Web 2.0: How to Stop Thinking and Start Doing: Addressing Organisational Barriers

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Abstract

The phrase "Web 2.0", now so well known as to be generally considered "mainstream", has taken hold online, first as a catch phrase and now as a way of life to many of the bigger, content rich providers. No longer are users content to just consume content; instead they want to take a part in it, to personalise it and to share experiences with others. In the museum sector, however, uptake has typically been low. Some notable exceptions exist, of course, but the key question remains: why has deployment of this "new" approach to content been slow? What barriers exist in museums and how can we go about addressing these?

This paper attempts firstly to identify why Web 2.0 is of particular importance to our sector, then to examine common barriers in our particular context and finally the ways in which practitioners might go about addressing these barriers in their organisations.

Keywords: Web 2.0, policies, cultural change

Web 2.0 and Why Museums Should Care

Web 2.0 is often lauded, sometimes derided and almost always subject to scrutiny. What exactly does this phrase mean? Does it mean anything, or nothing? Has Web 2.0 been and gone, already bloomed, about to be the next big thing, a fad? Is it finally the Berners-Lee vision of the "Read-Write Web"? Or is it "just" about technology, and not, actually, about content? Aren't we better off waiting for Web 3? And last, but not least, as people who produce Web content, should we actually care?

The fact that "Web 2.0" is a catchphrase, a meaningless marketing slogan to some, is immaterial here. What the phrase has done, usefully, is to draw a dotted line around a series of aspects of Web experience. The finer points about the extent of "Web 2-ness" is also unimportant – to some, "Web 2.0" may encompass any kind of Web site which has the means to *author the experience* in some way; to others, it may be about an "AJAX-ified" user interface.

Trawling the Web finds the following phrases recurring around Web 2.0: "mashup", "de-centralisation", "non-Web like", "user generated content", "permission based activity", "collaboration", "Creative Commons", … What sits at the heart of all of these, and one of the reasons Web 2.0 has been difficult for bigger, established organisations (including museums) to embrace, is that almost all the things talked about put **users** and not **the organisation** at the centre of the equation. Organisational structures, departmental ways of naming things, the perceived "value" or our assets, in fact, *what the organisation has to say about itself* are all being challenged.

These are difficult things to question, particularly in an organisation which is historically highly respected, or has a long-standing way of doing things. Web 2.0 does uncomfortable things: it releases assets into the wild, it empowers users to speak their mind, it asks people to share and collaborate in a way which has been unprecedented in the past. For museums, the challenges are even more profound: What about dumbing down? Who is going to moderate? What if they don't **like** our exhibition? Surely our curators are the experts, not some random bloke who rode one of those bikes when he was a kid…?

Questions like this often form the basis of the barriers to "doing" Web 2.0. Later on, we'll examine these barriers in detail and try to find some strategies for addressing them.

As mainstream writers start to bring YouTube and MySpace into the public eye, there is also of course a major risk. It is no different to the risk with any new technology, particularly those that are climbing the *Gartner Hype Curve*. The risk is that we do these things just because we can, or because everyone else is doing them, or even more dangerously, because it attracts funding.

These are not good reasons for "doing Web 2.0".

There are, however, many synergies between some of the key tenets of Web 2.0 and what Museums are trying to do, both on-gallery and on-line. For years, we have tried as a sector to appeal to mass market, to solicit opinions about our objects, to not "just be a repository of dusty stuff in cases". At the centre of Web 2.0 is the promise of richer, more relevant, more personal content; content which can make a difference to users – ultimately, content which goes at least some distance to answering these challenges. This is a Web where the "reactive consumers" become "public producers". Experiences are shared and opinions given.

