

JISC

Strategic
Content
Alliance

BBC

Becta

LIBRARY
HISTORIC

JISC

M L A
MUSEUM LIBRARIES ARCHIVES
COUNCIL

NHS

Sustaining Digital Resources: An On-the-Ground View of Projects Today

Ithaka Case Studies in Sustainability

Nancy L. Maron, K. Kirby Smith and Matthew Loy
With a foreword by Kevin Guthrie and Laura Brown



JISC Content

November 2009



Funders' Edition

Strategic
Content
Alliance

BBC

Becta

BRITISH
LIBRARY

JISC

MLA
MUSEUMS LIBRARIES ARCHIVES
COUNCIL

NHS

JISC, British Library, BBC, National Health Service, Becta, and Museums, Libraries and Archives Council working together to fully realise the potential of e-content for all users. For more information on the Strategic Content Alliance, please visit:

www.jisc.ac.uk/contentalliance

Sustaining Digital Resources: An On-the-Ground View of Projects Today
Ithaka Case Studies in Sustainability

Prepared by:

Nancy L. Maron, K. Kirby Smith and Matthew Loy
With a foreword by Kevin Guthrie and Laura Brown

Produced and funded by JISC, with support from the National Endowment for the Humanities and the National Science Foundation.



ITHAKA S+R

Ithaka S+R <http://www.ithaka.org/ithaka-s-r/> is the strategy and research arm of Ithaka, a not-for-profit organization dedicated to helping the academic community use digital technologies to preserve the scholarly record and to advance research and teaching in sustainable ways. The Ithaka S+R team supports innovation in higher education by working with initiatives and organizations to develop sustainable business models and by conducting research and analysis on the impact of digital media on the academic community as a whole. Insights from these efforts are shared broadly, with more than a dozen reports freely available online. JSTOR and Portico – two efforts to increase access to scholarly materials and preserve them for future generations – are also part of Ithaka.

This document is available in alternative formats which can be found at: www.jisc.ac.uk/contentalliance



This work is licensed under the Creative Commons Attribution-NonCommercial-NoDerivs 3.0 Unported Licence. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-nd/3.0/> or send a letter to Creative Commons, 171 Second Street, Suite 300, San Francisco, California, 94105, USA.

Table of contents

Foreword	4	4.4 Developing diverse revenue sources	28
Funders' Preface	6	Subscription	29
Executive Summary	9	Licensing to publishers	30
1. Introduction and background	13	Licensing to users	30
2. Methodology	15	Custom services and consulting	31
3. Sustainability beyond the numbers	18	Corporate sponsorships and advertising	31
4. Key factors for sustainability	20	Author fees	32
4.1 Dedicated and entrepreneurial leadership	20	Endowment	32
4.2 A clear value proposition	21	Grants	33
Creating value	22	Other sources of donated revenue	33
Understanding and responding to user needs	23	4.5 Clear accountability and metrics for success	34
4.3 Minimising direct costs	24	5. Conclusion and looking ahead	35
In-kind support from host institutions	24	Appendix A: Methodology	37
Outsourcing and partnerships	26	Appendix B: Case study abstracts	40
Harnessing volunteer efforts	27	Appendix C: How to read the financial data in the case studies	44
		Acknowledgements	45

Foreword

Writing about the economic sustainability of digital resources in June 2009 requires a certain sangfroid: if multinational corporations that thrived for decades can capsize in the rough waters of today's economy, what chance do the new digital resources we are most concerned with – non-profit initiatives run by academics or other content specialists as labours of love – have for long-term survival?

To be sure, the current economic downturn has hit hard, with direct and indirect impact on each and every sustainability model we discussed in *Sustainability and Revenue Models for Online Academic Resources* (2008). University endowments have fallen, triggering cutbacks in library budgets, leading to a downturn in subscription fees for resources that rely on them. Programmes with endowments or other investments of their own take a direct hit when the market falls steeply. Individual donations slow. Online advertising, though still a tantalising possibility, is still not supporting even those industries that increasingly depend upon it for survival.

But the news is not all dire. The Ithaka Case Studies in Sustainability project, sponsored by the Joint Information Systems Committee (JISC) and the Strategic Content Alliance in the UK and by the National Endowment for the Humanities (NEH) and the National Science Foundation (NSF) in the US, allowed us to take an on-the-ground look at just how the leaders of digital initiatives are managing their businesses. Rather than focus only on methods for generating revenue, we sought to capture a fuller range of the activities carried out by projects today to develop creative strategies for both revenue generation and cost management. We found that projects are experimenting with and have deployed a wide range of revenue generating models while at the same time finding ways to minimise their direct outlays by reducing the scope of their work or by taking advantage of opportunities for assistance and subsidy from host institutions and outside partners.

So, at this stage of their development, most of the projects covered in this collection of case studies rely on a mix of generated revenue and host support. While a couple of them have been around long enough to demonstrate financial viability, for most of the cases we studied it is too early to tell whether the mix of sustainability strategies employed will succeed over the long run. To some degree, many of these projects have a major benefactor in the form of their host institution, and they must make the case for the importance of their activities to fulfilling that institution's broad organisational mission. To what extent is this a reliable sustainability strategy for a project leader? To what extent are parent organisations failing to realise how much these projects really cost to run? Future work might examine ways to assess the risk or reliability of various revenue and cost strategies, in order to better guide project leaders in assembling not just individual revenue models, but a diversified portfolio of organisational support that, much like a carefully managed financial portfolio, reduces the risk associated with over-reliance on a single approach.

In the description of these cases, we have attempted not just to uncover the mechanics of a project's financial model, but also to illustrate the choices that its leaders made, and the evolutionary stages that brought the model to where it is today. Typical questions project leaders have faced include: how were decisions made to outsource a particular area of activity? If we try to generate revenue from the resource, do we have the expertise on staff to accomplish this, or will we need to bring in others who do? What mix of revenue sources will provide us with the reliable revenue we need to operate and grow into the future?



It is impossible to draw definitive conclusions from digital initiatives that are very much works in progress. There is much to admire in the visionary leadership, entrepreneurial spirit, community values and community support that emerges from these stories but there is also cause for concern that those same community values can starve investment and tie projects to sources of support that are tangential to the benefit they generate for their users, and therefore potentially less dependable.

We hope that in assembling these stories about digital resources, the choices their leaders make and some outcomes, we have provided a set of data that that others will pore over, study, criticise and even build upon. Indeed, while preparing these case studies, each profile was the subject of a lively in-house group discussion, with colleagues kicking the tires, challenging assumptions and debating each other on the virtues and shortcomings of each of the models presented.

This rewarding, if arduous, process suggests something else to us, too. There really are no right answers here, no rule book with clearly indicated steps from A to B (no less to Z). We hope that when you read the report, and the cases that it is drawn from, you find yourself scrawling in the margins and yelling at the text 'How could they do that?', 'What a brilliant idea!', 'Will this method cause problems for them later?', 'Note to self: try this tomorrow'. We hope that substantive annotations will be added by you, the community for whom this report holds some interest.

In this light, we should add that feedback from project leaders, funders and others who attended our peer review sessions on this work from December 2008 through May 2009 suggested that there are still other types of examples needed, among them multi-institutional partnerships, more failure cases and projects from other countries. While we hope, over time, to be able to expand the types of cases profiled, and even revisit some of the ones we have profiled here to see how they are faring, in the end we expect that the greatest value of these cases will come from people in the community discussing and debating them in meetings, at workshops, on our website and wherever the conversation about digital resource sustainability is taking place. Finding a reliable and ongoing means to support the creation and evolution of digital resources will take the combined efforts of all those who care about their survival, so the more voices at the table, the better.

We look forward to continuing this conversation with you.

Kevin Guthrie
President, Ithaka

Laura Brown
Executive Vice President, Ithaka S+R

Funders' Preface

It's a familiar story: a team of scholars or librarians applies for and receives grant funding to build a digital resource, then develops valuable content that attracts an audience of appreciative and interested users. Eventually, however, the end of the grant arrives and the money runs out. The Ithaka Case Studies in Sustainability project explores what happens next. The latest in a series of projects Ithaka S+R has undertaken to understand the challenges associated with sustaining and increasing the viability of these projects, a set of 12 case studies examines how leaders of not-for-profit digital resources plan for and implement alternative sources of financial support in advance of when their initial grants end. This issue has many stakeholders, from the scholars and other content experts who devote time and energy to creating digital materials, to the host institutions, which may be donating office space, staff time, or other support to the enterprise, to the audience of those who may have come to appreciate and rely upon the resource itself, to the funding bodies who finance the start-up phase. For the government agencies and private foundations that devote millions to the creation of new resources, the question is especially acute: funders want their investments to lead to long-term positive impacts, and digital resources require a level of ongoing care, development and enhancement that few funders can or want to support indefinitely.

