Gender Perspective on Embedded Intelligent Systems – Application in Healthcare Technology

S. Almgren Mason
Centre for Gender Equality, Halmstad University

By integrating a gender perspective in all activities, the G-EIS project (Gender Perspective on Embedded Intelligent Systems) has as its aim to make EIS (Halmstad Embedded and Intelligent Systems Research Environment) a national and international model of gender equality and a leading environment for research, innovation and education within computer technology and its applications in products and services. As EIS is particularly well organised and accomplished concerning applications of technology in the area of health technology, this is the main focus of the project. A gender perspective will be integrated in the research environment as well as in the whole process from idea to product and end user.

1. Background and Motivation

Embedded Intelligent Systems (EIS) is the joint research field of the four collaborating laboratories at the School of Information Science, Computer and Electrical Engineering (IDE) at Halmstad University. The four labs are the: Computing and Communication lab (CC-lab), Intelligent Systems lab (IS-lab), Man and Information Technology lab (MI-lab), and Mathematics, Physics and Electrical Engineering lab (MPE-lab).

The research of the four labs is integrated into a strong concerted research environment within embedded systems (EIS) – with a perspective reaching from the enabling technology via new system solutions and intelligent applications to end user aspects and business models. Embedded systems are systems of micro computers, sensors, communication etc. built into products, with the aim of offering new functions and properties in the product/service. It is an expanding research area with many applications, not least ones that exist in everyday life.

EIS has strong connections to both established and new, expanding firms hived off from the university. The research environment is active in the Healthcare Technology Alliance, a network of around sixty companies, counties and health care providers in south western Sweden with the aim of developing the region into a leading arena for the development of health technological products and services. Several projects together with these participants concern both research and technology transfer.

An integrated gender and gender equality perspective in innovations within the health technology area is necessary in order to be able to meet the needs of an ageing population with quality innovations. The relevancy of a gender perspective is clear in relation to the fact that about 70% of all those older than 75 years are women. Older women are on average cared for in hospital for twice as long as men, partly due to differing disease panoramas, but also because men are more often cared for in the home by a woman while the women who live longer more often live alone. With the expansion of home-help and home nursing new needs follow and it is likely that a gender perspective will become necessary for the development of products and services that can make daily life easier for the elderly.

The gender perspective also has relevance from the point of view of care staff. New technology is developed for application within the health and care sector where the larger professional groups consist mainly of women. The technology, most often designed by men, is used by women. With this in mind it is clear that an important aspect of good innovations is that the end users are involved in the innovation process.

2. Problem formulation

Technology is traditionally considered a male area of work and this is reflected in the sex distribution within IDE. Among the enrolled students, the discrepancy is even larger than among the staff (which in fact has a better sex distribution than most other equivalent environments). A pilot study shows that there is a need to problematise the science of technology and its application in relation to gender and gender equality, and to carry out development work for a more gender equal and gender aware work and research environment. In addition, health care is an area concerned with both technology development and gender aspects – many elderly women live alone toward the end of their life and many care givers are women. Technology can be used to facilitate both being able to stay in one's own home and the often heavy and complex work of health care. The end users are regarded as possessing untapped knowledge that can help researchers produce more user-friendly products.

3. Approach

The gender and gender equality perspective is to be integrated not only in the research environment of

EIS and its research partners, but also in the whole chain from the recruitment of students to the consumers of the innovation system's products and services. The project team is a combination of staff from EIS and gender researchers. Four Ph.D. students or younger researchers represent the four labs and function as "change agents" – they receive training in gender equality, research aspects of gender equality in their respective labs, and report back to the gender researchers as well as to IDE. Phases of the project have been named the "sowing phase", the "growth phase" and the "harvest phase" with the intention of sowing the seeds of gender equality awareness and competency, expanding this over and throughout the whole health technology field and finally reaping the benefits of an integrated gender perspective. The four dimensions of Joan Acker's theory of gendered organisations are first applied to and mapped in the research environment EIS, and will later in the project process be tested on the Health Technology Alliance and its operations.

