

## Brighter promise on the virtual horizon?

Over the last decade heritage has struggled along beside the wealthier sectors to stake its claim in cyberspace, providing one of the richest sources of content on the internet. Progress has been hampered by the limited speed of Web delivery, but a new horizon has long been promised in the form of faster connections. **Oliver Vicars-Harris** looks at the opportunities presented to museums by the emerging broadband technologies.

Despite the steep learning curve, it's not surprising that museums have rushed to embrace the World Wide Web as a further means of meeting their mission. The Web offers a democratic (within the confines of museum demographics at least) means of extending audience reach well beyond the confines of the physical space, removing the geographic and physical obstacles otherwise preventing many people exploring what museums have to offer. The magic formula of exploiting *new technology* to enhance *access* has become a recipe for raising the necessary funding, and it is no surprise that this has coincided with museums enthusiasm in this area!

Alongside extending access, the Web has quite genuinely allowed museums to offer things which they otherwise could not, such as greatly widening the range of objects on display at any one time – without risk of damage. With the promise of high speed internet access now a reality, and the prospect of a majority of the museum public having broadband access within the next few years, the question has to be whether there are even more opportunities to be presented in the future and if so what are the issues that museums planning internet strategies should be thinking about now?

### Growth of broadband

As with anything, it depends which analysis you believe, but there is no doubt that prevalence of broadband connections is increasing globally. Growth is not exponential, but certainly steady, with most sources reporting record increases in service take up during 2002.

According to a November brief by *Ofcom* there are now over 1 million broadband subscribers in the UK, which accounts for around 10% of internet access. Take-up of broadband in the UK is growing substantially with the number of end users having more than doubled since the beginning of the year

*Infomatics* (25/6/02) reported that around 24 million Americans have high-speed connections at home. This represents an increase of more than a quarter since the start of the year, and quadruple the number of US broadband users just two years ago. This kind of growth, according to the survey, puts US broadband adoption rates on a par with other key popular technologies including PCs and CD players. It also puts broadband ahead of take-up rates for the colour television and the VCR.

By way of contrast, according to an article in the *New York Times* (9/12/2002) only 15 percent of households in the US currently subscribe to broadband services, despite the fact that 70 percent have the technical ability to do so. Analysts there do not expect the majority of homes to have broadband access for at least five years.

## **The benefits**

As with any emerging technology, the most important question we need to ask is “*What exactly does broadband offer?*”. There are three very important improvements noticed by those of us lucky enough to have a broadband connection and combined these have the potential to completely change people’s patterns of internet use.

### ***It’s faster***

Much faster, in fact supposedly up to forty times faster than an ordinary dial up modem. In most domestic settings its more like ten times faster and actual speeds vary, but there is no doubt that having a broadband connection makes an enormous difference to the ‘world wide wait’ frustrating to all users of the internet. This means that you can move around the Web much more quickly and don’t need to wait so long to see what you want look at.

### ***It’s more reliable***

Broadband tends to be much more dependable than dial up, which has a tendency to intermittently drop your connection. This takes away the major irritation of losing your link at that vital moment during interaction or while downloading a large body of data. With confidence that you’ll be able to finish what you started, there should be much less hesitancy to making the commitment to getting involved in some of the richer aspects of what the Web has to offer.

### ***It’s always on!***

Unless you choose to disconnect it, you have a permanent connection to the internet, with the cost incorporated as part of your monthly service subscription. This is perhaps the single most important aspect of broadband in terms of its potential to change people’s relationship with the Web. Once you no longer have to think about dialling up to the network and worrying about the cost of your time surfing the internet, some major obstacles are removed in terms of ease and extent of use. Less obviously, but ultimately most importantly, you have potential to maintain a permanent presence on the Web.

## **Broadband overview**

So what is 'broadband'? Broadband can loosely be described as a fatter pipe for passing information between your computer and the wider Web. Where does it come from? There are three major technologies delivering broadband connections:

### **DSL**

ADSL (for Asynchronous Digital Subscriber Line) transforms your ordinary phone line into a high-speed data transfer line for fast internet access. DSL modems use digital coding techniques to multiplex voice, modem, and fax data into distinct frequencies. This means you can simultaneously talk on the phone or send a fax while surfing the Web. Data transmission speeds are possible up to 8Mbps downstream or 1Mbps upstream, or 1.5Mbps down and 512Mbps up for a more standard consumer service, although actual speeds are dependant upon line length and conditions.