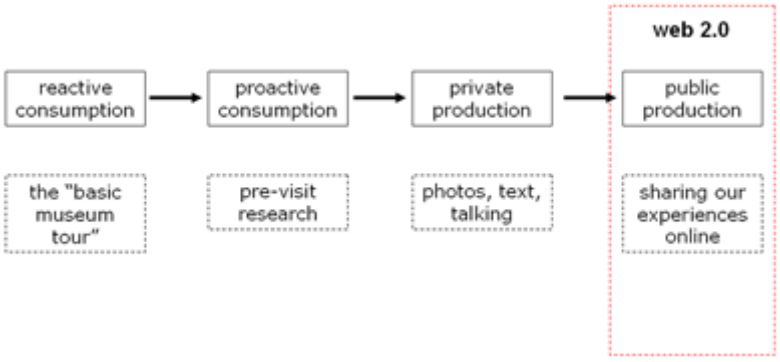

Figure 1: Modified from "Hobby Princess" (http://tinyurl.com/pmf38)

In this light, "Web 2.0" brings some very interesting things to the party, especially in our particular environment.

Doing Web 2.0 just because we can is wrong; however, doing it because our users expect it, because it adds real value to what we – and they - have to say, or extends the content experience in real and meaningful ways is, of course, right.

We Should Care Because…It's the Way the Web is Going

User Generated Content (UGC)

Users are no longer content to just surf. Media consumers are instead becoming "prosumers" – spending time either producing content themselves or reading content produced by other users. Although current thinking has percentages of content producers as being far eclipsed by content consumers, as the tools become available and confidence grows, people will produce more and more. At the same time, the means by which value is atttibuted to this content will become better defined.

Museum Web sites should not be an exception to this groundswell of UGC. Of course, there are still many places where museum Web site content (like any Web site content) should just be published, and where UGC is irrelevant. Opening times and location maps don't typically need comments, opinions or other external input. Museological content, however – objects, stories, games – are often ripe for UGC. What better way to make that object relevant to today's users than by offering the opportunity to write about it, comment about it, compare it with what is in their lives now?

Opinions…

Opinions count, and although authority is important (more on this later..), real people are attracted by real people's opinions. Sites like eBay are an example of user generated content at its most lucrative. eBay would not exist without the core understanding of trust and what it means. This trust is built by and between users; eBay provides a *mechanism* for expressing this trust, but it has absolutely nothing to do with authoring or moderating this trust. At a secondary level is of course trust of the eBay brand, or trust of their e-commerce mechanism, but the means by which users rate each other is absolutely fundamental to the operation of the site.

Countless examples exist of the amplifying power of the web for user opinion: from *RatherGate* (http://en.wikipedia.org/wiki/Rathergate) to *iPod Nano Screens (www.flawedmusicplayer.com – no longer live, following requests from Apple: see http://www.google.com/search?q=flawedmusicplayer).* Real people are changing the real world through the Web.

Syndication – We're Already Doing It, But May Not Realise …

Mashups, feed sharing, APIs – these are still on the edge of the curve, only really understood and used by early adopters. RSS is one area where syndication is starting to become main-stream, but what is slightly less well understood is that almost every Web site is essentially already a source of syndicated content. Many people browse your content without even visiting your Web site.

Take Google Images. Here is a tool which sets out specifically to side-step on-site search engines and to provide a much more powerful **user-focussed** interface. Why search one (museum) site for information on George Stephenson when you can search the entire web? Once images have been found in this way, people are increasingly then embedding them in their blogs and MySpace pages. Around **9%** of referring traffic to the Science Museum Web site is from MySpace with people "borrowing" images in this way. And quite possibly, none of these people have ever actually **been** to the Science Museum Web site!

Sites like ClipMarks (http://www.clipmarks.com/) or Google Notebook (http://www.google.com/notebook/) let users "clip" (essentially, copy and paste) content from any site – again, the consumers of this content probably never even get as far as your site, let alone the homepage or some means of contextualising what they've just read. These sites, and RSS, are popular because people are busy – often far too busy to want to dig deep into pages of description.

