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Case Studies in Web Sustainability

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At the moment organisations often make significant investments in producing Web-based material, often funded through public money, for example from JISC. But what happens when some of those organisations are closed or there is no longer any money or resources to host the site? We are seeing cuts in funding or changes in governmental policy, which is resulting in the closure of some of these organisations.

What happens to those Web resources when the organisations are no longer in existence? Public money has often been used to develop these resources - from that perspective it would be a shame to lose them.

Moreover, the resources might be needed or someone may actually want to take over the maintenance of the site at a later date. How do we make these sites more sustainable? Is there any way we can move sites to somewhere that is free to host the Web pages, and can be left there or modified when needed? JISC previously funded three projects to look at this area through a programme called Sustaining 'at risk' online resources [1]. One of these projects, which ran at The University of Northampton, looked into 'rescuing' one of the recently closed East Midlands Universities Association's online resources. This resource, called East Midlands Knowledge Network (EMKN), lists many of the knowledge transfer activities of 10 of the East Midlands universities. The project looked at options on how to migrate the site to a free hosting option to make it make it more sustainable even when it is no longer available on the original host's servers.

This article looks at this work as a case study on Web sustainability and also included a case study of another project where Web sustainability was central.

What Is Sustainability?

Sustainability is one of those phrases that can have many meanings, but in the context of a Web site, it means the Web site:

- Can still be viewed, even if there is no money or paid resources to host it, usually via free Web hosting;
- Can be updated;
- Must have a mechanism to transfer ownership, add new editors, etc, easily.
- Should ideally be able to transfer the content of the site between hosts relatively easily.
- Should, ideally, in terms of its management, be relatively simple. It should not rely on the person managing the site to have Web-programming skills.

The following two case studies aim to illustrate these general principles.

Case Study 1: At-risk Web Sites

Introduction

East Midlands Knowledge Network (EMKN) is an online resource which was at risk, due to the demise of regional development agencies. Matters were complicated by not only the closure of the East Midlands Universities Association (EMUA), which created the resource, but also the closure of the company upon whose server it sits. However the information held within the site, technologies, business services and facilities within EMUA's institutions, is considered valuable; particularly as face-to-face Business Link (BL) services are being axed and the government has indicated that the channel for publicly funded business advice (information, advice and guidance) will be online. A central feature of the site contains an image ('Tube Map') that links to various parts of the site showing various services; this was felt especially important to keep.

Therefore this project looked at options on how to use free hosting sites as a means of protecting a valuable resource in an economical and sustainable way, using the EMKN as a case study. A blog [2] of the progress, activities and issues was kept. Some of the conclusions and results from the project are presented here.

Figure 1: East Midlands Knowledge Network: original site [3]

Approaches Investigated

Four Web-hosting options were investigated:

- Google Sites [4] was investigated as the alternative platform for several reasons:
  - It is a freely available resource, allowing this approach to be replicated with other at-risk resources.
  - It allows changes to individual pages or the entire site remotely by subscription
  - It integrates with a number of Google-based tools (such as Analytics, Webmaster tools, YouTube, Google Docs and Picasa).
- Use of DropBox [5] as a free hosting option was examined. Though DropBox is quietly used as cloud storage, it also has the ability to act as relatively simple Web server. When HTML documents are placed inside the public folder that comes as standard with any account they can be made literally public. By Right-clicking [control-click for a Mac] on the home page file and choosing 'Copy Public Link' produces a URL that anyone with the link can follow.

- The final approach was to use Amazon Web Service (AWS) [6] which provides Web services free for a year.

What Was Learnt?

With regard to Google Sites, each page essentially needs to be produced individually;

producing templates of portions of the site helps, but each page does need to be produced individually. Consequently, for a site with a large number of pages this is extremely time-consuming. A further problem for this project with the use of Google Sites is that CSS cannot easily be transferred; though, to a large extent, HTML can. However, the formatting of the site has to be redone. For this site, with around 500 pages which ought to look as close as possible to the original, Google Sites is not the most appropriate solution; whereas other techniques investigated are more suitable. Google Sites is an appropriate solution if the number of pages is small, the formatting of the pages is not too complicated and it is a new Web site.

