University of Glasgow

I stand, they don't deliver: or why the highwayman approach to funding digital preservation doesn't work

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Introduction

'*Its absolutely essential that we do this*'. All too often projects or developments in the information world (particularly in the digital) are put forward, together with an explicit or implicit threat that if the money is not handed over, something unpleasant will happen:-

- a regulator will come and get us;
- we face enormous risks if we don't;
- we will fall behind our peers or competitors, because they are all doing it, or about to do it;
- the current systems will stop working because they just can't cope;
- everything will stop on January 1st 2000;
- etc.

'*Stand and deliver*'. Our senior management don't seem to understand the value of what to us is self-evidently wonderful (or at least absolutely necessary). They don't rush to '*hand over the cash*', they give us a haughty look and drive on, splattering us in mud, leaving us peeved and bewildered. They have heard it all before and in the case of Y2K they handed over a lot of cash and were perhaps left feeling that it was all a cunning ruse for getting resources under false pretences - demanding money with menaces.

The highwayman approach demands money, but the only return that it offers is the removal of a threat. This has strong resonance with the often-heard complaint from information professionals: '*senior management don't understand the importance of our digital preservation work and don't give us the resources that we need on an on-going basis*'. Why might this be?

Put simply, no decision-maker will fund an action that they cannot see a return from and more particularly, a return that matters to them and that they judge to be cost effective. The challenge is to be able to communicate what the return that can be gained from undertaking 'digital preservation' actions is. Why are we not offering something that really presses their buttons and helps them to surge forward towards goals that matter to them?

Innovations

The digital world, in the life and work of most of us, is new. As with anything new we have embraced its positive facets enthusiastically. This has happened over a period of perhaps twenty years, slowly at first and then much more rapidly over the last decade as the World Wide Web has become more and more pervasive in our lives. In our work, we have made cases to digitise this process or that material in a very piecemeal fashion, citing the benefits of better access, discovery, reusability, openness and

convenience. But what of the disadvantages, dangers and downside? To those, in our evangelistic zeal, we have been at best partially sighted and at worst totally blind.

The process, practice, procedure and form of the paper world that the digital is replacing, developed and evolved over about 400 years and built into our understanding of that world are many checks and balances to keep things on an even keel. We have all already seen examples of material digitised in haste being no longer useable at leisure, or in the wrong format, or without the funding for continued maintenance. The BBC Doomsday project, a variety of HE teaching and learning programmes such as the Teaching and Learning Technology Programmes (TLTP) and many of the New Opportunities Fund projects are high profile examples, but everyone has their own examples of things that did not stand the test of (fairly limited periods of) time, the high rate of turnover in technology or just a lack of continued funding.

It all starts off as a good idea that we had whilst chatting to colleagues and we request a little funding to ‘try it out’. Progress is often rapid because we don't have to iron our all the wrinkles, it is after all just a 'proof of concept' a 'pilot' to show that it might work. When that initial money runs out, we ask for an extension or for follow on funding to develop it into a really useful service. There is a tendency to repeat this cycle, but we observe that as time goes by we find that it gets harder and harder to get the money. The reason for this is that each time we have to produce 'new benefits' that have not been part of the case for earlier rounds of development funding. We often find that we simply do not have the language to communication the longer-term sustainable benefits that will justify the development of a new core service, that will justify both the development cost and the considerable cost of sustaining the delivery of the service.

The transition from innovative development to service or standard way of doing business is tricky. We have seen a large number of potentially very useful services flounder because the effort, enthusiasm and resources were not there to deliver the potential service as something that is well documented, backed up and properly resourced in terms of technology, on-going development and face-to-face support. The transition from innovation to service requires a change of mindset, it requires an articulation of how the development contributes significantly to the strategic objectives of the organisation, it requires strong ‘business alignment’.

If the original developments were funded on the basis of relatively high levels of hype, it is going to be very tricky to express the benefits for the development as an everyday reality where the element of novelty is no longer there.