Later on, we will describe why this is an important point, particularly when trying to justify the production of feeds and APIs, as well as when supporting more open content sharing standards.

Museums are a perfect example of the "long tail" – our popular content is probably eclipsed in overall popularity by the weirdnesses lurking at the end of the tail; the artefacts and stories which make our curators and our organisations real and interesting to users. Google isn't great in many ways at helping long tail content (by its nature it promotes pages which are "popular" - i.e. by definition, not at the thinner end of the tail), but it does get people to content on sites they probably wouldn't normally visit. People increasingly use Google to find stuff (surprise!) – but it is easily forgotten that they may well not have set out to look at your museum Web site but instead were just searching for a biography of Charles Babbage or an image for their homework essay.

User Experience

For some people, Web 2.0 seemed as well to define a whole new look and feel. For a while, it seemed as if the entire world had reflected logos, beta signs and the letter "r" suffixed at the end of the name (Flickr, Mappr…Objectr, anybody?). Any serious examination of what Web 2.0 means should ignore the more fickle aspects of this, but there are some interesting things which this "new" way of working uncovers.

Figure 2: From the "Web 2.0 Logo Generator (http://h-master.net/web2.0/)

Probably most interesting here is that "technologies" such as AJAX can be used to change the users' relationship with the online environment. The "rich user experience" as explained by the original O'Reilly "meme map" (O'Reilly, 2005) covers not only the ways in which users are empowered to engage with content, but also the **environment** in which they engage. AJAX, as one example, provides new paradigms in Web browsing where drag and drop shopping baskets can co-exist with accessibility, where external content can be fed seamlessly onto the page, or where a pop-up window can work (elegantly!) to display large versions of images. In short, an environment can now be created where the users' experience is much closer to that of a desktop program.

The Barriers…

Like any change, "Web 2-ness" can be a source of fear. This is augmented by the fact that new technologies – in particular those that impact on core aspects of what an organisation is and does - are particularly subject to reservations from all levels of an organisation. From the fears that a Web developer might have over learning a new technology to clashes at management level over ownership, to director-level fears about the public and sponsor perceptions of an organisation, Web 2.0 is a difficult beast to tame.

"Simply, Why Should We Bother?"

Challenging the status quo of an activity which is already well established (or not, in some cases!) is always a difficult task. Hearing about major Web 2.0 companies in the popular media as they continue to thrive certainly helps the drive to adopt these technologies, provided expectation can be managed, of course.

Often, though, finding justification to "do Web 2.0" is a challenge in itself: Measurement of success is ill-defined (see "Measuring It", below); and the actual tangible benefit is hard to define. "Content ROI", as in the Web many of us worked in 5-8 years ago, is very hard to pin down.

Cultural and Political: "It's My Content…"

Cultural and political barriers are often the most challenging to respond to, because they require a hard-to-define "soft" approach which is not about proving of new technologies, but is instead about working with people who feel challenged by these. Often, the Web function is situated in an already debated position within an organisation. Marketing, IT and education departments often lay claim to Web, with "matrix managed" lines between them: Web teams are often divided between these teams and are often not firmly bedded into any one.

Throwing contestable technologies into this mix can prove extremely challenging, especially when these technologies go against much of what has gone before. Education and Marketing functions often have trouble with the UGC elements of Web 2.0; both find the concept of an external party editing content on the site difficult from both a brand and a "trusted organisation" perspective. Curatorial staff have additional, deep seated concerns about authority once user content is brought into the mix.

Technical

Over in IT, the questions are often instead about security, denial of service attacks, or how to manage accessibility or metrics within these new frameworks of content delivery.

As well as these concerns, members of the IT community may well also focus on issues such as interoperability; import and export of data; management of users' ids and the scalability and the reliability of a service. This becomes particularly relevant when external services are also a part of the delivery framework: depending on one's own IT infrastructure is one thing; depending on a (sometimes unknown) third party is something else altogether.