Of course not all grants made by foundations and government agencies need to be sustainable. There are many research initiatives that are intended from the start to have a beginning, middle and a natural end, resulting in perhaps an article, a book, a set of data, or a published report. For another set of grants, however, the timeframe is much more open ended: digital resources may involve content and technology that continue to develop and attract an audience of users who come to rely upon it. Still other cases may begin as experiments, but develop into valuable resources that will continue to grow and require support. These dynamic projects require sustainability strategies to ensure that the content developed is not lost, but rather, continues to grow in value over time.

Since 2007, Ithaka has been researching the factors that influence the financial sustainability of digital resources in the academic and cultural sectors. The report *Sustainability and Revenue Models for Online Academic Resources* (Guthrie, Griffiths and Maron, 2008) highlighted the mindset shifts needed for those in the academic sector, in particular, to develop robust sustainability strategies in the context of an increasingly competitive online environment. The report also offered descriptions of several revenue models, explaining the risks and opportunities inherent in each. Ithaka Case Studies in Sustainability, sponsored by the Strategic Content Alliance and JISC in the UK, with additional support from the National Endowment for the Humanities and the National Science Foundation in the USA, takes this research to the next level, delving in to examine the projects themselves and the tactics their leaders are implementing – from digitised fragile historical materials based at a university library, to Open Access audio-visual content at a national archive, to a user-contributed database of bird sightings developed at an academic lab.

The case studies explore the range of revenue models being pursued by these initiatives – subscriptions, content licensing, author fees, corporate sponsorship, endowment and more – and also examine the other methods that project leaders use to secure financial support, whether in the form of additional innovation grants or in-kind contribution from a host institution. In addition, the summary report, *Sustaining Digital Resources*, looks across the series of cases to identify five key factors that contribute to a project's sustainability: 1) innovative and entrepreneurial leadership; 2) a strong value proposition; 3) strategies to control costs and generate revenue; 4) meaningful accountability; and 5) feedback loops.



Nearly all of the not-for-profit digital projects profiled in the case study project had received significant grants or governmental subsidies at the start-up phase, suggesting that funders might be particularly interested to learn about the ways that some grant-funded projects are managing to sustain their impact after direct funding concludes. In conversations and meetings with programme officers at a variety of international foundations and agencies in summer 2009, Ithaka has sought to learn more about the challenges funders face in encouraging long-term sustainability in the projects they support. These discussions underlined the concerns that funders have regarding the best way to sustain these projects, whether at the project level, by bolstering the skills of individual leaders, at a higher, system-wide level, through seeking out economies of scale and opportunities for collaboration across projects, to considering how to build in expectations of sustainability when proposals are first evaluated.

For those funders who seek to encourage and empower project leaders to take early action in devising sustainability plans, we hope that this series of 12 cases will provide valuable information as well as useful examples that will serve as a source of ideas for the projects they encounter. The commercial partnerships that fund digitisation at The National Archives, or the software franchising that helps support eBird, for example, may spark the imagination or serve as useful models of ways to leverage the diverse sources of value a project may have. We also hope that there are lessons to be learned from those projects that are not faring so well. Where a project appears to be struggling, to what extent could this have been avoided with sufficient planning? Could elements of a plan have been stronger, with benefit of more research in the planning stages?

These case studies can provide valuable guidance for those looking to craft strong sustainability strategies for digital resources, and yet for funders, this set of 12 examples may raise as many questions as it answers. Project leaders we spoke with define 'sustainability' in different ways, from generating enough earned revenue to fund independent operation, to relying entirely on a host institution for support. Most projects locate 'sustainability' somewhere between these two poles, generating some earned revenue to supplement grants and contributions-in-kind from a host institution; none of the not-for-profit projects we studied generates enough revenue to support themselves as independent, stand-alone organisations. Which of these definitions is most desirable and realistic? Should every project be required to generate all the revenue needed to operate their resources as independent entities? If not, how much and what kind of support should host institutions be expected to provide? Should digital projects that are vital to a small community, but which do not have a significant 'market' to be monetised, be held to the same standard as projects with more revenue-generating opportunities? And, how can funders and institutions determine which services or resources can and should generate independent revenue to support themselves, which should be operationalised or supported through continued philanthropic funding, and which should be discontinued? Is focusing on improving the prospects of each individual project even the best approach, or could more lasting change be effected by looking for solutions at the system-wide level?

Furthermore, what can funders do to influence long-term outcomes in this space? Often, sustainability plans are not fully implemented until after a grant – and the funder's opportunity for direct influence on outcomes – concludes. As one programme officer told us, 'sustainability is really meaningless (to project leaders) during the grant period, and that is the period during which they are required to report (back to us).' Even when sustainability plans are required in the proposal, firm benchmarks or milestones rarely exist to ensure that the project is making measurable progress towards sustainability during the course of the grant. Few funders seem to have formal mechanisms in place for tracking the impact or other measures of success or impact of the projects they fund.

It would seem, then, that funders must try to influence sustainability outcomes at the earliest stages of project selection and development. With good reason, many funding bodies currently base their grant-making decisions primarily on the intellectual merits of a project, and several report that the project's potential reach and impact are important factors as well. Yet, the likelihood of long-term sustainability of a project (a critical element in assuring ongoing reach and impact) is less often a critical part of the proposal evaluation process. This can have problematic consequences for digital projects, which, by their nature, require ongoing investment to preserve their intellectual assets, in a way that projects with more traditional print-based outputs do not. However, as demonstrated by case studies of projects such as the Stanford Encyclopedia of Philosophy and Electronic Enlightenment,



when funders actively encourage young projects to think about and demonstrate concrete, specific progress towards long-term financial sustainability, it can provide project leaders with the impetus to develop strategies that begin more independently to cover ongoing costs while finding innovative ways to serve the user community.

It is also important to note the ways in which funder requirements, expectations and decisions shape the landscape of options available to project leaders to support the resources they develop. For example, Open Access mandates often preclude the option to charge for access to content. These case studies provide examples of how different projects have creatively reconciled mission-related access requirements with revenue imperatives. The Thesaurus Linguae Graecae (TLG) makes a limited number of texts – particularly those of broad interest to secondary schools or introductory college classes – freely available, while gating access to the content required by scholars. The Victoria and Albert Museum picture licensing division, V&A Images, waives licensing fees for most academic and scholarly uses of its content, while charging for most commercial and mass-market applications, and the French Institut national de l'audiovisuel provides thousands of hours of video content free online, while also offering paying services to the professional market and the general public.

These case studies, taken in aggregate, provide a wealth of data – from project histories and leadership strategy, to hard data about costs and revenues – that we hope will encourage active discussion and debate about the best ways to address the problem of financially supporting digital resources over the long term. The information they contain may help to elucidate the choices project leaders can explore concerning revenue generation and other means of supporting their resources, and point towards new ways – from improving the business planning skills of project leaders, to encouraging approaches that leverage economies of scale – that funders may be able to influence sustainability outcomes. The case studies provide no easy answers about how not-for-profit digital resources can achieve sustainability, but it is our hope that, at least, they help our community better to understand the important questions that must be asked.

Executive Summary

The past decade has witnessed a rush to create digital content in the not-for-profit sector, as organisations from a wide range of communities — from cultural heritage, to health care, to education and scholarship — have come to embrace the internet as a means to publish, collect, distribute and preserve the fruits of their work. Despite the great value of the content being entrusted to a digital format, the business models that will ensure long-term access to and preservation of this material are still unclear.

In this context, understanding how successful sustainability plans are developed is especially important. The Ithaka Case Studies in Sustainability project closely examined the business models of 12 digital projects, resulting in a set of 12 detailed case studies. The summary report *Sustaining Digital Resources: An On-the-Ground View of Projects Today*, published in July 2009, serves as a guide to the cases and outlines the key factors that can help project leaders in developing robust plans for financial sustainability.