Funding Proposals

We would suggest that a funding proposal is best seen as a 'dialogue' between the proposer of a course of action and the potential funder. In this dialogue, the funder is going to want to know the answers to questions like:

- how much they are being asked for,
- what they will get for their money,
- how they will know that they have got what they have paid for,
- how likely it is that they will fail to get the expected outcome,
- what factors might decrease/increase the likelihood of success,
- how the proposer is going to manage the situation so as to maximise the likelihood of a positive outcome.

In most cases, the first of these is reasonably well articulated - the proposer knows how much money they want. The second is often expressed in rather vague terms and the remainder do not feature at all.

From the funder's point of view, they are likely to be faced with one of two types of scenario:-

- they have a strategic goal and wish to be able to see a range of ways of achieving that goal and select an approach that seems to give the best chance of providing good value for the resource required
- they have a sum of money to spend to achieve one or more strategic goals and wish to be able to see a number of possible projects that might help to achieve that goal and select one or more projects that seem to give the best chance of providing good value for the resource required.

Both of these scenarios are forms of option appraisal and in order for a decision maker to be able to select an appropriate course of action, (s)he needs information that can provide a solid basis for a decision and for further discussion with the proposer over aspects of what is proposed. The final four bullets in the list above are very important in relation to both. The process described here is summarised in figure 1.

[insert figure 1 about here]

Investment

Business cases are used widely to justify courses of action which aim to show benefit or value to the organisation as a result of identified expenditure. In the world of digital preservation, there has been a lot of work to try to identify the costs, but comparatively little work on value. The British Library, Florida Public Libraries and South Carolina Public Libraries have all looked at the value of their operations as a whole and concluded that for every £ or $ spent, the value delivered to the public is somewhere of the order of four times that. Spending money on preserving digital assets should be considered as an investment decision where costs are incurred now, in the expectation that there will be some sort of return at some time in the future. A significant difficulty is that whilst costs are readily expressed in financial terms, the future benefits that derive from the investment are often not readily expressed in financial terms and this has made them difficult to measure and report.

The costs of 'doing something' can be determined relatively easily once certain assumptions have been made. Costs will include the direct costs of the equipment, software and staff and these will consist of both Capital costs and Revenue (or recurrent) costs. Obviously these costs must be modelled over the length of time that the information must be preserved and when appropriate finally destroyed. They should not cover just the initial period of establishment of a repository or the ingest of material.

In creating a business case most people focus primarily on cost, but there must be a counter-balancing focus on benefits. A good business case will display a strong understanding of the value of information objects that organisations create, otherwise it will have little chance of convincing the decision makers that there are benefits to invest in. The challenge is identifying and expressing the often intangible value that information objects have. The archival profession deals with the exploration of value through appraisal. However, the methodology is an intellectual process that does not readily lend itself to being conveyed to non-practitioners (i.e. decision-makers and object creators).

Benefits are the primary reason for making an investment, financial or otherwise It is clear that in talking about information resources we are, for the most part, talking about intangible assets and that value based simply on financial measures is inadequate. Whilst it is in theory possible to convert all value to a monetary value, doing so can be misleading, time-consuming, unrepresentative and counter-productive. This was the painful lesson of the dotcom boom.[1] How best then to communicate the benefits and thereby attract investment?

The latent value that is capable of producing benefit is multifaceted. Intangible value is therefore very difficult to deconstruct and communicate. Exploring the world of intangible value, led us to a

[1] See for instance John Cassidy, 2002 "dot con - The greatest story ever told", Harper Collins.

technique used for business performance (amongst other things) called the Balanced ScoreCard (BSC), developed by Kaplan and Norton at the Harvard Business School[2]. We have repurposed Kaplan and Norton's concept to allow both proposers and funders to see the multifaceted nature of value, as part of the dialogue relating to investment in information assets.