### **Cable**

Cable offers a fast direct line to the internet through a cable modem allowing you to access and transmit data using a cable TV network. You do not need to subscribe to other cable services in order to sign up to cable broadband, although many providers offer discounts for internet combined with phone and TV packages. Cable broadband connections tend to offer faster download but slower upload times than DSL, in other words it is more efficient at receiving rather than sending large amounts of data.

### **Satellite**

Satellite enables the high speed transmission of data using satellite links; your satellite dish receives data and transmits it to the modem in your PC. Satellite services are now available as two way as well as the previous downstream only connections. Data speeds are available downstream at up to 36Mbps in theory, but more usually at up to 2Mbps for a consumer connection. Satellite service providers claim that since their connection is a direct and exclusive one without congestion, it offers the most optimised form of broadband.

Each of these broadband delivery technologies has relative merits and disadvantages depending on your pre-existing infrastructure and intended modes of internet usage. Most importantly of all, with the exception of satellite these broadband services are not yet available in all places, with densely populated areas being the obvious priority for the providers rolling out services.

## **Opportunities for museums**

So broadband might offer the public faster, more reliable and permanently connected internet access, but what does this really mean for museums? The first thing to say is that it is vital we get the broadband promise into perspective, since it is really only a better means of delivering what we do already – a bit like a new improved gallery space more conducive to the visiting public. That said, there are a number of key aspects of museum websites that stand to benefit greatly if future opportunities are realised.

### **Interface graphics**

Compared with the production values people have come to expect from traditional media such as film and television, new media has consistently failed to deliver such a visually appealing experience. Any good Web designer knows only too well the obstacles they are faced with in terms of limiting graphics to minimise download times, but the average user has no idea about the mechanics of designing for the web and just feels underwhelmed by what is on offer.

Faster connections have potential to help free up designers, removing some of the constraints currently preventing websites from being truly visual and engaging environments to explore. Navigating websites will continue to become a more fluid experience, with increased use of animated menus making the constant jolt from page to page within a site a thing of the past, for example: [www.mattress.org](http://www.mattress.org). Museum sites like SF MOMA are already starting to make good use of basic animation to enrich specific areas, such as their Gerhard Richter feature: [www.sfmoma.org](http://www.sfmoma.org)

### **Richer content**

One of the big disappointments of online publishing – as it evolved out of the previous CD based electronic publishing revolution – has been the massive step backwards in terms of richness of content. Just when we'd all got used to enjoying high quality graphics, great sound and even the odd bit of reasonable video on our computers, we were suddenly confronted again with clunky text-heavy screens of information.

An obvious part of the promise of broadband has to be potential to deliver richer media to make website content more engaging. For starters this could of course mean bigger images (since most museum digitisation projects are archiving much larger resolution images than they are currently putting online), however rights holder and commercial concerns are likely continue to be the main obstacles in this respect. It will however mean much greater use of traditional multimedia elements such as audio and video, as well as exploiting the potential of more innovative means of 3D and virtual representation. The Tate *Insight* project for example has a programme of 'special imaging treatments' aimed at piloting technologies in this area: [www.tate.org.uk/collections/insight\\_sit.htm](http://www.tate.org.uk/collections/insight_sit.htm)

### **Interactivity**

In competing with the essentially passive medium of television, one of the great advantages of the Web is that it can be highly interactive. As websites increasingly

move away from simply delivering 'brochureware' replication of standard pre-existing content, towards offering more participatory experiences, broadband will assist in this transition by providing a stable environment for engaging interactivity.

A key growth area which museums will be able to increasingly embrace as a natural extension of their interpretation repertoire will be in the area of e-learning. Broadband will enhance the learning experience through better means for getting people fully involved in the discovery process with fun tools for 'learning by doing'. Institutions like the Getty are already starting to make good use of interactivity within special learning areas of their websites, such as that designed to accompany their Devices of Wonder exhibition: <http://www.getty.edu/education/devices/>. This offers a richer experience to users with a broadband connection, without completely excluding those with slower connections.

### **Broadcasting**

One area of speculation in terms of the future evolution of the internet is whether content providers might become more like TV stations in terms of broadcasting, or – in the case of online media – 'webcasting'. Certainly higher bandwidth offers potential for streaming media (live transmission of sound and video) to become fully viable for the first time, especially through use of 'surestreaming' of different quality levels of content simultaneously. As TV makes steps towards interactivity to provide us with more choice, it will be interesting to see whether websites make moves in the opposite direction to take advantage of the audience pull offered by exclusive time-bounded events.