With the support of the UK Joint Information Systems Committee (JISC), the US National Endowment for the Humanities and the US National Science Foundation, Ithaka selected a range of projects to illustrate the various business models being employed today. Building on the Ithaka report *Sustainability and Revenue Models for Online Academic Resources* (2008), which examined key mindsets needed to run a digital project, as well as detailed descriptions of the success drivers and challenges of several revenue models, this new work focuses on how project leaders today are implementing these models, including advertising income, author fees, content licensing, corporate sponsorship, endowment, memberships, subscriptions, premium services and more. How did project leaders define their organisational mission and their sustainability goals? What steps did they take to build business models that generated revenue and controlled costs, while also serving users? What contributed to the success of different models, and what challenges were encountered?

Key Findings

Sustaining Digital Resources: An On-the-Ground View of Projects Today highlights several findings that emerged from the case study work regarding how sustainability planning manifests itself in different projects and organisations:

- **While the report advances a definition of sustainability, there is no clear consensus, even among the 12 projects and organisations studied, of what sustainability is or how to achieve it.** In the report, the authors offer this definition of sustainability: 'Sustainability is *the ability to generate or gain access to the resources — financial or otherwise — needed to protect and increase the value of the content or service for those who use it.* A sustainable project covers its operating costs through a combination of revenue sources and cost-management strategies and continues to enhance its value based on the needs of the user community.' Still, there appears to be great variation among projects in terms of the mix of revenue generating and cost-reducing measures, the depth of reliance on a host institution, and the interpretation of just what it means to develop a resource that responds to user needs.



- **Tension between wanting to share content widely while also needing to generate funds to support the resource was present in all of the cases studied.** Many (though not all) of the projects that charge for access to their content also manage to incorporate elements of Open Access (OA) into their models – by making a subsection of the content freely available to everyone, for example. In those cases, careful business planning is required to ensure that these OA elements do not cannibalise the revenue-generating strategies that help ensure a project’s future.
- **Projects are experimenting with a wide range of creative strategies to earn revenue, though this is just one of multiple strategies they use to cover operating costs.** From subscription, to licensing out content, to offering premium services on free content, we observed many creative business models at work. Many combine earned revenue strategies with other sources of support, including grants and support from host institutions. Virtually none of the not-for-profit projects or organisations we profiled earned enough revenue to operate independently of these supplemental sources of funding.
- **Cost control strategies were at least as important as revenue models in the sustainability plans of the organisations we profiled.** Of particular interest were the partnerships that many projects established to allow them to benefit from the skills and scale of others by outsourcing or sharing responsibility for functions that the projects were not well-positioned to perform.
- **The role of in-kind contributions from the host institution was often significant.** Many projects receive a great number of in-kind contributions from their host institutions, ranging from rent and utilities, to IT support, to the unplanned-for contributions of staff time. We found that in many cases, neither project nor host institution is fully aware of the value of these ‘hidden costs’, which could lead to inefficiencies at scale.

Factors influencing sustainability

In seeking to implement their sustainability goal — whether to generate part or all of their costs of operation — certain key factors appeared to be instrumental in achieving these goals. The report outlines five major steps that projects with the most robust sustainability plans were carrying out. These include:

- **Dedicated and entrepreneurial leadership.** While not all leaders of not-for-profit digital resources may have 100% of their time to devote to them, a certain passion and tireless attention to setting and achieving goals is critical to success. A willingness to experiment in this fast-moving digital space and knowing when it is necessary to look outside the organisation to find the requisite expertise for specialised tasks are also important.
- **A clear value proposition.** While many not-for-profit digital resources can claim to be of excellent quality and of general importance to their field, those with the greatest impact are the ones whose leaders have a deep understanding and respect for the value their resource contributes to those who use it.
- **Minimising direct costs.** By securing contributions from a host institution, outsourcing work through external partnerships and working with volunteers, digital resources manage to significantly reduce their direct operating expenses. While the host contributions in particular play a large role, they are rarely explicitly quantified. This fuzzy accounting clearly serves the projects well in the near term, but can raise questions about the reliability of the contributions in difficult economic times.
- **Developing diverse sources of revenue.** Even with generous contributions from a host institution, and other successful cost-minimising measures, leaders of digital projects often turn to revenue generation as a means to fund ongoing operations as well as upgrades needed to keep the resource vital to its users. As revenue models online continue to morph and change, experimentation can help projects determine the best fit for their resource, that leverages the value of the resource, while remaining true to its mission.



- **Clear accountability and metrics for success.** While all of the above is important, without clearly established goals and the means to assess progress toward those goals, sustainability may be difficult to achieve. And not all measures of success need be financial; we observed many digital resource projects with mission-related goals. By establishing these targets, reaching them and communicating this to stakeholders, leaders of digital projects are better able to secure the support they require.

While each project will need to determine the best combination of revenue sources and cost-management measures based on its mission, history and environment, it seems clear that projects that focus on the value of their content to end-users and the strength of their financial model are best-positioned for long-term health.

Ithaka Case Studies in Sustainability

Each of these 12 case studies is based on interviews with key project stakeholders and analysis of supporting documentation and illustrates the strategic choices project leaders make when balancing mission and revenue goals in support of long-term sustainability. Each case also includes financial data, an examination of cost-control and revenue-generating strategies, and an analysis of the steps a project has taken to understand and meet the needs of its core groups of users. The case studies do not attempt to predict whether a particular project or initiative will succeed over the long term, but instead highlight the strengths and risk factors associated with different sustainability models, in order to help other project leaders identify areas of opportunity or caution to consider in their own work.

Case study subjects were selected from a pool of over 90 candidates to represent a range of revenue models, governance structures and geographic diversity. The digital projects and organisations profiled include, in alphabetical order:

BOPCRIS Digitisation Centre, Hartley Library, University of Southampton (UK)

A university library-based digitisation centre experimenting with public-private licensing partnerships to help it plan for the long-term preservation of digitised content.

Centre for Computing in the Humanities (CCH), King's College London (UK)

A degree-granting academic department supporting research projects in the digital humanities that diversifies its government and institutional funding through outside research grants and consulting fees.

DigiZeitschriften, Göttingen State and University Library (Germany)

An archive of German-language scholarly journals supported by a library partnership model and institutional subscriptions.

eBird, Cornell Lab of Ornithology, Cornell University (USA)

A web-based database that captures millions of amateur bird-watcher observations each year for use by researchers, pursues a range of entrepreneurial activities and demonstrates a keen understanding of its users.

Electronic Enlightenment (EE), Bodleian Library, University of Oxford (UK)

A collection of 18th-century correspondence that transitioned from a grant-funded project at a foundation to a subscription-based product embedded in a university library and partnered with a university press for distribution.

Hindawi Publishing Corporation (Egypt)

A for-profit publishing company that provides an example of rapid innovation and quick response to market demand to deliver Open Access content via an author-pays model.



Inamédiapro and ina.fr, L'Institut national de l'audiovisuel (France)

Divisions within the National Audiovisual Institute that demonstrate revenue generation through rights licensing (Inamédiapro) and finding an appropriate balance between Open Access and a range of innovative revenue-generating models on the public website www.ina.fr.

Licensed Internet Associates Programme, The National Archives (UK)

An initiative within The National Archives (TNA) that has worked with commercial partners to digitise over 80 million pages of archival documents and make them available online in just four years.

Math and Science Middle School Pathways Portal, National Science Digital Library (USA)

A programme funded by the National Science Foundation to improve discoverability of resources for middle-school maths and science teachers, now considering possible ways to transition from government grant funding when its support ends in 2011.

Stanford Encyclopedia of Philosophy (SEP), Stanford University (USA)

An online Open Access encyclopedia with user-contributed content that has developed a community of advocates to build an endowment, supplemented by contributions from its host institution.

Thesaurus Linguae Graecae (TLG), University of California, Irvine (USA)

A digitised collection of ancient Greek texts, whose project leaders have developed – over the course of 40 years – a hybrid economic model consisting of subscriptions, university funding and an endowment.

V&A Images, Victoria and Albert Museum (UK)

A department of the Victoria and Albert Museum's commercial trading company that licenses photographs of objects in the museum's collection for commercial, educational and personal use.