A basic premise is that value is not an absolute. Value is situated, in that the value of an asset depends on the situation of the person who has it and what they can use it for. The value of a torch is different for a blind person and a sighted person and is different for someone who as ready access to batteries and someone who has not. In relation to information assets, value must be seen in relation to the strategic goals of the organisation bearing the costs of investing in them. The value of an information asset to one organisation with a particular set of strategic aims will not be the same as to another with a different set. The Balanced ScoreCard was designed as a performance measurement tool to allow senior management to monitor the performance of their company (or parts of it) in line with its strategic aims. The adaptation has two roles: it allows producers of a business case to consider and communicate all areas of value from which the organisation might reap benefit; and, it also acts as an investment measurement tool for senior management.

The Balanced ScoreCard is illustrated in figure 2 and views value from a number of distinct perspectives, of which only one is concerned with financial value. Within each of these perspectives, there are elements that reflect what the value is, but whilst some of these are appropriate to a wide range of activities and organisations, others are quite specific to a research-led university (details of the elements in the University of Glasgow case can be found at appendix 1).

`[insert figure 2 somewhere about here]`

Identifying intangible value is not the end of the problem, it has to be expressed, such that benefits can be perceived and to some extent 'measured'. We prefer to call such measures 'indicators' and their purpose is to give decision makers an idea of what they will get for their money, and also allow them to see whether or not the benefits have been delivered. Such indicators must be:

- Meaningful in strategic terms
- Measurable in some appropriate way
- Controllable in the sense that value can be increased or decreased by management action

They do not have to be:

- Defined in or reducible to financial terms
- On measurement scales – they can be ordinal (A>B) or rather fuzzier(A≡B or A≥B)

It is these indicators that allow you to show what impact a particular investment might have.

Investment in any project or activity entails risk. If the only projects that were funded were those certain to deliver exactly what was anticipated, there would be little innovation and progress. Risk is about uncertain outcomes in terms of both unanticipated opportunities and problems, but it is often presented purely in terms of anticipated problems. We recognise three types of risk in relation to:

what should be

is the risk that things are not being carried out as they should and is what the audit, transparency and accountability agenda is trying to deal with. One might also term this 'hazard avoidance', the emphasis is very much on looking over one's shoulder. It is dealing with risk in a negative way and is where most people get stuck when thinking about risk.

[2] Kaplan, R.S., and D.P. Norton. "The balanced scorecard - measures that drive performance". (Harvard Business Review 1992) 70, 58-63.

what is

is about dealing with uncertainty in relation to the day to day work or operations. The emphasis in managing this type of risk is on improving operational performance, on doing things better.

what could be

is the risk that one takes to try something new or to experiment, for example business development risk. This is risk in a positive sense and is something that needs to be encouraged, although precautions need to be taken to ensure that recklessness is avoided. Cultivation of the Aristotelian mean between two vices, rashness and cowardice, is perhaps the approach we are looking for.

Uncertainty is very important in relation to return from information assets. We know that a fair proportion of the books in the University Library have never been borrowed and a proportion of these may never been referred to - they have however incurred the cost of management over perhaps a long period of time. Preserving information assets or disposing of them involves some consideration of the likelihood of making the wrong decision - keeping that which will not bring benefit and not keeping that which would bring benefit. The risk is concerned with the consequences keeping or not keeping in relation to the likelihood.

There are two types of value that information assets might have:_

- positive value - they can be used to deliver benefit
- negative value - they are a liability and deliver dis-benefit

The two tables below show the possibilities in relation to having and not having 'assets' that have positive and negative value.

Assets with Positive Value		**Required/Used**	
		yes	***no***
Have	***yes***	good investment	poor investment
	no	missed opportunity	good disposal

Assets with Negative Value		**Requested**	
		yes	***no***
Have	***yes***	compliance failure	lucky!
	no	good compliance	who cares?

It considering risk, it is important to engage with risk as a positive concept - taking a chance on doing something which might produce great benefit, but is not certain to succeed - and not only negative aspects of risk. It is for this reason that we prefer the word uncertainty. What is your organisation's risk appetite? What is the degree of uncertainty associated with retaining or losing teaching materials, research data, contact lists, financial information, HR information, etc.?