There may also be understandable concerns regarding the levels of technical expertise which may be required in order to develop innovative services.

Resource and Cost

Resource concerns are common: surely the organisation requires additional money, time or expertise to invest in the deployment of new services? There is a perception that all UGC requires intensive moderation, or that any new technology is, by its definition, expensive and difficult to implement. In the early stages of implementation of technologies, figures and comparisons are hard to come by – case studies often only exist in the form of privately funded start-ups who are often loath to produce details on implementation.

Content: Legality, Privacy, Liability

Data protection, privacy, liability and accessibility issues, uncertainties regarding the lack of any formal contractual agreements - are often fears which surround Web 2.0. This may also give rise to concerns regarding the sustainability of such services, and disaster recovery strategies which may be needed if an external provider of a service becomes bankrupt or changes the terms and conditions governing use of the service to the detriment of the user organisation.

At the same time, commercial arms of organisations - who obviously guard their content jealously and often charge for access - are of course nervous when a new approach is suggested which appears to give away that content for free, or apparently dilutes the value of that content by allowing users to edit.

Liability and the legality of who is responsible for content is also an area of much confusion. Negotiating terms with users and funders is often key to this, and this negotiation is frequently done by those outside the group who is driving for Web 2.0. Internal relationship building is vital, and where disparate groups are negotiating for different things, major setbacks can easily occur.

Measuring It

Even basic Web metrics are often difficult to pin down: already, defining terms such as "visits" to internal groups, let alone government or sponsors, is very often hard to do.

Throwing Web 2.0 into the mix confuses things much further. Not only are there ill-defined ways of measuring success, technically, but agreed standards are often non-existent. Couple with this the fact that technologies such as AJAX actually **change** the way that people interact with a page (and hence change visit analysis), and things

become much more complex: an AJAX style approach to pages means that the relationship between page views, visits and hits are skewed in as-yet unknown ways. A third layer of confusion is added when you consider off-site content. How do you measure syndicated content: either RSS feeds or "borrowed" resources such as images or "clips"? And if you could find a way of measuring them, technically, how can you then measure their effectiveness? Do they count as "your" content? And what if your content is mashed up with someone else's?

Some Answers…

Simply, Why Should We Bother...

Museums **must** continue to pioneer on the Web. We have extraordinary content: niche, long tail content as well as high-profile "exhibition friendly" content. We also have people who are among the best in the world and certainly the most knowledgeable about their fields.

The opportunities we have as a sector for touching real people with what we do are immense. To do this we need to find technologies which bridge the gap between "us" and "them".

Obviously, the environment needs first and foremost to be **right** for Web 2.0: it needs to fit the organisation, the process and the particular application. But, provided this is the case, examples from the bigger players (YouTube, MySpace, Google, Yahoo, Flickr) can demonstrate the immense power, and profitability, of user generated content, the mashup environment and ways of distributed working. Real-world examples are starting to emerge of how UGC can boost Web site traffic and profits. Museums are also bringing specific examples into the arena of how to use these tools effectively in our sector.

Provided expectation can be managed, one of the strongest things about Web 2.0 is its media visibility. Unlike server-side technologies, or "deep tech" such as hardware, Web 2.0 is now talked about, debated, and endlessly cited in the public media. Museums can look to this publicity and use it to their own advantage. Having said already that "doing Web 2.0" just for the funding is wrong, it is also accurate to highlight that funding **follows significant social movement**: money is usually available for technologies that pioneer new ways of engaging users.

Cultural and Political: "It's My Content…"

Ownership of Web sites, content, and user-facing resources has always been a challenge and it is unlikely that this is going to change in the short term. On the one hand, Web 2.0 approaches can be considered difficult in these environments: conversely it can also be demonstrated that UGC and associated Web 2.0 technologies can bring real benefits to educational audiences and also provide a powerful marketing tool. Increasingly as museums and other respected organisations such as the BBC produce this kind of content and begin to embrace what it means, case studies are becoming available which prove that users feel empowered and engaged by these new content approaches.