We hope that through learning about the benefits and challenges of a variety of sustainability approaches, project leaders and other stakeholders will become better able to assess the health of their own projects, to use the tools and strategies available to them to maximise their project's value to the community, and to capitalise on all the options available for their support. While the case studies pay special attention to the role of the project leader and other on-the-ground staff directly responsible for determining and implementing sustainability strategies, this work may also serve as a rich foundation for further discussion among funders, policy makers, institutional leaders, and others in our community concerned with ensuring long-term access to and preservation of the valuable digital content being created by projects today.

1. Introduction and background

The past decade has witnessed a rush to create digital content in the not-for-profit sector, as organisations from a wide range of communities – from cultural heritage, to health care, to education and scholarship – have come to embrace the internet as a means to publish, collect, distribute and preserve the fruits of their work. The range of projects now living on the web is breathtaking – from a site housing one scholar’s passion for crop yields in medieval England to massive government-sponsored national archives – but the business models that will enable long-term access and preservation are still unclear. Despite the great value of the work being entrusted to a digital format – and the substantial investments that foundations, universities and government funders have made – basic issues of continued cultivation and long-term accessibility of the content have yet to be assured for many of these projects.

The for-profit sector provides a cautionary tale for those looking to sustain not-for-profit digital resources. If the bursting of the dot-com bubble can be shrugged off as a necessary market correction, the shifts we are witnessing in 2009 are more troubling, as the emergence of the web-based economy has started to undermine more well-established businesses, such as the newspaper industry. Revenue models that worked for decades in print have not made an easy transition to the internet, and the commercial world is scrambling to develop new business plans to support existing operations. The not-for-profit community must similarly realise that old models – dependence on foundation support and institutional largesse – are unlikely to be reliable over the long term. As government, foundation and university budgets tighten, helping projects develop sound sustainability plans becomes more critical than ever.

In a multi-phase programme that began in late 2007, Ithaka studied the factors influencing the sustainability of not-for-profit digital resources. In a report issued in 2008, *Sustainability and Revenue Models for Online Academic Resources*¹, we examined factors that leaders of online initiatives face when developing sustainability plans for their content-based projects. The report presented overall guidelines for leaders to consider, as well as detailed descriptions of the success drivers and challenges for a range of different revenue models. In two workshops held in London and New York in the spring of 2008, Ithaka staff met with project leaders, programme officers at foundations and library administrators to discuss the report’s findings. A strong consensus emerged that the framework and guidelines would be even more useful if tested against real-world examples illustrating the range of theoretical business models the report described. While *Sustainability and Revenue Models* presented the theory, readers wanted to see how the models were working in practice. How did project leaders define their mission and revenue goals? What steps did they take to develop revenue-generating and cost-management strategies? How did these align with the organisations’ missions? To what extent were certain models successful, and how did project leaders define that success? Where were they running into problems?

Based on the community’s interest in seeing concrete examples, we embarked on an exploration of the sustainability models of 12 selected digital resources. Our goal is to help illuminate the ways in which the general principles outlined in the first report play out in the real world, as well as to highlight lessons for leaders of other digital projects and other stakeholders in the community. Of

¹ Kevin Guthrie, Rebecca Griffiths and Nancy Maron, *Sustainability and Revenue Models for Online Academic Resources: An Ithaka Report* (May 2008). Available at http://www.ithaka.org/strategic-services/sca_ithaka_sustainability_report-final.pdf.



course, there is no formula that will guarantee a project's sustainability, but as these case studies demonstrate, there are certain steps that leaders can take to maximise the value a project creates and to leverage that value to better position a resource for success.

It is our hope that by examining in detail the strategies different project leaders have adopted and the processes by which these strategies evolved, we are not just presenting our understanding of these models, but are also developing and sharing data for those in the community to assess and analyse. While the case studies pay special attention to the role of the project leader and others directly responsible for determining and implementing the strategies, we hope that this work will also serve as a rich foundation for further discussion among funders, policy makers, institutional leaders and all those interested in the important questions raised here.

2. Methodology

With the support of the UK Joint Information Systems Committee (JISC) and the Strategic Content Alliance (SCA), the US National Endowment for the Humanities, and the US National Science Foundation, Ithaka S+R set out to identify a range of projects that would illustrate the business models we outlined in the initial report, including models drawing on advertising income, author fees, content licensing, corporate sponsorship, endowment revenue, memberships, subscriptions and premium services. We also sought projects with leaders who were willing to share details about the inner workings of their organisations and the challenges of developing a sustainable model.²

Additional factors came into play during the selection process as well. We aimed for diversity across the cases in terms of geography, sector, discipline, scale and content type (ie text, data, still images, audio and video). We explored projects in different organisational settings: some projects were completely independent entities, some were discrete projects embedded in or hosted by institutions, and some were separate departments in large organisations, or in some cases, particular initiatives within a department.

Ithaka S+R conducted preliminary reviews of nearly 90 organisations before selecting the 12 digital projects that are the subjects of the case studies and of this report.³ Because our goal was to highlight the issues involved in the implementation of a sustainability model, including its risks and rewards, we specifically targeted projects that had been in existence long enough to have a track record using their selected revenue model, with measurable results. (Although in researching possible objects for study we came across many interesting or promising models in early stages, in many cases these plans had been put in place so recently that results would not be easy to gauge.) Another important criterion was willingness to participate. Not all those approached were interested in offering their project as the subject of a case study, some for reasons of time, but more often for reasons of privacy. Even when a project leader agreed to participate, some information was unavailable due to non-disclosure agreements or other factors.

In researching each case, the Ithaka S+R team began by interviewing a primary representative of the organisation, such as the principal investigator of the project, the library director or the head of the department managing the resource.⁴ These initial meetings and our own research led us to other interviewees within and beyond the organisation. Seeking to develop as full a picture as possible, we interviewed stakeholders from outside the organization to learn more about the project's relationships with its users, funders, subscribers and partners. As often as possible we conducted interviews on site and in person, although in some cases they were conducted on the phone. Initial interviews of 60–90 minutes were followed up as needed via phone and email and by a final fact-checking process. The interviews were supplemented by an examination of relevant documents such as annual reports, strategic plans and grant reports, as well as any press that might relate to a project.

² For a more detailed discussion of methodology, see Appendix A.

³ See Appendix B for short descriptions of each case study.

⁴ Complete lists of those interviewed are found at the end of each individual case study as well as in the Acknowledgements.



The case studies, completed in May 2009, are a hybrid of narrative and analysis.⁵ Introductory sections present the history and context of the project and outline its sustainability goals and methods. A section on key issues explores those factors that appear to have had a strong impact on the success of the sustainability model the project employs – for example, how the project leaders understand their users, communicate the value of the project to others, and seek to innovate and experiment in order to grow. Additional sections assess the benefits and the challenges of the particular sustainability path the project has chosen to follow, in terms of meeting the goals the project has set for itself and the extent to which that path might serve as a useful exemplar for others. A final section highlights the broader implications of the findings from the case, underlining the general lessons that other project leaders might want to consider for themselves. The analysis does not focus on ranking different sustainability models, nor on making predictions about whether a particular project will or will not succeed over the long term. Instead, we highlight the strengths and risk factors associated with different models in order to help inform other project leaders of important issues to consider in their own work.

The final roster of projects and organisations we studied includes, in alphabetical order:

BOPCRIS Digitisation Centre, Hartley Library, University of Southampton (UK)

A university library-based digitisation centre experimenting with public–private licensing partnerships to help it plan for long-term access to and preservation of its digitised content.

Centre for Computing in the Humanities (CCH), King’s College London (UK)

A degree-granting academic department supporting research projects in the digital humanities that diversifies its government and institutional funding through outside research grants and consulting fees.

DigiZeitschriften, Göttingen State and University Library (Germany)

An archive of German-language scholarly journals supported by a library partnership model and institutional subscriptions.

eBird, Information Science Department, Cornell Lab of Ornithology, Cornell University (US)

A web-based database that captures millions of amateur birdwatcher observations each year for use by researchers, pursues a range of entrepreneurial activities, and demonstrates a keen understanding of its users.

Electronic Enlightenment (EE), Bodleian Library, University of Oxford (UK)

A collection of 18th-century correspondence that transitioned from a grant-funded university-based project at a foundation to a subscription-based product embedded in a university library and partnered with a university press for distribution.

