

What is Web 2.0?

Ideas, technologies and implications for education

Briefing Paper

May 2007

Context

Within 15 years the web has grown from a group work tool for scientists at CERN into a global information space with more than a billion users. Currently, it is both returning to its roots as a read/write tool and also entering a new, more social and participatory stage. These trends have led to a feeling that the web is entering a 'second phase' – a new, 'improved' Web version 2.0. But how justified is this perception?

A recent JISC Technology and Standards Watch (TechWatch) report investigates the substance behind the hyperbole surrounding Web 2.0. It also looks at the implications this may have for the UK higher and further education sectors, with a special focus on collection and preservation activities within libraries. Finally, it speculates on future web developments and the possibilities for what might, rather reluctantly, be termed Web 3.0.

Summary

At the end of 2006, Time magazine's Person of the Year was 'You'. On the cover of the magazine, underneath the title of the award, was a picture of a PC with a mirror in place of the screen, reflecting not only the face of the reader, but also the general feeling that 2006 was the year of the web – a new, improved, 'second version', which is a 'user generated' and more social web.

Media coverage of Web 2.0 concentrates on the common applications and services such as blogs, video sharing, social networking and podcasting – a more connected web in which people can contribute as much as they can consume. But is there more to it than that? Business concerns are increasingly shaping the way we engage with the web and this has implications for the control of public and private data. What will be the implications for education, a sector that is already feeling the effects of the demands of internet-related change?

"This is a very good report capturing some of the main ideas behind Web 2.0 and looking into some of the implications. If you are new to Web 2.0, this is an excellent introduction."

Stephen Downes, Institute for Information Technology, National Research Council Canada
www.downes.ca

Despite the hype, there is significant debate over the alleged advantages and disadvantages of incorporating social software into mainstream education. This is compounded by the fact that there is very little reliable, original pedagogic research and evaluation evidence and that, to date, much of the actual experimentation using social software within higher education has focused on particular specialist subject areas or research domains. The full Web 2.0 report reviews some examples of preliminary activity in four areas: learning and teaching, scholarly research, academic publishing and libraries, with a particular emphasis on the issues that Web 2.0 raises with regard to archiving and preservation.

The main premise is that Web 2.0 is more than a set of 'cool' and new technologies and services, important though some of these are. There are three key strands that need to be separated out of the general discussion if decision makers are to understand and act on the strategic implications of Web 2.0:

- Applications and services (social software)
- Six Big Ideas
- Underlying technologies and standards (ongoing web development overseen by the W3C)

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Applications and Services

The TechWatch report provides an introduction to the most commonly used Web 2.0-style services and applications including blogs, wikis, social bookmarking and networking, RSS and video sharing. It also discusses some of the newer services, and categorises them based on what they attempt to do, eg social networking, aggregation, filtering and tracking content. In addition, it links these activities to the Big Ideas in an attempt to show how the ideas are driving the development of the applications and services.

The Big Ideas

Web 2.0 has, at its heart, a set of at least six powerful ideas that are changing the way some people interact. However, it is also important to acknowledge that these ideas are not necessarily the preserve of Web 2.0, but are, in fact, direct or indirect reflections of the power of the network: the strange effects and topologies at the micro and macro level that a billion internet users produce. The ideas are:

- Individual production and user-generated content
- Harnessing the power of the crowd
- Data on an epic scale
- Architecture of participation
- Network effects
- Openness

Technologies and Standards

One of the key drivers of the development of Web 2.0 is the emergence of a new generation of web-related technologies and standards. This has been underpinned

by the powerful, though not particularly new, idea of the web as platform. This has become more feasible because browser technology has moved on to a new stage in its development with the introduction of what are known as Rich Internet Applications (RIA). The report explores technologies such as Ajax and its alternatives, the SOAP versus REST debate and the use of micro-formats. It also looks at the important, developing discussion over the role of open APIs and access to data within the Web 2.0 development community.

The Future

Apart from technological developments there are three significant challenges for education. Firstly, the crowd, and its power, will become more important as the web facilitates new communities and groups. A corollary to this is that online identity and privacy will become a source of tension. Secondly, the growth in user- or self-generated content, the rise of the amateur and a culture of DIY will challenge conventional thinking on who exactly does things, who has knowledge, and what it means to have élites, status and hierarchy. These challenges may not be as profound as some of the more ardent proponents of Web 2.0 indicate, but there will be serious challenges none-the-less. And finally, there are profound intellectual property debates ahead as individuals, the public realm and corporations clash over ownership of the huge amounts of data that Web 2.0 is generating and the new ways of aggregating and processing it. A great many of the new applications are not open source but small start-ups seeking corporate backing and this means there are justifiable concerns over their sustainability.

About TechWatch

TechWatch helps to keep track of developments in information and communications technologies that might have a significant impact on the core business of further and higher education in five to ten years' time. It commissions reports on specific technologies and provides links from its website to technology resources elsewhere on the web.

This briefing paper was written by Paul Anderson of JISC Technology and Standards Watch and is a short version of TechWatch's Web 2.0 report.

The report on Web 2.0 can be downloaded from the TechWatch website at www.jisc.ac.uk/techwatch