Digital Preservation

Digital Preservation - what is it? The preservation of digits? Is this the real task? As information professionals should we not centre our interest on the preservation of information rather than developing digital preservation as mysterious? Managers of enterprises are interested in managing the business - its processes, people, information and outputs. Digital preservation is not an end in itself, it is just a set of technical - how - things. In the early stages of any development, people tend to concentrate on the mechanics, rather than on that which is really important - what - and the purpose - why. The result is that this activity has tended to be funded through short-term projects focusing on how. What is now needed is for these practices to be seen as part of mainstream activity; which they surely are and to get their funding as part of the mechanisms that fund the other aspects of normal business activity. Successful stewardship of digital objects requires a sustained flow of resource from a sponsoring organisation. To date, in many organisations, this flow of resources has been unpredictable and rarely consistent, with those concerned having to take advantage of discontinuous funding opportunities. For those charged with protecting and managing digital objects for future use this is unsatisfactory and unsustainable. The issue of sustained resources can be resolved most plausibly through a business-orientated approach, which focuses on the impacts (both positive and negative) that long-term stewardship might bring using a strong underpinning of economic ideas to frame 'digital preservation' as an investment opportunity (with the associated risks of little or no return) rather than a given, that organisations must fund irrespective of outcome.

From the point of view of a senior manager of an enterprise there is little difference in substance between preserving information and preserving buildings, equipment or any other asset and there is therefore no reason why it should be treated in a different way.

There is no need to regurgitate here the detail of what is involved in digital preservation and why it is important; there are numerous places where this has been discussed and we assume readers will already have a good understanding of the concepts and issues. What is becoming increasingly common, within the literature, is that 'softer' issues are more prominent. It would be churlish to suggest that the technical issues have all been 'solved', but it is true that a stage has been reached where solutions are deemed as viable, rather than abstract ideas to be researched. The main challenge at the moment is to ensure that organisations can retain assets into the long-term. This goes far beyond solving the technological issue and even beyond the costing of 'digital preservation practices'. This means convincing senior managers and decision makers of the value of their digital objects in order that their retention is not only embodied in their strategic management rhetoric, but also acted upon and given consistent and long-term resources.

Carrying this out involves the use of some economic methodologies. However, it also asks the question that has rarely been asked in the literature, let alone answered: how do you communicate the value of information objects to decision-makers? Most authors work on the premise that the decision makers of their organisations understand the need for actions to preserve digital materials and exactly what these assets are. This is often far from the case. Certainly, work has been and is being done on costing digital preservation.[3] However, the methods employed do not take into account the actual assets that need to be preserved (managed) and it is generally assumed that the objects (with little communication of why they are 'assets') must be preserved. Business models must answer not only the question 'how much does it cost?', but also, 'why do we need this?' and 'why should we spend money on this, rather than on the primary business of the organisation?' These questions require very different answers than those that cost models can deliver.

[3] Most work has looked at the elements of cost that must be accounted for (ERPANET 2003, Granger, Russell & Weinberger 2000; Hendley 1998), with little practical examples of actual costs. Many have signalled that the complexity of singling out costs of preservation from other costs such as creation and management clouds the issue, but this is perhaps a complexity that is false: all the costs are relevant to the longevity of digital materials. Oltmans has compared the cost implications of choosing one method of preservation over another (emulation and migration) and finds that the cost pattern differs, (Oltmans & Kol 2005). Work is being done in great detail at the Cornell Institute (see most recently Kenney 2005).

Brian Lavoie (Lavoie 2004 and Lavoie & Dempsey 2004)[4] is one of the very few to properly explore preservation as an economic activity and look at making practices sustainable. He sees three things as key to this: responsibilities (which are split into areas); incentives (which need to be outlined for the decision-makers for the different areas of interest); and organisation (of preservation of objects). He rightly says that preservation is an investment and that incentives must be made visible to decision makers in order that resources can be leveraged to preserve the objects (Lavoie 2004, 53). Incentives usually take the form of benefits to the organisation such as increased profit, but can also take the form of intangible benefits such as increased kudos and reduction of risk.