Hindawi Publishing Corporation (Egypt)

A for-profit publishing company that provides an example of rapid innovation and quick response to market demand to deliver Open Access content via an author-pays model.

Inamédiapro and ina.fr, L’Institut national de l’audiovisuel (France)

Divisions within the National Audiovisual Institute that demonstrate revenue generation through rights licensing (Inamédiapro) and finding an appropriate balance between Open Access and innovative revenue-generating models on the public website (www.ina.fr).

Licensed Internet Associates programme, The National Archives (UK)

An initiative within The National Archives (TNA) that has worked with commercial partners to digitise over 80 million pages of archival documents in just four years, and make them available online.

⁵ The 12 case studies are available here: <http://www.ithaka.org/ithaka-s-r/strategic-services/ithaka-case-studies-in-sustainability/case-study-abstracts>



Middle School Portal 2: Math and Science Pathways, National Science Digital Library (US)

A programme funded by the National Science Foundation to improve discoverability of resources for middle-school maths and science teachers, which is considering possible ways to transition from government grant funding when its support ends in 2011.

Stanford Encyclopedia of Philosophy (SEP), Stanford University (US)

An online Open Access encyclopedia with user-contributed content that has developed a community of advocates to build an endowment, supplemented by contributions from its host institution.

Thesaurus Linguae Graecae (TLG), University of California, Irvine (US)

A digitised collection of ancient Greek texts whose leaders have developed – over the course of nearly 40 years – a hybrid economic model consisting of subscriptions, university funding and an endowment.

V&A Images, Victoria and Albert Museum (UK)

A department of the Victoria and Albert Museum's commercial trading company that licenses photographs of objects in the museum's collection for commercial, educational and personal use.

3. Sustainability beyond the numbers

Whether a project is 'sustainable' or not depends entirely on how sustainability is defined. Many of the projects we studied are able to cover their direct costs through a range of revenue-generating strategies. Of these, however, few would be able to develop and maintain their resource independently, without the contributions of their host institutions – contributions that may leave those projects vulnerable to budgetary decisions beyond their control. Others, while meeting their costs, run on budgets so low that their continued growth and development may be impeded. At the same time, we saw some cases that were not entirely recouping their costs but that appeared to be extremely vibrant, demonstrating value to their users and continuously testing or modifying their revenue models. How, then, do we define sustainability, if it is not simply through financial performance?

In *Sustainability and Revenue Models for Online Academic Resources* (2008), we defined sustainability as 'having a mechanism in place for generating, or gaining access to, the economic resources necessary to keep the intellectual property or the service available on an ongoing basis.'⁶ This definition suggests that project leaders ought to seek to cover the costs of the tasks essential to the development, support, maintenance and growth of their projects. While this is true, this series of case studies suggests that the ways in which this occurs are often highly complex.

From a financial perspective, the sustainability plans we observed rarely incorporated only a single approach; they were hybrid strategies involving a variety of revenue-generating and cost-control techniques working in concert. While economic resources are obviously critical, and while the digital projects we studied demonstrated many creative revenue models, equally remarkable was the range of strategies they had adopted for managing the direct costs of developing the resources through a reliance on volunteer labour, partnerships and in-kind contributions.

Furthermore, sustaining the value of the resource requires more than just 'keeping the lights on'. As new technologies develop and user expectations shift and grow, a resource risks fading slowly into irrelevance if it does not constantly grow and innovate in ways that continue to benefit its constituents. Not doing this, in the most extreme cases, can result in a resource becoming inaccessible. More often, though, a static resource will lose value over time. Not only does this diminish the ability of the project to achieve its mission, but also the declining usefulness of the resource will make it even more difficult to generate the revenue needed to sustain a minimal level of activity. Project leaders must devote time and resources towards enhancing the value of the project and developing financial strategies to ensure that it will continue to offer value to the community over the long term.

With this in mind, we propose a new, more nuanced definition: *sustainability is the ability to generate or gain access to the resources – financial or otherwise – needed to protect and increase the value of the content or service for those who use it.* A sustainable project covers its operating costs through a combination of revenue sources and cost-management strategies and continues to enhance its value based on the needs of the user community. Covering operating costs is necessary but hardly sufficient: a project must not only meet the financial criteria required to cover these costs, but must also demonstrate ongoing development of the resource itself. Not all of the resources required to do this are strictly financial; non-financial resources may be quite important, too. A cadre of professors who contribute and edit content or the presence of a strong and vocal community of advocates, for

⁶ Guthrie, Griffiths and Maron, *Sustainability and Revenue Models*, 18.



example, can play a vital role in the long-term success of a resource. When a project creates real value for users, its leaders are likely to have at their disposal a richer array of tools when assembling a strategy for leveraging that value to both its direct and indirect beneficiaries.

As in the 2008 sustainability report, we do not attempt to prescribe which revenue models projects should rely on, whether a resource should be Open Access or have gated content, or which categories of costs a project should be prepared to pay for directly. These variables will differ for every project based on its mission, history and environment. Strategies that are plausible for one project – a reliance on ongoing cash from a host institution, for example, or the use of volunteer labour to lower the costs of creating content – may not be replicable in every case. Each project will need to determine the combination of revenue sources and cost-management measures that suits it best.

There is no simple formula to determine whether or not a resource will succeed – all the projects studied in this series have different strengths and risk factors, and all are continuing to evolve. Still, we believe that evaluating projects in terms of the value of their content to end-users and the strength of their financial model can provide clues about the prognosis for their long-term health. Through learning about the strengths and weaknesses of a variety of projects, we hope that project leaders and other stakeholders will become better able to assess the health of their own projects, to use the tools and strategies available to them to maximise their project's value to the community, and to capitalise on all the options available for their support.

What does it take to build and operate a digital resource?

The operation of a digital resource is a complicated task involving the coordination of several different types of activities. Projects may need to focus on these functions to varying degrees at different phases of their life cycle, as they move out of a start-up phase and into ongoing maintenance and development. Grouped broadly, these essential functions include:

- *Project management and administration*, including goal setting, strategic planning, staff management, report writing and other activities
- *Content development*, including content selection and rights evaluation, content creation (and any relevant digitisation), metadata generation and quality control
- *Technological infrastructure*, including code maintenance and bug fixes, major redevelopment and feature enhancement and IT/user support
- *Revenue generation*, including business planning; marketing, sales and other outreach activities; grant writing (where applicable); and billing and account management

Many of these functions are tasks that can be accomplished by project personnel, so it is unsurprising that staff was the largest category of expense for nearly every project we examined. It is also worth noting, however, that performing these activities may entail significant costs that are not staff-related. These include:

- *Hardware and software*, including servers, systems administration programs, software maintenance contracts, internet bandwidth, digitisation equipment and personal computers for project staff
- *Overheads*, including rent, utilities, financial and human resources services, and basic office expenses
- *Miscellaneous expenses*, such as staff travel and marketing materials

All of these activities and infrastructure create up-front and ongoing costs that successful projects must find ways to cover. In their early years, many of the projects in our case studies covered these costs primarily through a significant investment of time and money, often from grants. Over the long term, however, project leaders must find different ways to ensure that these activities will continue. Since very few projects can rely on the perpetual largesse of a philanthropic organisation or parent institution to cover all their costs, their leaders must develop financial sustainability models that are less subject to the whims of a single funding source.

4. Key factors for sustainability

Across this group of case studies, we found that projects that have made the most progress in developing successful sustainability strategies tend to pay attention to a set of core critical factors. They empower project leadership to set and achieve goals; they craft a strong value proposition by understanding and responding to user needs; they establish relationships that lower the costs the project must bear; they cultivate sources of revenue to cover direct expenses; and they establish systems of measurement and accountability. Not all of the projects studied excel in every area. By assembling the best practices of each, however, we hope to present a composite profile of how projects are trying to work towards sustainability today. Below, we discuss each of these key factors, highlighting notable examples from the case studies that demonstrate the approaches projects have taken to achieve success.

4.1 Dedicated and entrepreneurial leadership

What sustainable projects do:

Empower a project leader or a management team to define and articulate the mission of the project and the steps needed to reach goals.

How they do it:

Select leaders and key staff with requisite experience; clearly communicate mission and goals of the organisation; and create an atmosphere that encourages an entrepreneurial spirit, including a willingness to test new ideas.

