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Experts Forecast 2030 in the Wake of the Digital Revolution

In early April, COST gathered ICT specialists from top Universities, scientific institutions and leading industries. This was the first of a series of workshops looking at the effects of technology on our lives in 20 years time.



Feeling ill? It is time to consult the eDoctor or virtual clinic on your wrist. You need to study ancient Buddhist manuscripts from China's Gobi desert? Then consult your personal library agent who is just back from the British Museum, and who in reality has never left the breast pocket of your jacket.

These are just some examples of the many ideas and concepts discussed during the *COST Foresight 2030 Workshop: Harnessing the Digital Revolution* held in Bruges from 1 to 3 April 2009. The workshop – the first in a series – brought together 20 leading scientists, researchers and industry representatives from around the world to discuss the dramatic changes that future information and communication technologies (ICTs) are likely to bring to our lives.

The workshop focused on 2030 because, just as today's ICTs bear little resemblance to the IT technologies of 20 years ago, a further 20 years is likely to bring even more dramatic changes. 2030 was chosen because the ICT-based applications and services that will be available to us then will look just as amazing to us as the Blackberry or Nokia N71 would have looked in 1990.

Dr Afonso Ferreira, COST Head of Science Operations, emphasised the far-reaching impact of these changes. "Strong governmental and social pressure to bring the benefits of the Internet to all will mean that the network will be omnipresent and accessible at low cost. This is because processing power will be cheap and wireless access devices will be available at an [affordable] price," he said.

Broad Range of Disciplines Represented

The Foresight 2030 workshop was remarkable not only for the ideas that emerged, but also because of the breadth of disciplines represented. Participants came from all walks of life, including academia, business, government and futurology planning organisations. They came together to recognise that ICT is present in almost every kind of human activity. This includes telecoms, buildings, roads and vehicles, ships and planes, shops and warehouses, manufacturing and supply chains, hospitals and medicine, and even under the sea.

"This first brainstorming workshop identified key technologies that could be available by 2030 and their benefits for society. These outcomes will feed subsequent meetings where scientific experts will address the challenges ushered in by such technologies," explained Ferreira. "We expect the proceedings and recommendations will serve as a valuable tool for policymakers, industry and researchers."

Existing Technologies Accelerating Rapidly

The predictions and ideas put forward were mostly predicated on a likely rapid evolution of existing technologies. However, the massive increase in power and further miniaturisation, will deliver services now considered closer to science fiction than reality.

For example, Web 3.0 will be capable of recognising and interacting with individuals anywhere in the world, and will provide services that are personalised to the individual. Your home, workplace and the transport you use will recognise you and adapt its capabilities to your personal preferences.

eHealth Set to Advance Exponentially

Of the many scenarios and application areas that emerged during the workshop, participants singled out eHealth or eMedicine as the

application area most likely to emerge as the strongest, and one that will advance exponentially over the coming years.

Tiny sensors worn next to the skin or implanted into the body will help monitor an individual's state of health more accurately. At the same time, systems and technologies will allow patients to consult with virtual doctors as if they were human beings. Patients will be able to seek out the best medical care as teams of doctors can be drawn up from among those practitioners with good track records. We can expect mass customised medicine, where drugs are based on DNA prescriptions – matching individual genetic information to drug therapy – thereby avoiding adverse effects.


Ultimately, more of the human body could be artificial – not just knees and elbow joints, but also kidneys, eyes and ears. The new implants could be replacements for the worn-out body part or they could be equipped with augmented capabilities, such as extra strength in a bionic limb or embedded intelligence to complement decision-making.

Such dramatically improved health solutions mean people will be living longer, more active lives. This new demographic begs a host of questions. Will we want people to work for just 35 years and retire for the remaining 60? What effect will artificial intelligence have on education systems? Given that people will know their genetic predispositions to disease, how much will society value individual responsibility versus community responsibility regarding individual lifestyles, and how will healthcare delivery systems be affected?

New Models for Organising European Society

Such shifting social patterns and demographics will require new models for organising European society. This will usher in new challenges that Europe may – or may not – be ready to meet. This strategic brainstorming workshop laid the groundwork for a second workshop to be held from 30 June to 2 July 2009, where participants will discuss how the accelerating digital revolution will affect four major areas of society: energy, food security, natural resources management and life enhancement.

A third workshop, from 7 to 9 October 2009, will attempt to define our society in 2030, focusing on future cities, health, education, business and the impact on human behaviour. A wrap-up workshop will be held in January 2010 and an international dissemination conference is planned for June 2010.

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