Human Computer Interaction and societal impact – Can HCI influence public policymaking and IT politics?

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ABSTRACT

Digitalization is a concept to encompass the fastest growing trend for societal development of modern times. Digitalization happens everywhere, in schools, in business, in health care and in our private life. The digitalization gives also opportunities for political decisions and policy making to support turning our society into a modern and efficient society.

Research and research funding organizations are becoming more and more aware of the need to conduct research that proves some form of utility to the society and has some form of practical impact. There are several different ways of making research that has practical relevance and that can contribute to changing and improving society. This keynote paper aims at discussing ways to plan, conduct research with the aim of improving the society and also show how we should make use of our research knowledge and positions to influence politics and public policy making.

Author Keywords

Digitalization; policymaking, usability, accessibility

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms

Human Factors; Design; Computers and Society; Public Policy Issues.

INTRODUCTION

Information and communications technology (ICT) is an area that substantially will shape the economy of the future; it already provides half of our productivity growth. In the European union (EU) there is currently a quarter of the EU population that has never used the Internet. Yet, in the near future, 90% of jobs will require some level of digital literacy; we risk a "digital divide ". Internet usage is lower among groups already at heightened risk of socio-economic exclusion.
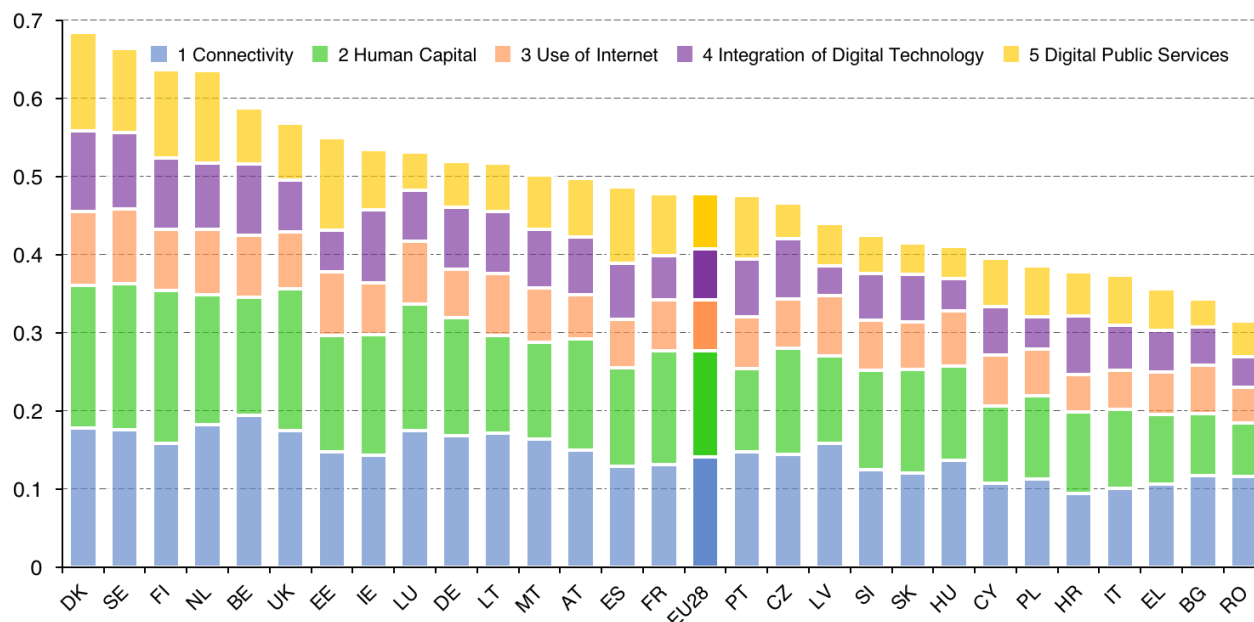
DIGITALIZATION

Digitalization has now become the leading term for the situation in which digital technologies contributes to advancing developments in society and transforming most areas and activities. Consequently there is a need to define the concepts more thoroughly. We can distinguish two major types of digitalization

- Information digitalization – a process in which information is transformed from analogue to digital, making the information structurable, searchable and accessible through the digital channels.

- Societal digitalization – the social and human-revolving process that gradually becomes increasingly difficult to distinguish at all from any part of life. This means that individuals and organizations can communicate and exchange information with other people, organizations and their environment in new ways. Digitalization and the use of ICT-based solutions can help to increase the accessibility and efficiency of both the business and public administration.

DIGITAL AGENDA OF EUROPE

The Digital Agenda presented by the European Commission forms one of the seven pillars of the Europe 2020 strategy that sets objectives for the growth of the European Union (EU) by 2020. The Digital Agenda proposes to better exploit the potential of Information and Communication Technologies (ICTs) in order to foster innovation, economic growth and progress.

- **Digital single market** – on May 6, 2015 the European Commission issued a Strategy for the Digital Single Market. The purpose is to facilitate internet use and services between the European countries without geo-blocking, excessive roaming fees or other factors preventing internet based trade and services, just as it is free to travel, work and trade anywhere in EU.