In *Sustainability and Revenue Models* (2008) we emphasised the importance of a creative, entrepreneurial mindset in developing sustainable digital resources. This collection of case studies demonstrates the importance of having committed leaders in place. Leaders lay the groundwork for success by identifying and communicating the core value proposition of the resource, developing strategies to secure its financial health, and continuously revisiting and developing the resource's content and services.

While dedicated leadership is important to a project, this does not always mean that its leaders are assigned to spend 100% of their time focused on the resource. While at larger organisations a project leader may be a manager who spends all of his or her time running the resource, we saw many other project leaders, particularly those at academic institutions, splitting their time among several responsibilities, including research and teaching.⁷ More important than the percentage of time spent on a project was the leader's passion and tireless attention to setting and achieving goals and his or her ability to serve as a creative problem solver and chief advocate of the resource.

⁷ Of our 12 profiled projects, only in four cases were members of the project management team committed to the project full-time, and these four projects were developed in the context of heavily staffed organisations. In the eight other projects, management duties were often allocated by a host institution at between 0.5 and 1.0 FTE.



Even if it is not possible to have one person fully allocated to management of the resource, having staff with the needed expertise in key positions is important. We saw several cases – the National Archives’ licensing programme, the Victoria and Albert Museum’s V&A Images division, and eBird, for example – where staff had been recruited from outside the organisation, sometimes from the private sector, in order to provide leadership on new initiatives that required skills and capabilities not possessed by staff in the organisation.

Among the traits that appeared most often among the leadership of the more robust projects we studied was an entrepreneurial mindset: leaders are keenly aware of the rapidly changing landscape, understand and embrace the need to experiment with content and revenue models, and are willing and prepared to change course as the situation warrants. In *Sustainability and Revenue Models* (2008), we stressed the importance of creating an environment for creativity and risk-taking, pointing out that since there is no magic ‘rule book’ for online projects, experimentation is often the only way to see what works best. The University of Southampton’s Hartley Library is currently testing several different licensing agreements to provide for long-term hosting and access to the content their BOPCRIS unit has digitised. Hindawi Publishing Corporation, a for-profit company, provides another example; before committing to a new journal, they test a concept by offering a topic-oriented special issue of an existing journal and measuring interest by the number of submissions. The public, Open Access website of L’Institut national de l’audiovisuel, www.ina.fr, serves as a test bed for different revenue strategies the publishing group decides to try. Obviously, not all projects can engage in a large number of experiments – for a resource with 2.0 full-time employees (FTEs), even a small experimental project can eat up a large portion of the overall staff time available. What we *did* observe, however, is the willingness of project leaders and staff to be nimble and open to change.

While projects based at large organisations may have a deep bench of talent to draw from as a project evolves, many projects created and led by a small group of individuals, such as academics at universities, face a different sort of challenge to a project’s long-term sustainability. As one founder of a project described it, the ‘what would happen if we were hit by a bus’ scenario seems far from settled for many project leaders.⁸ The strong identification of a creator with his project, paired with the highly specialised knowledge and skill set often needed to balance the scholarly and entrepreneurial requirements of such a position can make finding likely successors difficult. Whether the need for new leadership arises due to an individual’s shifting interests, decision to change jobs or inability to continue leading the project for another reason, the possibility that change may be necessary makes succession planning an area worthy of future investigation.

4.2 A clear value proposition

What sustainable projects do:

Craft a strong value proposition.

How they do it:

Create a resource that offers unique value and continue to add value to the resource based on an understanding of users’ needs.

It has been previously noted that it is not realistic for project leaders to expect that simply creating a work of high quality is enough to ensure its sustainability; you may build it, but there are no guarantees that anyone will come. Digital resources do not exist in a vacuum – sustaining them requires that project leaders understand the unique value that the resource provides and where it fits within the competitive landscape. What does a digital resource contribute that sets it apart? Is its content rare or unique or otherwise in particularly high demand? Does the resource provide important services or functionality that can be found nowhere else? What groups really care about this resource,

⁸ This topic notably did not come up directly through our case study research, but was brought to the fore by leaders of SEP, TLG and other projects at a Roundtable on Sustainability that was held on 5 May 2009 to discuss an early version of this report.



and are there any secondary beneficiaries beyond its primary audience? How does service to this audience fit in with the organisation's overarching mission? Furthermore, as the landscape changes, what must the project do to keep pace with the changing needs of its users?

The projects we examined that are most successful in attracting large, dedicated user communities have a deep understanding of the value their resource contributes and can answer these questions well. They are able to make the case for why their resource is important both to users and to other interested parties (foundations, host institutions and others), which in turn positions them well to develop a robust sustainability model. Creating value and presenting the value proposition to users does require investment, but we saw many examples of projects finding this investment to be worthwhile.

Creating value

There are a variety of ways in which digital resources provide something valuable to users. In some cases (such as SEP, eBird, the digital projects developed by CCH and the journals published by Hindawi) the value resides in the original, high-quality content they provide. The value these projects create relates to the extent to which they become important parts of the workflow of their user

communities and the extent to which users rely on them to do their work. Understanding the way in which a project can enable users to do new things – which requires an appreciation for the uniqueness of a resource and a grasp of a user's current practices and unmet needs – not only helps build audience, but also helps create devoted advocates who can be an important component of a sustainability plan.



Other projects, particularly those originating from library, archive and museum collections (such as TNA, V&A Images, Southampton's digitisation projects, INA and DigiZeitschriften), benefit from the wealth of content they have at their disposal. Their challenges are different; they may initially create value through digitisation, making physical materials available, discoverable and more useful in digital form.

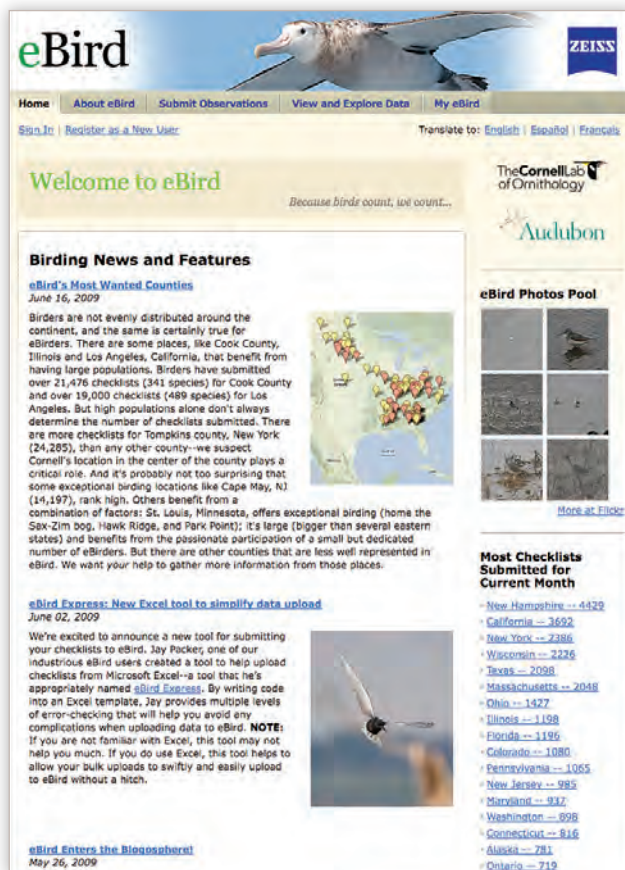
While the process of digitisation itself creates value for end-users, many projects go further, investing in tools and features to aid users in discovering and using the content in innovative ways. The Thesaurus Linguae Graecae (TLG) consists of a collection of nearly 10,000 Greek texts and has become a must-have for scholars of antiquity, enabling the project to charge subscription fees that help sustain the project. Similarly, the Electronic Enlightenment (EE) assembles over 53,000 letters from the long 18th century. The value in these resources is not just in the scale of the digital content they amass. Both projects stand out for the features that make them valuable to users: TLG has added search functionality specific to Greek and Byzantine documents, including fields for searching by the editing style used or by Greek root words; EE has developed dynamic links among its documents, so that scholars can explore the 'web of correspondence' among philosophers and their families, friends and colleagues. In both cases, these functionality upgrades add value sufficient to justify subscriptions from libraries, even those that already hold print editions of those texts on their shelves.