In the current climate, most organisations will only give resources to ensure the longevity for those information objects that are assets. The crux of the matter is the definition of exactly what constitutes an asset to the particular organisation and then expressing that in terminology which senior management can understand.[5]

espida - a project addressing these issues

The *espida* project at the University of Glasgow (http://www.gla.ac.uk/espida)[6] has been grappling with approaches to secure sustained funding for activities that help to manage digital objects, in order that that they remain useful, useable and a key element in meeting strategic goals into the future. The project uses a strong underpinning of ideas from economics to frame 'digital preservation' as an investment opportunity (with the associated risks of little or no return) rather than 'a given' that the organisation must fund irrespective of outcome. The key ideas are: aligning the benefits of preservation with the strategic goals of the organisation providing the funding and, opening up ways of allowing the decision makers to assess the performance of that investment through time.

The *espida* project is funded by the Joint Information Systems Committee (JISC) under its Digital Preservation Programme. The project comes out of a realisation that whilst the costs of the preservation of digital resources (computer files, databases, digital images, digital documents, etc.) are reasonably well understood, the value that incurring those costs might bring to an organisation has been little researched. The project aims to bring the rather inward-looking focus of digital preservation into the real world by:-

- producing a model for constructing sound business cases for digital resource management by:-
  - providing a basis for defining value or benefit for the activity,
  - bringing costing into the same framework,
  - showing how uncertainty and risk fit into the picture,
- engaging with senior managers to establish a basis on which digital resource management can be viewed as part of standard strategic planning,
- engaging with the creators of digital resources to ensure that they are able to articulate the value of the resources that they create and work with.

It is clear that in talking about digital resources we are, for the most part, talking about intangible assets and that value based simply on financial measures is inadequate. We also find it helpful to see spending on the preservation of digital resources as an investment. In this context, there are costs initially and at intervals and such expenditure should be justified in terms of expected returns in the

[4] Lavoie, Brian F. 2004. Of Mice and Memory: Economically Sustainable Preservation for the Twenty-first Century. In Access in the Future Tense. Washington, D.C.: Council on Library and Information Resources. Lavoie, Brian, and Lorcan Dempsey. 2004. Thirteen ways of looking at: digital preservation. DLib Magazine 10 (7/8).

[5] There is of course the question of potentiality. The information objects *may* become assets in the future. This is the concept that companies use when paying for the upkeep of their patents. The vast majority of them will not be valuable in the future, but one or two could make the investment worthwhile.

[6] Many articles and an extensive bibliography are available from the espida project web site.

future. Much of the work of the project is focussed on identifying the nature of these returns and the timescales for their realisation in relation to different types of digital resource.

As the work has progressed, it has become clear that it has much wider applicability than simply digital resources, being of use in many situations where the benefits of a course of action are largely intangible and accrue to parties other than those bearing the costs.

Securing resources to set up an institutional repository, or indeed to maintain and expand it is not always easy. The business case must compete with other proposals within the organisation. How best therefore to make a successful case?

Impacts are what decision makers use to differentiate good proposals from bad (or at least, ones that they want to fund or not). Impacts are both positive and negative and balancing these in order to come to a decision is part of the art of good management. This art becomes harder though, when the impacts are non-financial and often quite abstract; as can be the case with repositories. How can one judge between work that will bring definite cost savings and one that offers the high-level benefit of, say, increased visibility for an institution?

The key attributes of the *espida* methodology are:

1. It helps describe and communicate benefits of work that are primarily intangible;
2. It uses language and tools that senior management understand;
3. It gives power to the managers of repositories to define their own indicators of success;
4. It understands that values are institutionally dependant and conveys benefits that are specific to individual organisations, rather than generic high-level attributes.