Often concerns about how UGC may damage a brand or the authority of that brand can be alleviated very simply by good graphic and interface design: for example, users understand now that certain reviews on Amazon are from the publisher whilst others are from other users. There is no confusion here about "authority". We can afford to mix and match our curatorial "expert" content with those who have different sets of experiences.

Technical

Technical concerns are often difficult to un-pick, but in many scenarios the core technical and IT teams are often the first users (the "Early Adopters" – see below) of these kinds of technology. As such, these teams are incredibly useful sources of information when looking for innovative solutions to Web 2.0 issues.

There are understandable concerns with distributed computing, but often technologies exist which can be brought to bear on these issues. The "API approach" – where systems provide data via web services or other network connectivity is **the** way ahead for web development, and few deny this common-sense approach. Museums should look to apply pressure to software suppliers to provide well-documented APIs, and even embargo those who don't have this functionality on their development roadmaps.

Resource, Cost and Content Legality

One of the most interesting things about Web 2.0 is that it does not call for a sea-change: small-scale solutions can, and should, be rolled out very easily. Benefits can be measured and fed back quickly, and used as input into a virtuous cycle of support for these technologies. This is Rapid Application Design (RAD) for the web: build it, test it, amend it, then rinse and repeat…

From a human resource perspective, User Generated Content is usually not the scary "all we'll end up doing is editing endless obscene comments 24/7" beast that it first appears. The key here is to provide user-facing platforms which **encourage** users to get involved but at the same time have a certain level **barrier to entry** to discourage spam. The classic example here is asking users to provide a valid email address. Not only does this kind of approach discourage bots, it also means that the user is probably serious about writing some content for your site. Users who genuinely want to take part will cross these barriers. Those who are simply looking to abuse your institution probably won't.

Other strategies can always be brought to bear, which often answer legal concerns. The BBC for example has a "tell us and we'll remove it within X hours" disclaimer on their UGC. External moderation companies such as eModeration (www.emoderation.com) can be employed purely to moderate content. Part-moderation (pre- and post-moderation) or asking end-users themselves to moderate content have also been employed successfully on many sites. As more institutions, including museums, start to work with these kind of techniques the legal boundaries will become clearer and better defined.

Measuring It

Our sector could, and should, play a leading role in helping define what Web 2.0 metrics look like. By engaging with government and other funding bodies early, we could begin to shape some of the emerging standards. Sites like Feed Burner (www.feedburner.com) already provide (free) tools for measuring RSS usage. As a sector, we should start to report on these usage figures for our own feeds and begin defining what we think success looks like for these different ways of producing and consuming content.

More Answers: Shaping the Curve

The Gartner hype curve, a modified version of which is shown in Figure 3, provides a useful mechanism for understanding how new technologies may be perceived. This can help us to develop generic strategies which are appropriate at particular points on the curve when dealing with **any** new technology.

