

FATHER OF THE INTERNET

In a rare public airing of his vision, Vinton Cerf, the co-creator of the internet's original architecture, says creative industries must embrace the changing faces of technology, content and audience

In ten years' time, a device the size of an iPod will be able to hold every piece of music ever produced. Several years beyond that, a device the same size will have the capacity for a lifetime of continuous video.

Technological advancement has become a regular feature of modern life, and it raises some fundamental non-technical questions. How will artists and other content producers, such as advertisers and their agencies, interact with such a market?

Will everyone want to choose, sort and rank such a vast amount of content for himself? Under what conditions would consumers actually end up with such a large amount of content? And how do we even begin to put such inevitable challenges for the media industry into perspective?

Moore's Law states that computing power at minimum cost doubles roughly every 18 months. It was profound when it was coined by one of Intel's founders in 1965. Today, it has proven so consistently accurate that it has been adapted to related phenomena such as processor speed and storage capacity.

We have grown accustomed to our internet connections getting faster and our laptop computers getting smaller. New, high-density storage media allow all forms of content (books, magazines, music, videos, movies, software and virtually anything that can be represented digitally) to be stored, shipped and exchanged physically and, increasingly, electronically. Programmable digital devices do everything from defrosting dinner and opening doors to answering the phone and organising our calendars.

The creative industries have not been immune to this revolution. As advances in digital technology have changed the way people communicate, consumer expectations about media consumption have begun to change. Take the telephone. The traditional world of international telephone services has itself been turned on its head by the rapid expansion of the internet and the spread of broadband internet access services. Mobile phones, meanwhile, have become general-purpose instruments for all manner of digital presentations and interactions, from sending SMS messages to viewing or downloading feature-length films. The maturation of these technologies – which will doubtless occur alongside the introduction of new creative technologies – will open up new audiences for a variety of media.

Another emergent trend is the increasing autonomy and control consumers are gaining over their



consumption of traditional media, whose producers, hitherto, have had the upper hand in deciding what we will see, hear and read and when we will do that. The internet itself has shown us that users enjoy deciding for themselves what will capture their attention, including advertising.

Putting consumers in charge is a huge shift for the information industry, in general, and especially for the ad industry, which has had to find ways to attract attention when it cannot force people to watch or listen to ads that interrupt the programme for an important announcement, so to speak.

But the enduringly popular broadcast media will continue to thrive, complemented by new forms of entertainment and information consumption. Look at the internet over the past five years: blogs and video-sharing websites have opened up new creative outlets to tens of millions of people around the world. Yet, it is important to note that the appetite for professionally produced content – be it news reporting or romantic comedies – has continued to grow. Audiences have more choice, not only over what to consume, but also how they consume it. Regardless of the medium they choose, however, there will always be demand for high-quality content.

This presents both a challenge and an opportunity to the creative and pro-

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Cerf's CV

1960s Co-designer of the internet's architecture and protocols.

2005 Awarded highest US civilian honour, the Presidential Medal of Freedom, for work "at the forefront of a digital revolution that has transformed global commerce, communication and entertainment".

Sept 2005 Vice-president and chief internet evangelist, Google. Responsible for identifying new internet technologies and applications.

duction industries. Content on the web today is far from static. Piracy gets a lot of attention, but a more interesting facet of the internet is the way in which an audience takes a message, plays with it, tweaks it, and passes it back to the community in a new form. It's no coincidence that the most successful content online has been both creative and open to full engagement with users. In a world where the tools of creative production are widely available, consumption of content has morphed into a dialogue with that content.

These media-specific effects of technological progress exist alongside more general issues that face the internet as it continues to grow and take on new functions. These, too, will affect

the media industry as it interacts more with its audiences through the world wide web. The information we seek so readily on the web may vary in quality from useless, or even damaging, to stunningly valuable. It is our problem to determine which, although search engines do their best to draw the most relevant information to our attention. It seems inevitable that the netizens of the world will look for improvements in identifying the authenticity of the sources of online information and assurances that it has not been modified since its incarnation on the net.

As we accumulate more information online, we may also encounter a kind of "information decay", in which digital objects become less and less interpretable because of the age of the software that created them. As an example, it is already a challenge to play the videos posted on the BBC website in 1997. Imagine trying to access the same video in 100 years. Or in 3008.

These are just some of the issues we'll have to wrap our minds around in the coming years, as technologists, indeed, but also as a society. Every year, humanity produces more information. How we choose to share it, find it, remember it, or interpret it are questions that are too important not to answer.

Vinton Cerf is the vice-president and chief internet evangelist at Google