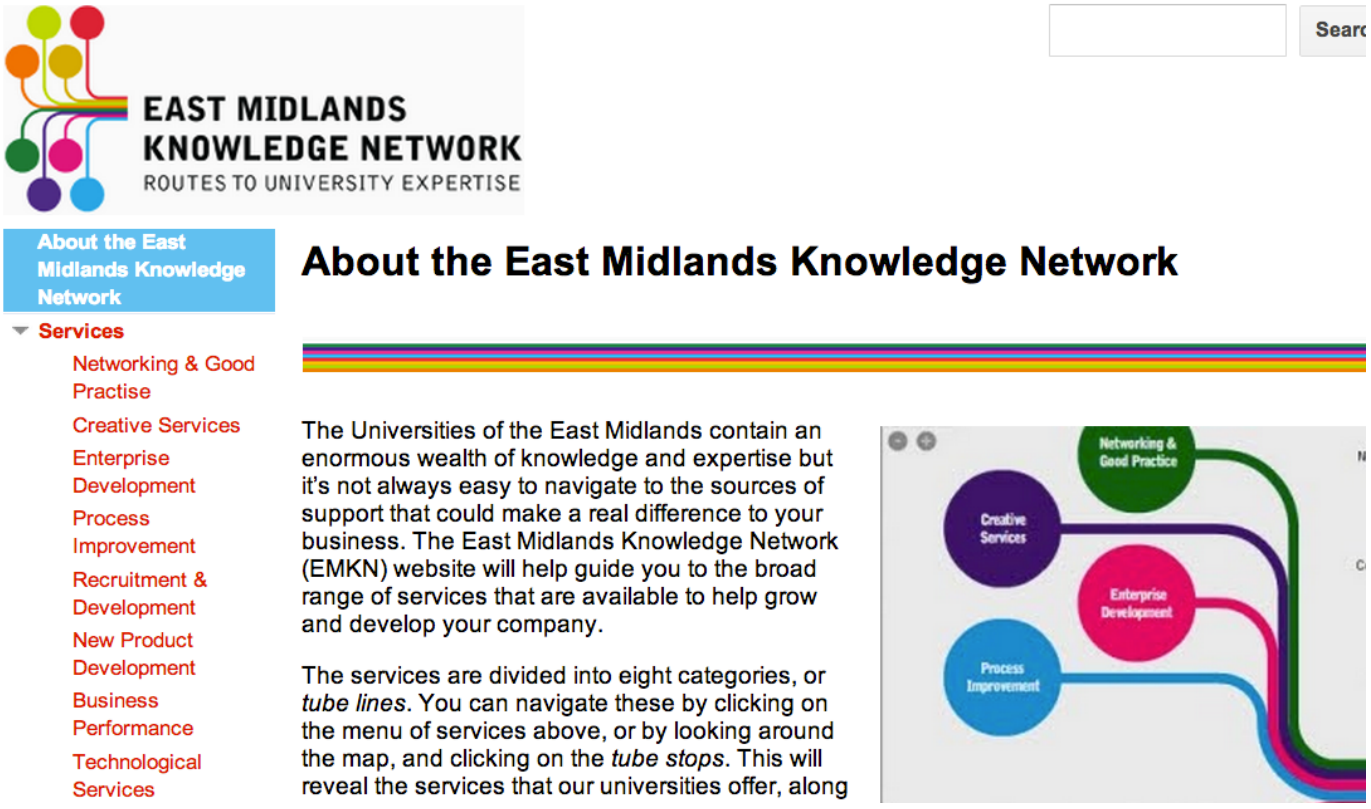

Figure 2: East Midlands Knowledge Network: Google sites version [7]

A quick option is to use the public folder of a DropBox account where a URL can be created. If you want the content to remain publicly accessible and that content is not going to change, this represents a reasonable option. It is free (if you have a free account) and publicly accessible, but it does have some drawbacks:

- The URL produced is a little cryptic - it does not really bear a direct relationship with the site's name or content. So represents a poor option in terms of Search Engine Optimisation.
- It is difficult to add some common Web analysis tools. Google Analytics can be added relatively easily if you have used it before. Tools such as Google Webmaster tools are much more difficult to work with in a DropBox environment.
- It is only really useful for static content.
- As with all the free options there is the concern that it is only an option while the service running is available.

Overall, though this is a reasonably quick route to hosting content that is unlikely to change. Moreover, if the DropBox account and a new email address to set up the account are specifically created solely for the project, then transferring ownership or sharing access is uncomplicated - it just means giving the email and password to the incoming administrator.