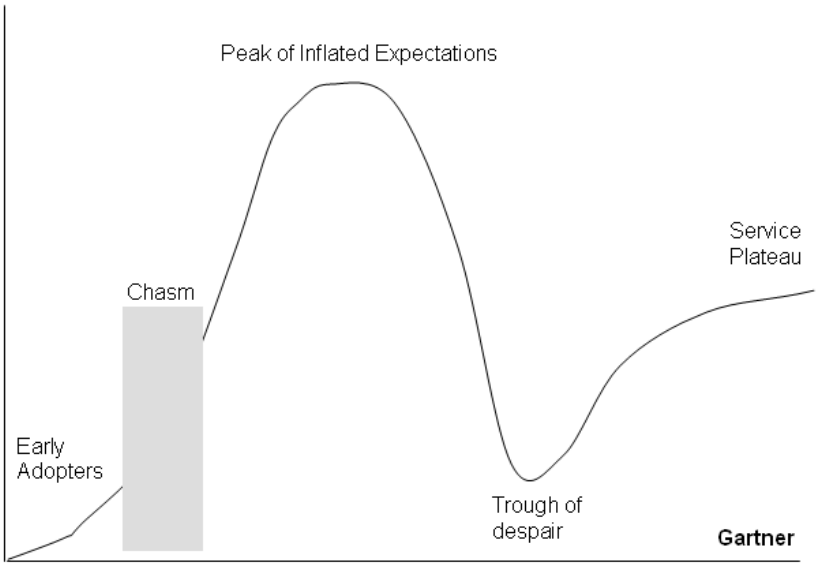

Figure 3: Gartner Hype Curve (modified)

Early adopters are little or no challenge. These are the people who are technically savvy; those who "get it" and are prepared to make do with (in fact, relish) beta versions which are often buggy, incomplete, or don't quite deliver in other ways. As the technology becomes more widespread, often with increased media coverage, it moves up the curve, before peaking at a point called the *Peak of Inflated Expectations*. Here, media hype has expanded and extended the original reach of the technology to realms often way beyond those which are actually possible. Typically here we see the technology presented as somehow being the panacea to everything; funding is widely available; and, to quote a well known blog, "…your mum has one in her living room".

At around this time, or earlier, voices of dissent begin to become heard, typically in the non-mainstream media, blogosphere or technical community. The technology isn't as good as the hype, the screen tends to break…the battery life is short…the wheels fall off…Shortly afterwards the technology begins an inevitable descent into the **trough of despair** – before levelling out sometime later with the **service plateau**.

The growth and burst of the “first Internet bubble” is a typical example of Gartner hype, albeit one with a quite unprecedented and widespread impact.

The technology **chasm** which is indicated on the graph is a critical time for any new technology. Given the widespread understanding of how hype ebbs and flows, it is often during the rising phase that technology is at the highest risk of failing to gain a foothold in the mainstream. During this time, the challenges to organisations (as outlined above) are at their most acute.

In order to avoid potentially useful technologies failing to bridge this chasm and to reduce the time it takes for useful technologies to move from use by early adopters to more widespread usage, there is a need to adopt an appropriate set of strategies. There is also a need to manage expectations so that organisations do not have unrealistic expectations as to the capabilities of a particular technology or the difficulties which may be experienced in achieving such expectations. Similarly there is a need to minimise the 'trough of despair' and to ease the transition to a stable service plateau – until, of course, the next disruptive technology arrives.

Avoiding the Chasm

The following approaches may help to shape the Gartner hype in a Web 2.0 environment:

- **Advocacy:** It is not necessarily always true to say that IT innovation should be deployed in response to a clearly articulated user requirements. The take-up of the Web in the early to mid 1990s was due to the potential which organisations identified once that had seen the Web and identified its potential to support current business requirements and also to provide new services which hadn't been considered previously.
- **Listening to and addressing concerns**: The advocacy of the potential benefits should be followed up by a period of listening to concerns and addressing issues which may be raised. There need not, however, be a clearly identified solution to all of the concerns. Solutions may emerge as more experience is gained. Alternatively it may be that concerns are not as significant as may have initially thought.
- **Supporting enthusiasts**: It will probably be naive to expect everyone to be willing to accept a major new technological development. Rather than waiting to gain general acceptance, an alternative approach may be to support those who are enthusiastic and who may still have concerns but would be willing to experiment.
- **Refining approaches**: It is important to ensure that the experiences (positive and negative) gained by the initial adopters are noted and refinements to a final service deployment are developed.
- **Risk assessment**: It may be a mistake to expect innovation to be completely risk free. Rather any potential risks should be identified and assessed. There will be a balance between the risks associated with deploying an innovative service and the risks in doing nothing. The latter, for example, could be that one's competitors take the risks resulting in your organisation being marginalised.
- **Managing expectations**: The need to promote potential benefits in order to overcome inertia needs to be balanced against the need to avoid overselling the benefits of a technology or the effort needed to ensure that the technology can be used in a sustainable fashion.
- **Sharing experiences and expertise**: Conferences and events (such as the *Museums and the Web* and the *Museums and the Web UK* conferences), mailing lists (such as the MCG JISCMail list) and resources such as the QA Focus briefing documents (http://www.ukoln.ac.uk/qa-focus/documents/briefings/) can help developers in learning about innovations and sharing implementation experiences.