To some, creating a unique value proposition for a body of content may seem to suggest that this unique value should be held close. In fact, in many cases, we observed just the opposite mindset at work. By seeking out ways to place content alongside other relevant content, projects can increase their exposure to a wider range of users. Examples include The National Archives, whose genealogy



content has found an audience of many millions through the commercial genealogy sites that license it; INA, whose widget, the INA Player, presents content on the websites of several French national dailies; and the University of Southampton, which by licensing its digital content to ProQuest and JSTOR is assured of higher exposure of that content to the broad audiences of those two subscription services.

Understanding and responding to user needs



The projects we examined illustrate how a rich understanding of the user community can improve the resource and, by extension, its revenue streams. Project leaders have many tools at their disposal when undertaking market research, from interviews and surveys to analysing web traffic statistics and more,⁹ but the first step – acknowledging the central importance of the user to the resource – is by far the most important. We examined several cases that demonstrated how attention to users plays an integral role in continuing to build up the content of a resource, while also helping to drive revenue and advance the organisation's mission.

Shortly after its launch, management of the avian observation database eBird noticed that the number of user contributions had reached a plateau. The new project managers – themselves committed members of the birding community – knew that amateur bird watchers were not necessarily motivated to contribute their observations to a database for scientific use, but would get excited about having an online platform for creating and storing the birdwatching 'checklists' that they all keep. By taking into account the needs of

this broader audience – rather than focusing on data collection for research – eBird decided to build user-facing features that more closely supported the activities the amateur birders already engaged in. The number of submitted observations soared above ten million in 2008.

Understanding the needs of users can also help projects identify new revenue streams. Management of the INA's website for the general public, www.ina.fr, had noted that download fees for video content had levelled off, despite strong traffic on the site. Research suggested that visitors to the site, most of whom belonged to an older-than-average demographic, were confronting obstacles that were preventing them from purchasing downloads – the technical transaction required several steps and the format of the



⁹ For more on audience analysis, see the report commissioned by the Strategic Content Alliance and authored by Rachel Quark, Martin Olver, Max Hammond and Claire Davies, 'The Guide to Researching Audiences: Case Studies' (Guildford, Surrey: Curtis+Cartwright Consulting Ltd, December 2008). Available at www.jisc.ac.uk/media/documents/themes/eresources/sca_audiences_case_studies_v1-03.pdf.



files limited their portability once downloaded. Management hypothesised that their audience would appreciate a DVD-on-demand service, where for a fee, users could select clips online and have a DVD burned for them and delivered via post. By providing the content in the way users wanted it – not expecting users to adjust their behavior to fit the site – the initiative achieved great success. In its first month alone the programme generated 20,000 euros, recouping the cost to launch the service.

4.3 Minimising direct costs

What sustainable projects do:

Find creative ways to lower the direct costs of running the project.

How they do it:

Secure contributions from the host institution; outsource work through vendors and other external partnerships; work with volunteers.

While our case studies show some of the specific strategies project leaders are adopting to generate direct revenue, equally impressive is the range of ways in which project leaders are controlling the costs of their projects. Project leaders have garnered in-kind support from host institutions and other partners, outsourced elements of the work that could be more efficiently done elsewhere, and harnessed considerable volunteer efforts. We found that these strategies are every bit as important to the sustainability models of the projects we studied as their revenue-generating approach.

In-kind support from host institutions

The in-kind support of host institutions – ranging from rent and utilities, to free technical support and server space, to the contributed time and effort of staff – emerged as a fundamental component of the sustainability plan for every not-for-profit project we examined.¹⁰ Though many of the projects we studied generate enough revenue to cover their direct costs, this is because shifting many expenses to the parent organisation helps to keep those direct costs low.¹¹

Though this kind of institutional support is critical for so many projects in this space, it is important to note that there are significant risks associated with it. We found that few project leaders have made efforts to quantify the monetary value of these contributions, and few have developed a plan for what to do if they dry up. Some leaders may assume that their project is relatively inexpensive to run – and some institutional administrators may believe the same. In many cases, however, these unquantified in-kind contributions obscure the full cost of running a project. If the host institution were to account for all of its contributions and decide that the resource did not merit such funding, or that because of broader budgetary concerns at the institution the funding had to be cut back, the project could not survive without a drastic and quick shift in funding strategy. As parent institutions experience budget crunches, these in-kind contributions are likely to receive more scrutiny.¹² It may not be realistic to assume that the current level of non-monetary support will always be available.

In addition to relying on in-kind contributions, several of the projects in our series of case studies rely on some degree of direct financial support from their host institution to cover their operating expenses. Some projects have formal arrangements to receive a set amount each year from their host institution: the Thesaurus Linguae Graecae, for example, gets cash from its host university to cover slightly more than one-fifth of the project's annual budget. Other projects receive a variable amount

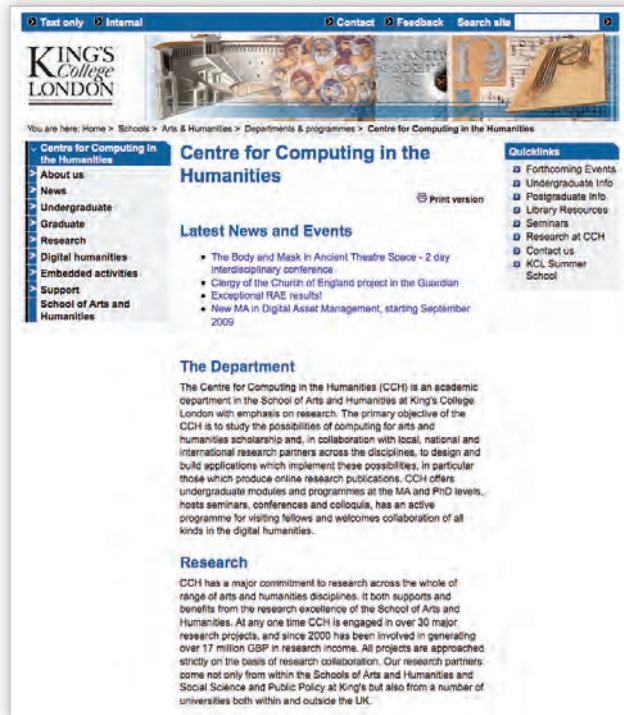
¹⁰ The for-profit Hindawi Publishing Corporation is an exception because it has no 'host institution', or parent company, from which to draw subsidy.

¹¹ In some cases, the 'contributions' predate the resource itself: INA's Inamédiapro derives revenue from licensing content, an activity made possible by years of government investment in creating that digital content; much of V&A Images' image database was digitised by the museum's photographic studio, at no direct cost to the licensing operation.

¹² Scott Carlson, 'Campus Officials Seek Building Efficiencies, One Square Foot at a Time', *Chronicle of Higher Education*, 17 April 2009. Available at <http://chronicle.com/weekly/v55/i32/32a00104.htm>.



of direct funding from the host institution to meet the gap between revenues and direct expenses: the Stanford Encyclopedia of Philosophy receives bridge funding from Stanford to cover the gaps between endowment payouts and expenses, provided that the SEP continues to make progress toward its endowment goal. Although a host institution could, in theory, decide to cut or eliminate these financial contributions at any time, the more formal arrangements are likely to be more stable.



Reliance on the largesse of a third party such as a parent university is inevitably riskier than a strategy built on revenue tied more directly to the value of the content, as this institutional support is subject to environmental factors – such as the budgetary needs of other departments, or a new provost’s priorities – that have nothing to do with the project itself. But, to the extent that institutional contributions do form a component of the sustainability strategy for many digital resources, it seems increasingly important that project leaders think about ways to assess the reliability of these contributions and how best to express the value their projects provide to the host institution. Figuring out how to demonstrate return on mission is a challenging prospect. Many projects and institutions have the sense that valuable non-financial contributions are made by these resources – branding, expansion of public access and use of a collection, general advancement of and service to valued disciplines, decreased wear and tear on physical materials, and so forth –

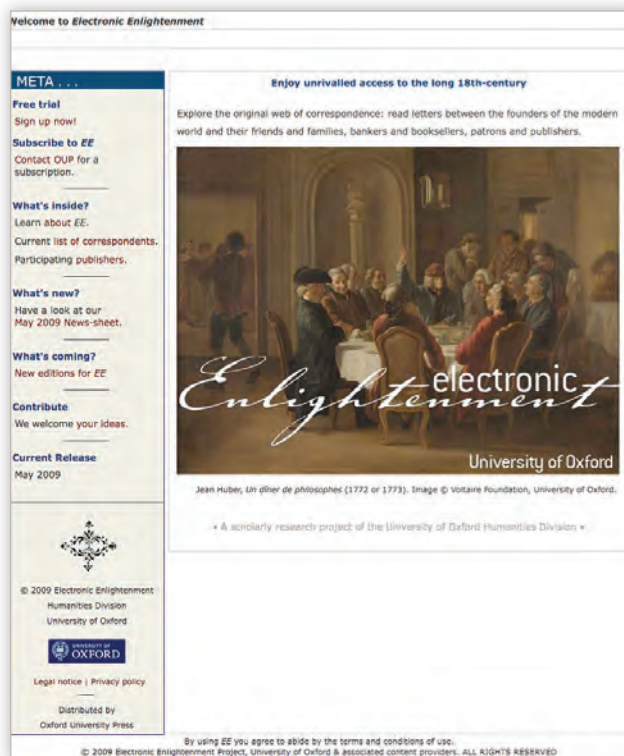
but there seems to be little consensus on how to understand and measure the extent to which a project advances mission in these areas.

