the real needs that arise from people's life and that could be met with the help of technology. However, when developing gerontechnology, it is important to pay more attention to what the technology is actually used for[1,3]. To truly understand the human-technology interaction, it is essential to bring in focus knowledge of the diversity of users' everyday life and genuine needs and apply this to ICT-design. This design approach is called Life-Based Design (LBD); it combines the knowledge about human life sciences and technology in order to generate design goals and concepts for developing information society for aging people.
Method We present a model for LBD (*Figure 2*). We present the key questions to perceive, analyze, and design technology for people through knowledge of their everyday life. LBD is concerned with how to derive design goals from human research, based on the analysis of ways of life[2]. The main goal is to replace technical intuitions about the future information society with well-grounded social, philosophical, psychological and humanistic facts[3]. **Results & Discussion** The model consists of four partially iteratively overlapping processes. It begins with the analysis of a form of life, proceeds with concept design, then fit-for-life design, and end by clarifying the way new technologies can be incorporated as working innovations to life. LBD offers the possibility to seriously consider technology for older adults from the vantage point of the successful information society. In addition to physical usage environments, it takes into account the impact of the users' psychological and social environments. Technology ethics is increasingly important in this context. Instead of relying solely on natural sciences that neglect values and personal ethics, LBD offers a more holistic approach to design.

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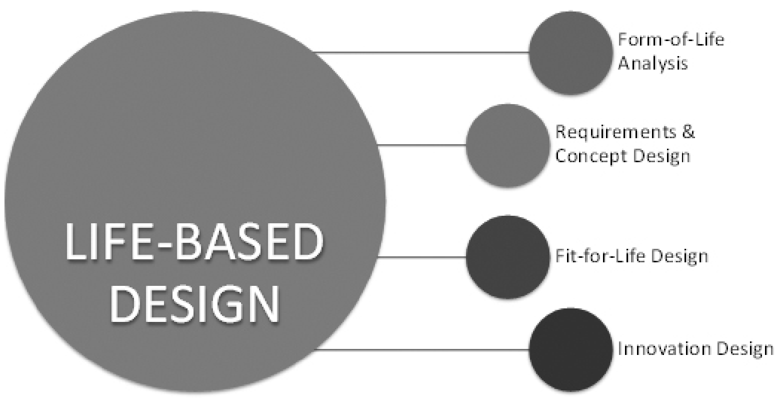

Figure 2. The main phases of Life-Based Design

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Keywords: concept design, innovation, life-based design, human-centred design
Affiliation: VTT Technical Research Centre of Finland, Espoo, Finland; *E:* jaana.leikas@vtt.fi
Full paper: No

A.L.M. van Eekelen, G.J. Maas. ***Of hardware, software and mindware.*** *Gerontechnology 2012;11(2):104;* doi:10.4017/gt.2012.11.02.661.00

Purpose The aim is to link the physical environment with new technologies and devices to the experiences of the user. A growing number of new processes in care facilities, new equipment, better opportunities have to fit with the needs of users, whatever their age. What people like to do in their life is made possible through their living environment in combination with new technologies[1]. If this is so, what are the implications for the Ageing Society? **Method** By analyzing examples we will demonstrate the friction between the intention of new designs of up-to-date devices, and the experience and way of life of the end users[2]. We illustrate this with examples that deal with a variety of topics and applications: new district planning in Amsterdam, the so-called 'Zuid As'; the planning and design of a new airport; the refurbishment of new railroad stations as junction; and also changing views on shopping and the life of seniors in their 'habitat'[3]. **Results & Discussion** Analyses of these case studies indicate that there is always a link between three levels of living, working, and thinking[1]. The bottom level is the built environment with our houses, hospitals, shops, offices, leisure facilities, airports, junctions, infrastructure complete with tools, toys, devices, et cetera. The medium level deals with the way we like to use the built environment: the processes in our life, the organizational structures, the way we are do things, how we act and behave, and so on. The top level explains our perceptions: how we feel, how we experience, how we envision our expectations, mission, and vision. These three levels can successively be called the Level of Hardware, the Level of Software and the Level of Mindware (*Figure 3*).

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Keywords: decision making, process, ageing
Affiliation: Eindhoven University of Technology, Eindhoven, Netherlands;
E: bert.vaneekelen@arcadis.nl
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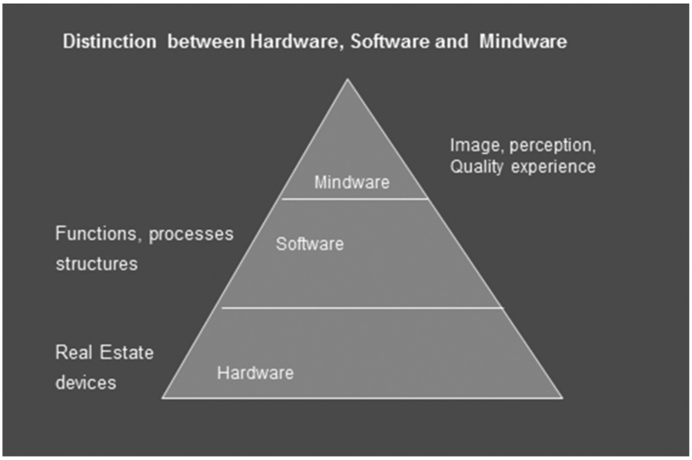

Figure 3: The levels of hardware, software and mindware in completing innovation tasks