Avoiding the Trough

Once technologies become over-hyped there is a danger that disillusionment will set in when the technologies fail to live up to expectations. The 'trough of despair' can be avoided by:

- **Low risk and low cost solutions**: In a Web 2.0 environment in particular, it should be noted that there may be low risk solutions which can be deployed for little cost. Hosted services such as Blogger provide resilient, flexible, and most important, free, means to build Web 2.0 platforms.
- **Flexible business cases**: At these early stages it can be useful to examine existing business models and reflect on the opportunities which new technologies may provide. For example, providing RSS feeds about the museum can allow third party aggregators to expose this information to their user community – which may result in visits to your physical museum from groups who might otherwise have proved difficult to reach.

- **Quality assurance**: There will be a need to develop and deploy quality assurance procedures which document both policies for the service and systematic procedures which will ensure that the policies are being correctly implemented.
- **Managed transition into a service environment**: The enthusiasm when innovators and early adopters may have is not likely to be sustainable when the innovation is deployed in a service environment. There will be a need to manage this transitional stage.
- **Migration**: The planning stage for the deployment of a new service should also be the time when plans are made for the migration of the service to a new environment. This should include the export of data held in the system and testing processes for importing the data into alternative services.
- **Risk management**: Migration of data is one aspect of a risk management strategy. A risk management strategy should also include aspects such as planning for server unavailability, performance problems, etc.
- **Openness and Transparency**: A simple technique for minimising possible risks associated with innovation is to be open with one's user community. If a new service is being trialled, inform the users of this, and be honest about possible dangers. You may find that they appreciate being informed and involved in the experimentation.
- **Professional development**: There will be a need to ensure that those who are involved in the development work have suitable training. There will also be a need to ensure that other members of the organisation have a better understanding of how Web 2.0 is being used and how possible risks are being managed.

Conclusions

This paper has argued that the museum community needs to continue to strengthen its understanding of the Web 2.0 phenomenon. Although "doing Web 2.0" just for the sake of it is a danger, the opportunities which Web 2.0 presents are incredibly exciting, particularly given the content that museums have and the audiences that we seek to engage.

It is only by working with these technologies "in the wild" that will we begin to understand exactly what the benefits and risks of these approaches can be. This paper has identified some of the more common barriers for not engaging with these "new" approaches and suggests strategies for overcoming these barriers. Continued peer dialogue will be the strongest means of building engaging and relevant Web 2.0 experiences within the museum sector.

References

O'Reilly, T (2005), What Is Web 2.0? <http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html> (Accessed 26 January 2007)

Biographical Details

Brian Kelly works for UKOLN, a centre of expertise in digital information funded by the Museums, Libraries and Archives Council (MLA) and Joint Information Systems Committee (JISC) of the Further and Higher Education Funding Councils. Brian's job title is UK Web Focus - a national Web coordination and advisory post. His areas of work include Web standards, Web accessibility and quality assurance for digital library development activities. A current key area of work is in describing what Web 2.0 is and developing strategies for exploiting the benefits which Web 2.0 can provide whilst minimising potential risks.

Mike Ellis is Website Manager at The Science Museum, London. He looks after several websites for the Museum, which between them attract well over a million visits a month. As well as managing the operational running of the sites, he spends a lot of time building e-strategy and policy frameworks. He is particularly keen on developing innovative multi-channel content which puts users at the centre of the equation and which cross real-virtual boundaries.