Business Alignment and Sustainability

The IT sector has for several years been moving in the direction of 'business alignment'. The idea being that if what is proposed in projects relates directly to the strategic goals of the organisation, senior management will be more inclined to fund it. Whilst it would clearly be an exaggeration to suggest that this has been universally successful, there has been a high success rate amongst those projects that have proposed genuine outcomes (rather than simply outputs) that provide business leaders with what they really want. The success of the technology-supported business models employed in companies like: Dell, Amazon, eBay, Walmart and Tesco are a testament to that, as are the success of projects that have produced Web delivery of material from the National Archive in the UK. We have also seen it at work in a range of Universities and colleges in the UK, where student portals and virtual learning environments (VLEs) have produced significant changes in the way that the institutions and their students interact and thus in the range of possibilities for course delivery.

There is less evidence that a change in the way that projects are proposed and evaluated is taking place in the wider world of information management and preservation. In a paper in the Records Management Journal, Len Asprey gives an account of two good examples of business alignment in relation to Electronic Document and Records Management which would indicate that it has potential in both the public and private sector as an approach.[7]

Digital preservation has the potential to move organisations forward, help them develop and produce good returns on investment. It also has the potential to be a big drain on resources and a brake on progress. It is our view that currently, what may be classed as ‘digital preservation’ actions have been sold primarily on the back of high-level, far-off benefits mixed with compliance and fear of loss (of

[7] Len Asprey 2004.’ Information strategies: Are we aligning the business case with enterprise planning?’ Records Management Journal 14 (1):7-13.

something – no-one likes the thought of losing something). Viewed simply, the quest for sustained resources has been relatively unsuccessful in many areas. There are perhaps two reasons why this may be the case.

1. An unconvincing business case has been presented to senior management. They did not understand the importance of the work and therefore did not see the benefit to the organisation of making the investment.

2. A convincing business case has been presented to senior management, but they did not want to invest in the opportunity, because they had other priorities that were better aligned to their strategic goals.

The work of the *espida* project can help if the first is the case. The second offers a valuable lesson for us all: organisational objectives are what drive senior managers' decision-making. If a proposal does not fit into those objectives, it is highly unlikely that it will receive investment.

Highwaymen and Drug Pushers

What do controlled drugs and digital information systems have in common? They both have positive facets and its not until later that you find out that there is a negative side also. In the thrill of the high it is easy not to think about the problems that surely come along in its wake. Of course we are not suggesting that digital systems are addictive or that those who advocate them have anything in common with drug pushers, but like pushers who are able to let us experience the highs first hand at low cost, once we are somewhat dependent, those who propose digital information systems come forward with costs that seem to rise mysteriously at each turn of the technological wheel and the dependency and pain of withdrawal get ever greater.

This paper has been about a fascinating world of intangible value, measurement and evidence, outcomes (rather than outputs), investment returns and risk. In many ways the highwayman understands all of these (especially the last), but the way that he employs them needs a serious makeover. What about you?

Appendix 1: Balanced Score Card Elements in the University of Glasgow

Innovation and Development Perspective

- Intellectual capital
- Motivation, fulfilment and satisfaction (of staff)
- Quality and potential of research
- Quality and potential of teaching
- Responsiveness to change

Internal Business Process Perspective

- Information accessibility
- Efficiency of operation and productivity
- Effectiveness of decision making
- Process potential and organisational flexibility

- Compliance with legislation and regulation

Customer and External Stakeholder Perspective

- Contribution to culture and community
- Reputation, brand and customer confidence (in all who deal with the University and in the public at large)
- Customer satisfaction and service delivery (students, parents, public, etc.)
- Academic attractiveness (to potential students, staff, academic partners and funding agencies)
- Commercial attractiveness (to potential sponsors and collaborators)

Financial Perspective

- Income generation
  - selling assets
  - licensing/rights to assets
  - teaching and research
  - contracts, grants, fees, donations, etc.
- Cost saving
  - labour, time
  - space
  - direct expenditure