Tate is unusual in having had a very active programme of webcasting since the opening of Tate Modern in 2000. These are broadcast live alongside discussion forums to accompany events, as well as being archived online: <http://www.tate.org.uk/audiovideo/default.htm>. Tate also has plans for possible piloting of broadband streaming of webcasts to accompany the *Live Culture* weekend in April 2003.

### **Net Art**

For galleries with an involvement in displaying or commissioning contemporary art, it is vital to remember that the internet provides a medium in itself for artists experimenting with new ideas. Take up of broadband can only remove constraints, thereby provide artists with a broader canvas with which to express themselves to a more responsive audience.

There are already a host of highly innovative artists working in the area of Net Art. Resources like [www.rhizome.org](http://www.rhizome.org) provide very active independent hubs for those interested in the fusion between art and new media, and museums are slowly starting to engage by presenting their own Net Art portals such as *Artport* at the Whitney [www.whitney.org/artport/](http://www.whitney.org/artport/). Talking to the people responsible for commissioning Net Art at both the Whitney and Tate however, there is strong feeling that it will continue to be the artists pushing the internet boundaries, not the museum websites.

### **E-commerce**

## Tate

"Broadband offers tremendous opportunities to Tate, specifically in terms of developing bespoke programming appropriate to the medium. Faster connections to the internet will enable more engaging content and the always on functionality will facilitate communication and dialogue. The single biggest benefit of this is the ability to purchase images, not just of selected highlights, but of anything on show. Costly, traditional photographic based reproduction services might slowly become a thing of the past, with instant secure transactions of large high resolution images taking their place (as has already happened with the educational services. This is a natural progression for an organisation already regarded in the physical world as a leading professional and educational 'hub'; broadband means that we can establish ourselves at the centre of a new global community of far greater reach and diversity.

**Jemima Rellie – Tate Head of Digital Programmes** customers to download large amounts of data at no cost, a new range of services will emerge which museums will be able to deliver directly on line.

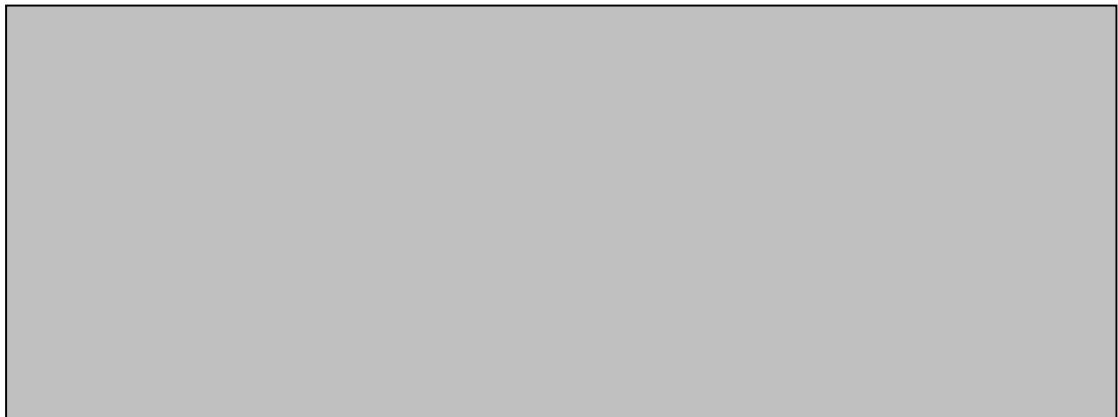
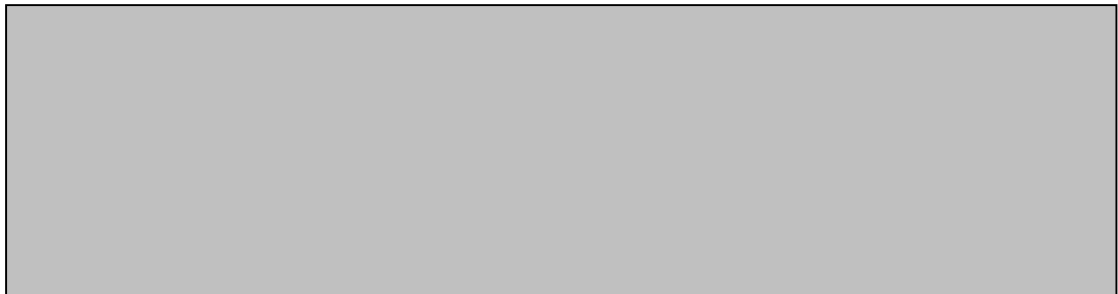
**The Courtauld Institute** With large scale digitisation initiatives allowing more and more museums to display good quality representations of their collections online, they will be able to greatly extend this by also offering the ability to purchase images, not just of selected highlights, but of anything on show. Costly, traditional photographic based reproduction services might slowly become a thing of the past, with instant secure transactions of large high resolution images taking their place (as has already happened with the educational services. This is a natural progression for an organisation already regarded in the physical world as a leading professional and educational 'hub'; broadband means that we can establish ourselves at the centre of a new global community of far greater reach and diversity.