4. Expectations

EIS will make the project results and new knowledge useful in its extensive development work, with emphasis on profiling and growth and the consequent recruiting of new staff that the research environment faces. A gender perspective will put research as well as undergraduate and postgraduate studies in a new light, and is likely to encourage innovation toward useful applications. In collaboration with partners in the Health Technology Alliance, knowledge about the relevance of a gender perspective in technology education, research and the health technology application area will increase.

Expected results of the project include both more gender relevant innovations and technology applications and closer collaboration within the area of health technology. In the long run the project result ought also to be reflected in a more even sex distribution among both staff and students within EIS.

5. Partners and status

Funding: VINNOVA
Duration: 2008-2011
Project leader: Professor Bertil Svensson
Change agents: Stefan Byttner, Annette Böhm, Mikael Hindgren, Jesper Hakeröd
Project participants: Olga Torstensson, Roland Thörner, Carina Ihlström Eriksson, Magnus Jonsson, Håkan Pettersson, Magnus Hållander, Magnus Larsson
Gender team: Suzanne Almgren Mason, Emma Börjesson, Agneta Hansson, Gunilla Fürst Hörte
External participants: Anne-Christine Hertz (Halmstad municipality), Ann-Mari Bartholdsson (Halland Regional Development Council), Joel Eliasson (Phoniro AB), Pelle Wiberg (Free2move AB)

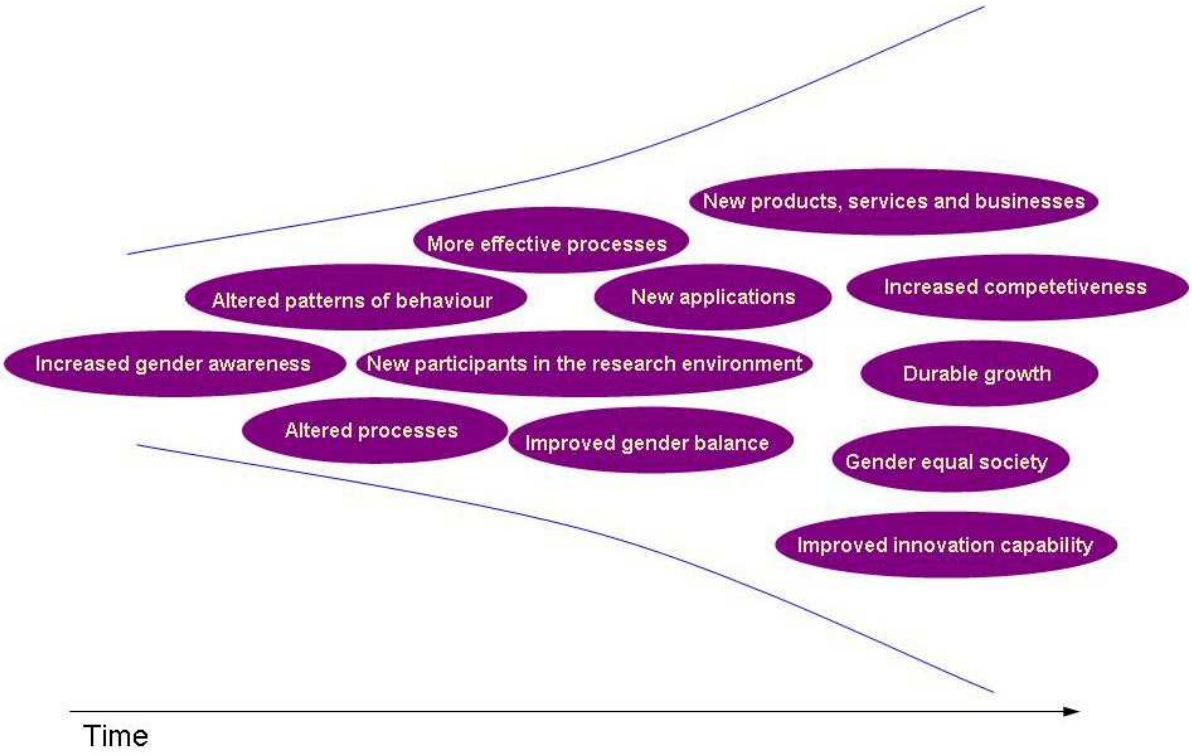

Figure 1. Expected project results