

---

## The View from 2018: A Glimpse of the Internet Future

### A Perspective from the Chairman of the BIAC Committee on Information, Computer, and Communications Policy (ICCP)<sup>i</sup>

OECD Ministerial Meeting on the Future of the Internet Economy  
June 16-18, 2008  
Seoul, Korea

As we look to 2018 we see a web that is more, interactive, participative, inclusive and productive in both commercial and social contexts. Connectivity is afforded through new information appliances accessing information that is maintained as part of cloud computing where information is neither located just at the centre or the edges of the network, but permeates the information ecosystem. Computing power thus becomes available more globally – dynamically allocated to address needs as they arise. Information that supports models utilising cloud computing will also become more distributed and less location dependent. Software as a service, already in use today will continue to grow to meet needs as they arise. Both infrastructure and applications will thus be more globally distributed and accessed in more efficient and effective ways with those most expert in the services managing and supporting them.

New business models as well as consumer generated applications are taking advantage of new web services, higher levels of connectivity over intelligent networks, greater capacity and redundancy of grid computing, distributed applications infrastructure, new disruptive technologies, sensor-based networks, and nanotechnologies. These new technologies and services combine to create opportunities for new computer aware environments and interactive devices that allow us to interact more seamlessly with objects and even our overall environment. New devices and services will also be able to operate in ways more tailored to our habits and the context of our surrounding. In many cases video will replace or supplement text, voice commands will become more of a standardised interface, “aware”/“intelligent” environments will be able to interact with tokens we carry or devices we use that contain our preferences related to ambient conditions; temperature, light, music... Already today demonstrator projects such as houses of the future contain: smart kitchens that can help us cook, smart closets can help us dress, smart appliances can better understand when and how to perform their functions as well as gauge when they are least taxing on the energy supply and software agents that can help us shop, make reservations look up friends and find entertainment. Using ICTs, today’s cars can: diagnose their own problems, provide us with directions and contextual information, call for assistance and park themselves. These leading edge technologies of today will not just be commonplace, but dated by 2018.

---

Technologies that increase individual interaction and participation whether social networks, virtual worlds or other technologies will provide users with new opportunities to create, interact, and learn. Tomorrow's online content, games and virtual worlds may allow for greater and more diverse levels of interactivity than today. For example, mobile phones could provide another doorway into these synthetic environments, opening up new possibilities for interaction in entertainment and game play. Technology may also give a boost to user-generated content. In the near future, users of virtual worlds and other online environments from games to dedicated collaborative and creative spaces may be able to craft objects online and then render those digital objects in physical form (such as a custom figurine based upon the user's avatar). These virtual environments may also provide avenues for interactions more limited in the real world due to physical or other limitations. The National Aeronautics and Space Administration is reportedly evaluating the possible use of virtual worlds to help astronauts on Mars stay in touch with family on Earth.

Today we are likewise at the cusp of the promise of advances in the semantic web and nanotechnology. Nanotechnology, our ability to manipulate matter at the molecular and atomic levels is bridging concepts between the worlds of traditional physics and quantum mechanics. Nanotechnology is impacting research in a wide variety of academic fields including: physics, chemistry, biology, computing science, and electrical and mechanical engineering. Advances in those fields will impact new developments in biotechnology, information technology, manufacturing and product development.

Much as nanotechnology can revolutionise our understanding and control of things unseen in the physical world to unleash opportunities, the semantic web can provide paths to relationships between concepts, data and applications to generate actionable knowledge.

The semantic wave embraces four stages of internet growth. The first stage, *Web 1.0*, was about connecting information and getting on the net. *Web 2.0* is about connecting people — putting the “I” in user interface, and the “we” into Webs of social participation. The next stage, *Web 3.0*, is starting now. It is about representing meanings, connecting knowledge, and putting these to work in ways that make our experience of internet more relevant, useful, and enjoyable. *Web 4.0* will come later. It is about connecting intelligences in a ubiquitous Web where both people and things reason and communicate together.<sup>1</sup>

Both nanotechnology and the semantic web have the potential to drive new business and manifesting models, collaborative relationships and creative possibilities in much the same way that steam engine, electricity and the Internet changed the way we did business and interacted in the past.

Concepts of sustainability, usability and more intuitive functionality are being considered in many of the foundational aspects that impact our lives from product development and lifecycle to urban planning and waste management. While increased use of ICTs will

---

<sup>1</sup> [Project10X's](http://www.project10x.com/) Semantic Wave 2008 Report: Industry Roadmap to Web 3.0 & Multibillion Dollar Market Opportunities. EXECUTIVE SUMMARY, February 2008; <http://www.project10x.com/>

---

consume more energy and raw materials, ICTs are net positive contributors by increasing efficiency, enabling distance learning, work and collaboration without travel, and powering many of the technologies that measure and control pollution or protect the environment. The growing green IT movement should have flourished by 2018 further providing the potential for significantly reduced carbon footprint of ICT. Information essential applications, which impact health, employment, finances and government services are also using these advances to be more distributed, interactive, portable, customised and user centric. The greater mobility of individuals in both commercial and personal settings will make the portability of information and the ability to honour user preference across systems and jurisdictions even more important in the future.

Concepts of user centricity coupled with improvements in identity management and security better enable us to control and protect our information. Technologies can be used to support individual privacy preferences and more granular controls will allow businesses to offer a greater variety of customisable options related to what information is collected and how it may be used. Reputation engines and more robust audit and accountability frameworks and technologies may likewise increase user trust in policies, processes and technologies that will encourage greater, but more targeted information sharing for specific purposes.

Cloud computing, distributed applications and more modular web services should serve to increase inclusiveness, lower barriers to entry, increase speed to market and extend distribution and availability of consumer and citizen services. Intelligent devices, community based computing and technologies that leapfrog many expensive infrastructure requirements will likewise increase the distribution of benefits to more rural and agrarian communities. Communities with even a minimal technical footprint will benefit from technologies related to climate forecasting for planting and fishing, information on sustainable water use, migration patterns, information on valuation of goods and services in proximate markets, possibilities of micro-financing from distant sources of investment, distance access to health information and diagnostic capacity and myriad other applications suited to their needs.

Technology provides great promise for a more inclusive and beneficial future for all. That promise however will face challenges and requires both enlightened guidance and appropriate stewardship in order to be realised. Each of us: business, government and individual, has a role to play in achieving this promise and in working together to overcome the challenges that we will doubtlessly encounter on the way.

---

<sup>i</sup> This paper is a « Chairman's Draft », submitted by Mr. Joseph Alhadeff in his capacity as Chairman of the BIAC ICCP Committee.