**Tom Bilson – Courtauld Head of Digital Media**

## Communities

Last but not least, the single most important prospect on the horizon for museums operating their websites within a permanently connected context is that of cultivating communities. The future for online museums will be all about maintaining a strong presence within a virtual space and harnessing participation and input from an audience with a keen stake in contributing to that space. Museum websites will increasingly start to position themselves as centres of interaction for specific interest areas, acting as conduits for communication rather than just for content.

As the users of museums websites start to establish themselves with a permanent presence on the network, it will become increasingly possible to identify their particular areas of likely involvement. Potential for 'pointcasting' information to the public depending on their interests will lead to opportunities for pitching multiple content strands at different audiences.



## Obstacles

It is very clear that there are major opportunities ahead for museums wishing to fully exploit the potential of broadband, but as with any technical step forward there are also a number of hurdles to overcome. Most of the old issues never change of course, such as those surrounding information standards, copyright, and data preservation. With broadband however, perhaps the biggest single development barrier relates to the fact that take-up will happen gradually and there will continue to be a significant proportion of museum website visitors dependent upon dial up connections for several years to come.

So museums might start to exploit the potential of broadband by redesigning their websites and delivering exciting new areas of content, but what about the people who can't make use of this? Museums will for some time need to continue to deliver a staple of standard web services aimed at the lowest common denominator connection, and will then be faced with the inevitable issues of a range of legacy content looking increasingly old and worn as the new generation of web services come online.

Most museums in the UK are publicly funded and as such have a particular duty to provide democratic access to the widest possible public. There is a clear duty of care to manage the transition process carefully, perhaps in the interim by having to develop parallel strands of content aimed at users with different capabilities. It may be that users will increasingly need to identify the type of connection they have before exploring museum sites, or more likely the sites themselves will automatically detect this and deliver their content accordingly.

One thing is for sure, although museums have much to gain from a wider wired world in the future, they are not in the position to drive the switch over to broadband services. That said, there is enormous scope for strategic alliances between the infrastructure suppliers (who stand to gain most from mass public take up of their services) and the content providers like museums who have worthwhile material they want to deliver. This is no doubt already starting to lead to interesting conflicts of interests within museums between the lure of sponsorship money with agendas set on pushing the boundaries of what is delivered, and the more traditional central government funding with sights still set on safeguarding standards.

As museum websites become more ambitious as an active extension of their overall programme, issues of sustainability will of course continue to be a challenge. It remains to be seen whether the enhanced services will attract greater investment to match the increased pressures and inevitable call for more resources. One way in which the permanently connected horizon might offer some sunlight is through content syndication between museums, with increased sharing leading to greater efficiencies.

## Conclusion

Despite the fact that broadband services have been emerging steadily over the last few years, there is so far very little by way of broadband-specific content appearing on museum websites either in the UK or abroad. This situation looks set to change gradually over the next few years with improved audience connectivity assisting as museum websites start to position themselves more squarely as lifestyle entities alongside traditional media.

Perhaps ultimately more important than the current issues around emergence of broadband connectivity is the question surrounding how devices for internet access might change. With the increasing prevalence of handheld and other 'smart' devices and the emergence of wireless broadband, it is growth and direction of this area that will ultimately have more bearing over how museums shape their content in the future.

Slowly but surely a more dependable online audience will emerge, as the gain of connecting to resources on the internet starts to outweigh the pain, and it is vital that museums start to position their websites to engage with this new public. Meanwhile, museums must continue to place primary focus on the work still to be done in consolidating their existing sites, making full use of the range of content resources ready and waiting to be harnessed for delivery online.

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