- **Interoperability and standards** –To be able to enhance the interoperability of devices, applications, data repositories, services and networks, EU must review its standard-setting policy and promote appropriate rules for intellectual property rights.

- **Online trust and security** – The European commission has presented measures on network and information security and the fight against cyber attacks to combat cybercrime, child pornography and breaches of privacy and personal data security.

- **Fast and ultra-fast Internet access** – EU works to establish next generation access networks (NGAs) to achieve competitively priced fast and ultra fast Internet access for all.

Figure 1: The Digital Economy and Society Index ranks countries based on 5 parameters; Connectivity, Human Capital, Internet Usage, Integration of Digital Technology and Digital Public Services. (Retrieved from the Digital Agenda Scoreboard 2015-09-01)

- **Research and innovation** – with the purpose of catching up with the main competitors in ICT research and digital innovation EU invests in world-class ICT research and innovation through the Horizon 2020 research funding programs to boost growth and jobs via innovative Public-Private Partnerships

- **Enhancing digital literacy, skills and inclusion** – Many parts of the EU population are still excluded from media literacy in the digital environment. EU is facing a crisis of a shortage of employees with digital skills across the EU. In 2013 the EC established the Grand Coalition for Digital Jobs and Skills to promote employment of jobs requiring digital skills across EU. It is a multi-stakeholder partnership to facilitate collaboration among business and education providers, public and private actors to take action attracting young people into ICT education, and to retrain unemployed people.

- **ICT-enabled benefits for EU society** – EU should particularly focus on the following areas: climate change, managing the ageing population, digitalization of content and intelligent transport systems.

Hence the digital agendas clearly outline the goals and ambitions of the IT politics of Europe at a Union level. To be able to fully benefit of these goals, the activities must be manifested on a national level through supporting decisions, activities and similar goals. Therefore many of the European countries have developed their own digital agendas, endorsing the goals of the European union that makes sense to the respective country and additionally to set their own ambitions and goals.

MEASURING AND BENCHMARKING DIGITALIZATION

One way of supporting the development of the digitization of the country is by providing means to assess and benchmark to what extent the goals of the digital agenda are fulfilled and how the development relates to the development of the neighbouring countries. The European Commission has developed a tool for this purpose. The Digital Agenda Scoreboard 1 measures progress of the European digital economy. It provides a mechanism through which every user can adapt the statistics to suit their own needs. As an example (see figure 1) the Digital Economy and Society Index shows a ranking of the European countries in relation to a few central parameters. Such indexes and visualizations helps countries show and set more ambitious goals and to ramp up their investments in the digital agenda

DIGITAL CHAMPIONS FOR SOCIETAL IMPACT

To fully get the power out into the countries there was a need for ambassadors that could help promote and localize the goals to the national needs and expectations. This was the starting point for the initiative to appoint digital champions.

In 2012 the EU commission launched the appointment of digital champions to vitalize the political discussion, to localize EU's missions within the digital agenda and to provide insightful input to the development of politics and policy making within the region. The digital champions have focused their activities on the development of digital

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skills, fostering digital inclusion, fostering an open and secure Internet as well as driving different activities to impact the development of the society through digitalization.

The initiative to support the increasing digitization of European union countries by appointing Digital Champions was launched by the EU President Jose Manuel Barroso and the EU Vice-President Neelie Kroes in February 2012. It was inspired by the United Kingdom, which appointed Martha Lane Fox as UK Digital Champion and asked her to advise and challenge the government on how to make greater and faster progress to get people online. Since then 26 European Union Member States have appointed their own national Digital Champions.

According to the initial initiative a Digital Champion would have the following goals:

- be able to network with, understand and energize the industry, education and voluntary sectors;
- be dynamic and high-profile, and therefore able to focus media attention on the initiative; and
- be appointed by central government, based on expertise and merit, ideally reporting to leaders.

The Digital Champions are ambassadors for the Digital Agenda for Europe who are appointed by their Member States to help every European become digital. Each member state has defined their own Champion's role, but in essence it is to promote the role and use of information and communication technologies by connecting people, policies and sectors.

The Digital Champions have different profiles. Some work for government authorities or public bodies such as national libraries, others are entrepreneurs, academics or representatives of civil society. What is uniting them is their passion to help people take advantage of the digital Opportunities by actively working on and promoting digital inclusion, e-government, ICT education, digital skills and entrepreneurship, etc.

Each Digital Champion develops initiatives in their own countries to get people more digital. Digital Champions encounter similar challenges across the European Union. By ensuring regular contact between the Champions, the European Commission provides a platform to discuss and compare action at grass-roots level, and mobilizes citizens and businesses to take advantage of the digital economy. The Champions also advise the Commission on its policies. They meet at least twice a year, and more often virtually.

DIGITAL CHAMPIONS JOINT MISSION STATEMENT

In September 2014 the Digital champions joined forces and expressed a joint mission statement to help every European become digital and benefit from an inclusive Digital Society [2]. The background to the statement was the observation that throughout Europe, politicians and citizens are facing similar changes: our population is aging, we can no longer automatically rely on governments and businesses to generate jobs and we are progressing from an information society to a networked society. These changes bring along significant challenges; digitalization causes concerns about employment and privacy, as well as about social isolation and alienation. However, the growing importance of Internet-driven economic growth is also creating enormous potential for our joint economy and society if we act in a timely and appropriate manner.