Amazon cloud route is an alternative to DropBox, though there are still some of the drawbacks common to the Dropbox approach, namely:

- The URL produced is a still a little cryptic - it does not really bear a direct relationship with the site's name or content. So, again, it offers a relatively poor option in terms of Search Engine Optimisation. However, it is a little better than the DropBox option as you can include a site name within the URL.
- You can, moreover, add to the site tools not available to the DropBox options such as Google and Bing Webmaster tools.

Overall though, this is a good hosting option that is unlikely to be lost due to the backing of Amazon but is only free for one year. Directly transferring the site is problematic, but not from technical standpoint but rather from an administrative one. A credit card is required when setting up the initial account; those details would need to be changed early in the transfer process. Amazon is appropriate for both new sites and those where previously developed material is being migrated. More details on setting this up can be found at either Dan Frost's article in .Net magazine [8].

Both Amazon and DropBox are appropriate for new and old sites.

Case Study One: Findings

Google Sites-based solutions are appropriate if there are a small number of pages within the site, where you have some flexibility over the design of the site (especially if the site it is not reliant on CSS) and the pages themselves are essentially static. If your site does not match any one of these criteria, it is best to look at other options, such as DropBox and Amazon S3. However, Google Sites can be a good option, especially as it has the backing of a major company.

As with all sites (and in particular with sites which, while remaining useful, no longer enjoy support), following good Search Engine Optimisation (SEO) principles is important. The site, we hope, is going to be used by others, but the resources supporting the site are likely to be minimal. Following good SEO principles at least gives the site an improved chance of being picked up by the search engines. One possible advantage of the Google Sites approach is that the URL produced as standard is a little easier to interpret than with some of the other techniques, which would have some benefits from the perspective of effective Search Engine Optimisation.

Case Study Two: Starting from Scratch

Introduction

This concerns a smaller project, where a Web site was required as a vehicle to promote STEM (Science, Technology, Engineering and Mathematics) outreach activities in Northamptonshire. The challenge here was to make the site sustainable without any further financial investment (ie through the use of free Web hosting and Web tools), but also easy to manage (easy to edit with limited Web skills, and also straightforward to transfer editorial control).

This project had two parts:

- The first part of the project was to look at what the various options were when there was no requirement to move resources produced, as in case study 1, then choose an approach.
- Produce the Web site using the selected approach

