ICT, Work Organisations, and Society

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INTRODUCTION

The present fourth period, the network period, is characterised by a convergence of three main technologies (computer technology, telecommunication technology, and media technology) into information and communication technology (ICT). ICT are embedded in many things and the invisible microcomputerisation that once took off with the chips is enhanced through nanotechnology, biotechnology, and wireless technology—often entitled ubiquitous computing. The author presents ongoing changes in work life and presents a rtheoretical model: The convergence theory on ICT and psychosocial life environment. The convergence model reflects some main ongoing processes in the network society encompassing various spheres of life (professional, private, and public). Sociological theories on the Information Society are discussed in this context as well as theories from the information systems (IS) community. In the Future Trends section the new international collaboration is addressed where research and policy (including politics) develop goals and strategies to deal with societal and psychosocial changes related to the development, introduction, and use of ICT.

BACKGROUND

The area, Information and Communication Technology and its interaction with social changes on organisational, individual, and societal levels, has in the 2000s received growing attention, due to the depth and wide use of it. This article is mainly based on my latest two books. The first one, *Humans on the Net: ICT, Work Organization, and Human Beings* (Bradley, 2001) was presented at the first European Union (EU) conference, *Work Life 2000*, during the half year when Sweden chaired EU. The second book, *Social and Community Informatics: Humans on the Net* (Bradley, 2006), summarises and updates the authors research over 30 years. It will hopefully serve as a source for people to better understand and contribute answers to questions such as: How will people live, learn, and work in the future ICT society? In short, key issues within the organisational change/psychosocial life environment, and

their interaction with the use of information and communication technology are analysed.

Some sections were presented at the *World IT Forum* (WITFOR 2003) in Vilnius in August 2003 addressing "Social and Ethical Aspects of the Information Society" and at the conference, "E-society" in Avila, Spain in 2004.

Empirical experiences show that it is important to keep a balance between pure technical research and development in software and hardware technologies, new fields such as nanotechnology and the behavioural and social science disciplines, for example, psychology, sociology, cultural anthropology, and ethnography.

The ICT-related disciplines have so far been focused too much on the "technology push" instead of on human needs and requirements in the development, introduction, and use of ICT. New universities, sometimes called IT universities, are appearing in many European countries trying to bring together disciplines from the traditional university and disciplines from the technical university to facilitate a necessary rethinking and reorientation of research and development (R&D), sometimes resulting in new centres directly entitled "Humans in the ICT Society" focusing on the human, organisational, and societal aspects of ICT use.

THE NETWORK ERA: CONTINUOUS AND ACCELERATED CHANGES IN THE DESIGN OF ORGANISATION, WORK TASKS, AND MANAGEMENT

The main changes during the network period are summarised in the next five sections and are mainly based on Bradley (2001) and further developed in Bradley (2006). They are primarily derived from our research in the developed countries.

Accelerated Changes at Work in the Net Era

More flexible work processes have appeared regarding both the professional role itself and leadership. Further, the professional role, the learning role, and the role of citizen are becoming more and more integrated. Repetitive

jobs and physically strenuous jobs, including routine work, are disappearing and a total upgrading of qualifications has occurred. In parallel with this, the organisation has become flattened out. In an international perspective more work tasks are becoming similar because software programs are sold world-wide and the work tasks are carried out in a more and more similar way.

Organisational structures as networks have become more and more common. Psychosocial and organisational aspects of networking have come into focus in recent research.

Network Organisations are Like Crocheted Table Cloths

- A crocheted lace cloth is a good model for the developing and future structure of how the world—social systems, organisations, and official authorities—will look. The network era has been established and networks interact more and more wirelessly. It is possible to crochet all the time: each new loop (computer) is connected to another loop through the same yarn (tele-technology).
- Power can both be centralised and decentralised in the network structures, but the process is invisible.
- The distribution of power is now possible in quite a deep sense as competence transfers to the periphery, out to the production level.
- The hierarchical structures of companies that mirrored industrialisation and industrial technology during the mainframe period of the computerisation era are fading away.

The present trend toward the flattening of hierarchies can, according to Aulin's law of requisite hierarchy, be explained by the increasing regulatory abilities of individuals and organisations, due to such factors as better education, management, and technological support (Heylighen & Joslyn, 2001). Another way to express this is that hierarchical regulation and hierarchical organisations are built into information systems and ICT.

Network Organisations: New Communication Patterns

Some examples of what characteristics the network organisations have and how people are affected are:

- direct communication between the various levels of the organisation
- barriers between idea and execution are disappearing

- reallocation of power in the organisation
- continuous changes of structure and roles
- openness to the surrounding world
- multidimensional virtual culture

Decreasing Core Workforce in the Flexible Company

At the centre there is a core workforce of permanent full-time employees who enjoy a wide range of employment rights and benefits; however, the core workforce is decreasing. The other growing part is the peripheral workforce. It consists of part-time staff, self-employed consultants, subcontracted and outsourced workers, and temporary and agency employees. Some of these "knowledge workers" are key resources, while others are exchangeable. Through the network organisational structure they might have very strong positions in the company because of their expertise or social contacts, although this is unseen. Power is invisible in these new forms of organisations: power has no outward manifestation and is not reflected to the same extent as before in properties and gadgets linked to leadership.

Hence more and more organic organisational structures are developing, with a focus on flexible work processes, including dynamic networks for capital and human resources (compare the network organisations above). Economic systems are being created where the present boundaries are increasingly becoming eroded. Advanced ICT support is used for various forms of collaboration. More and more individuals function as self-governing company units.

Reflections

There are both positive and negative impacts on the individual. One critical point is that too much responsibility is put on the individual who:

- loses permanent employment
- has to manage his/her own competence development
- has to market himself/herself
- is expected to take on any position and swallow job enlargement
- is expected to be creative – with little compensation
- is a unit in a competitive world market

One might ask if this means the freedom from paid work in a traditional sense. Other questions are: Should our school system prepare for fostering free agents or portfolio individuals? Should school and learning prepare young

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