In terms of jobs, up to 900,000 digital jobs risk going unfilled by 2020 without pan-European coordination, while 1.2 million jobs could be created through ICT infrastructure construction. But action is also required for reasons beyond the economical; going digital can improve European citizens' lives on many levels. In order to optimally exploit the growth potential of the digital economy and maximize societal benefits of digitalization, European citizens and businesses needed to be mobilized.

As Digital Champions, we express what we stand for and what we see as our current concerns and priorities in the joint mission statement. We describe the main challenges that we see on the road towards achieving an inclusive digital society for all Europeans. These challenges simultaneously represent our main working areas, how we will strive to overcome these challenges.

- **Towards a Digitally Skilled Society** – Our societies need more ICT skills, at work and at home. We must help everybody enhance their ICT skills;
- **Towards an Open Internet –** Everybody has the right to have access to content, apps and services of their choice, everywhere and at any time. We must work to ensure this;
- **Towards a Connected Continent –** Our digital society benefits from faster Internet connectivity. It makes business easier, life more comfortable and prepares us for the future. We welcome the single market and net neutrality and the end of roaming premiums and red tape. We must make Europe more connected;
- **Towards a Secure Digital Environment –** A flourishing digital society is a digitally secure society. Without security there is no trust, without trust we cannot optimally benefit from our digital possibilities. We must work to ensure safety online;
- **Translating Tech Trends to Societal benefit –** Though technology trends can, and do, make a huge difference to society as a whole, the more 'niche' trends still too often remain within the confines of the so-called 'tech-bubble'

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[2]   https://ec.europa.eu/digital-agenda/en/news/digital-champions-joint-mission-statement

in which they are developed. We must ensure European society at large can optimally benefit from more cutting edge tech-trends at an earlier stage;

- **Endorsing current initiatives and developing future activities –** As Digital Champions we are also active in endorsing, supporting and promoting other parties' activities that support our mission to help every European become digital and benefit from an inclusive digital society, both on a European and on a national level.

HCI RESEARCH AND DIGITALIZATION

Human Computer Interaction (HCI) is a truly multi-disciplinary research field covering such diverse areas as technology, engineering and computer science, on one side, economics, behaviour and social sciences on the other side, but also using design other creative sciences. Although a lot of basic research can and should happen within the field of HCI it is mostly considered as an applied field of research. This means that the research methodologies, tools and techniques for data gathering, analysis and synthesis involves a rich toolbox of data gathering methods such as ethnographic field studies with observations and interviews, experimentation according to the traditions from psychology, constructivist methods and various research methods through design, just to mention a few. With the practical applications right at hand research methods that can be contextualised and applied in practice has a certain place.

Action research methodologies (Reason & Bradbury, 2001) are a family of methods for practice-oriented research that recognize and cherish the obvious fact that we have goals and ambitions with our research, ambitions to improve, develop and change our life. In action research the actual change created through the research project is equally important as the scientific knowledge gathered (ibid).

DISCUSSION

Europe is a heterogeneous region with some of the worlds most highly developed countries and some that are struggling with a weak infrastructure, financial problems, low literacy levels and a high level of unemployment. The challenges and opportunities in developing such a region is very different to the greatest countries in the world, with different languages, lacking collaboration between neighbouring countries and obstacles to competition. The digital agenda has been formulated to set high goals for the entire region and to provide means of benchmarking. The role of digital champions has been defined to drive the development and constitute a channel between the European commission and the local development. The role means recognition and high visibility on a policy level, but at the same time no resources have been allotted to drive the work. The activities are based on volunteer work and other means of resources.

Given the independence of the digital champions, many have chosen the prioritize issues of importance for the development of the society as a whole. Many are developing issues relating to accessibility and social responsibility. Others are focusing on digital skills and the overall needs

for more people that are able to work with ICT development. Other again are working to support the local startup business or promoting other activities to decrease unemployment. The needs and priorities are different from region to region.

One of the core values that control the development is the need to emphasize ICTs role for deriving equitable use, that every person, regardless of capabilities should have equal opportunities to be a member of the society in every possible aspect. Regardless of the obstacles to access is based on function, skills, and language or for economical reasons. Equal access is a human right, guiding all the work.

CONCLUSIONS

Digitalization of our society is the single most important process of change that we currently are living through in our society today. Digitalization creates new businesses, new jobs and completely changes the business models and work of traditional companies. To succeed and prosper in the future you need to acknowledge and perhaps also strive to lead the process of digitalization. Research and development need to embrace the process of digitalization and contribute to the development and analyse its consequences to make the development sustainable for the society.

HCI as a field has the knowledge and breadth to cover all necessary aspects of digitalization. Its multidisciplinary nature as well its practice-oriented traditions help to research the complex problems of the society of today. HCI researchers should engage more in the development of the society, more in the effects that the development potentially could have on the society and select research problems that have a bigger potential to move the development of the society in the right direction. Understanding the societal impact and planning for impact becomes increasingly more important

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