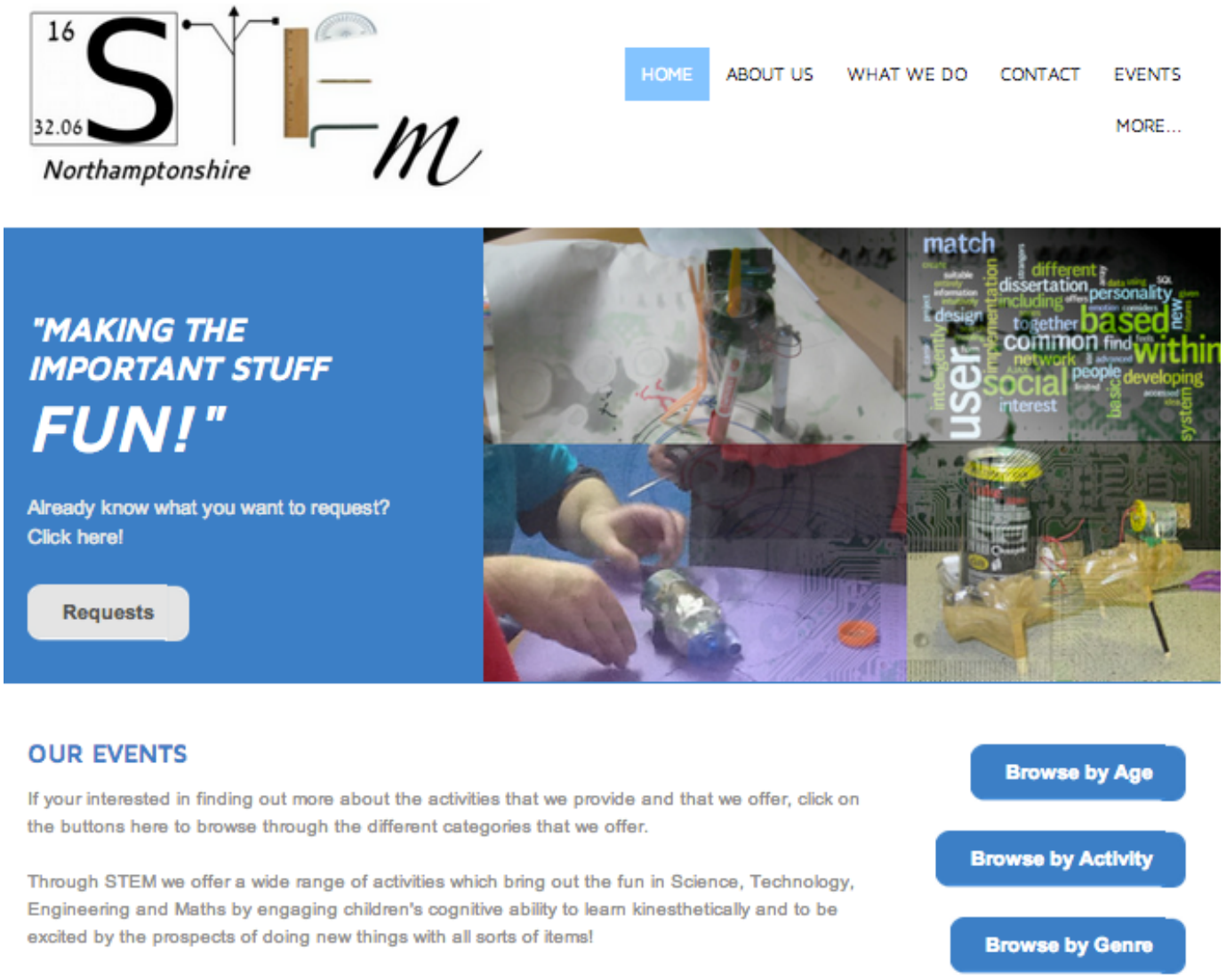

Figure 3: Trial site STEM Northamptonshire [9]

What Was Found?

The first part of the project was to examine what further various options (other than those discussed in Case Study 1) were possible, where movement of resources produced is not required as was the case in Study One.

Eight free Web-based tools and free hosting options, including Google sites [4] were investigated. It was decided to use Weebly [10].

Weebly had several features that led to its adoption:

- Its 'drag-and-drop builder' was fairly easy to use
- It came with free hosting
- It made it possible to download the files onto the hard drive so they could be edited using tools but equally it proved straightforward to move site content about

- Adding new editors to the site was relatively simple
- It was possible for users to add their own features to the basic ones available provided they have some ability in HTML.

Case Study Two: Findings

Free Web-building tools and hosting tools such as Weebly offer another sustainable approach. It was relatively quick to get a new site up and running, and adding a new person to the editorial team was not difficult.

Further Sustainability

The sustainable maintenance of usually public-funded Web resources is one thing, but perhaps an aspect that is not immediately clear is their value in their own right as a record. Even if these sites are never added to, maintaining them means that a snapshot of the activities of partnerships, issues, and the kind of activities carried out remainsavailable for future use. Web sites – when combined with blogs, social networking, and comments - are starting to be seen as a rich source of archive information; in effect, they contribute to a digital legacy. A recent article by Sumit Paul-Choudhury [11] discussed such a legacy from the perspective of personal Web sites, blogs and social networking. This also applies to the legacy of organisations and projects, providing more than just the content that is explicitly on the site, but perhaps details of how particular subjects were viewed or geographical areas of expertise at a particular point in time.

We can expect to see more people 'digging' through Web sites in the future, perhaps in the same way archaeologists sift through layers of soil.

Conclusions

The area of sustainability of Web sites should be an important consideration for any funding that involves public money, both during the life-time of the project and afterwards. Government-funded agencies are being rationalised. Finding ways to keep the sites going even if they are not maintained has some value, they still provide a 'snap-shot' of the resources at a particular point in time. A sustainable Web solution should be included in proposals for funded projects. In part because we are often talking about using a scarce resource - public money. To get the best value for that money if a resource has been developed using that money, should it not be available for those who paid for it - the public? If a resource merited investment, why would it not be worth something later? The nature of the resource may also change over time, conceivably changing from a resource about current activity to one of historic interest.

There are a number of free options.

- Google Sites [4] is an appropriate solution if the number of pages is small, the formatting of the pages is not too complicated and it is a new Web site.
- Amazon is appropriate for both new and previously developed material is being migrated.
- Dropbox [5] is as in the Amazon solution appropriate for new and previously developed sites and is appropriate if only basic tracking tools such as Google analytics are needed.

- Free Web-building tools and hosting tools such as Weebly [10] offer another approach that is sustainable.

Sustainable Web solutions proposed are good as a back-up or archiving solution; but also can be used as the main site if the domain name were redirected to the new site.

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