Large cultural institutions with established governmental funding, such as TNA, INA and the Victoria and Albert Museum, are required to have formalised systems in place for evaluating and demonstrating return on mission. In many cases, these institutions have specific targets they must meet – for example, in terms of number of visitors to the website, or number of users served – that help them quantify a mission-based return from their resource. In the case of V&A Images, in 2007 a mission-related decision was made to stop charging academics licensing fees for some uses of images from the collection; in this case, the number of academics served becomes an important demonstration of the department’s value, even if serving the group is not itself profitable.

We also saw some examples of university-based efforts that were able to clearly demonstrate their value to a parent institution. For example, the Centre for Computing in the Humanities at King’s College London was able to establish itself as an academic department in part because it demonstrated its value in a way that was easy for the university to understand – through research grants received, and through the quality of research produced. It is also likely that other university-based initiatives are demonstrating their value to their hosts in less formal ways, such as through raising the profile of the university and its scholars, or through anecdotal reports of a resource’s value to a particular discipline. In most cases, however, the way in which these projects help to advance the mission of the university is less formally defined and is likely an area for further research and clarification.



Outsourcing and partnerships



Project leaders may instinctively prefer to perform all of the project's functions in-house – allowing for customisation and complete control over the resource. However, a home-grown solution is not always the best one. The range of functions needed to run even a modest digital resource is considerable, and the costs mount quickly. This series of case studies suggests that successful projects often leverage the talents, skills and capabilities of strategic partners from beyond the walls of the organisation. This collaboration can assume a variety of forms, from 'content swaps' or linking relationships to more formal vendor contracts. The cases we examined highlighted two particularly powerful ways in which collaboration can increase the value of a project: as a means to build a more significant or useful resource by aggregating content from different sources, and as a means for projects to efficiently gain expertise or support that may not be native to the organisation itself. The National Science Digital Library Pathways Portal for Middle

School Math and Science Teachers, or MSP2, has been developed as a partnership among three organizations that each contribute their different strengths to the project. Content development is led by staff at Ohio State University, outreach is being spearheaded by staff at the National Middle School Association (NMSA), and the Educational Development Center is responsible for creating student-focused content for the site. The partnership model as seen here demonstrates clear strengths and opportunities related to sustainability, as each partner provides skills and expertise that would be difficult to develop within a single organization.

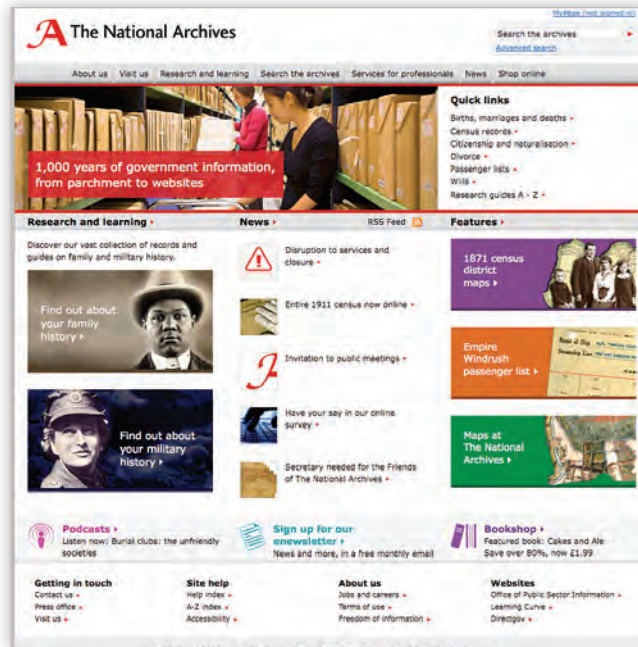
Some digital projects outsource work to vendors to perform tasks that would otherwise require costly investment. For example, the Thesaurus Linguae Graecae saves money on data-entry costs by outsourcing that function. Similarly, the Electronic Enlightenment (EE) contracts with an outside provider for data hosting, which for them was more cost effective than operating servers themselves. Projects also outsource functions for which they have no internal staff skill set, whether by contracting with a vendor or forming a mutual partnership. For example, EE contracted with Oxford University Press (OUP) for sales and marketing, after determining that hiring staff for these functions would be prohibitively expensive and that it could not easily replicate OUP's network and reputation within the library community.¹³ Similarly, while SEP was building its endowment, it partnered with Southeastern Library Network (SOLINET); SEP was responsible for much of the outreach and advocacy to libraries, while SOLINET brought to bear its expertise and established billing relationships with potential library donors.



¹³ Although the Electronic Enlightenment and Oxford University Press are both divisions of Oxford University, their relationship here is a formal one: as the official distributor of EE, OUP charges the project 30% of gross sales revenues generated through the subscriptions it secures.



Collaboration is also possible, and perhaps less problematic, among peer institutions with closely aligned, complementary goals. DigiZeitschriften, for example, was created as an association of partner libraries, each with an established specialty in certain subject collections. The partnership requires each member library to contribute its expertise in identifying the journals to add to the collection, and to take responsibility for negotiating with the publishers who hold rights for that content. With the content specialists and ‘publisher-relations’ functions taking place at each partner library, the organisation functions with only a very small centralised staff to coordinate their efforts.



Other types of partnerships may affect the shape of the resource more profoundly. Through its Licensed Internet Associates programme, TNA licenses its content to commercial partners, effectively outsourcing many significant activities and costs including digitisation, hosting and access. This strategy has been the principal means by which TNA has quickly achieved 80% of its mission goal of providing digital access to 100 million documents. Deep relationships like this may have many benefits: this major digitisation effort has taken only four years and it reaches a large audience, as the partner sites record much higher traffic statistics than does The National Archives site itself. (When the 1911 census file went live on Findmypast.com in early 2009, this one series of documents generated 18 million page hits from 645,000 unique visitors on the day the service launched; by

comparison, TNA’s website records an average of 900,000 unique visitors per month.) The programme generates considerable annual royalty revenue, but most significant are the access benefits – 24/7, worldwide, simultaneous usage of historical resources. TNA estimates that external commercial partners have invested £53 million in digitisation and ongoing hosting costs over the past four years.

While digital resources can derive great benefits from such collaborations, these partnerships do require a great deal of up-front planning and ongoing relationship management and assessment. Finding the right vendor or partner – one that can fill a needed function in a way consistent with a non-profit organisation’s mission – can be difficult given the highly specific needs of digital projects. Once that vendor is found, leaders should think about what recourse they will have should the vendor or partner end the relationship in the future. This seems especially important for partnerships in which the hosting and commercial exploitation rights to digitised content are licensed to a third party; such partnerships may widen online access to important holdings, but they may also weaken the organisation’s control over the digitised content. Leaders of projects that depend on a partner for these vital functions should put in place contingency plans that address the fate of the digitised content and the generated metadata once that relationship ends.¹⁴

Harnessing volunteer efforts

Several of the projects we looked at rely on the volunteer efforts of users – particularly user generated content – to fuel their resource. While professional researchers have well-established reasons to offer their time and work to journals, the appeal to other kinds of volunteers is more subtle: interns at V&A Images provide their time in exchange for professional training, while eBird’s network of data editors volunteer their time out of a love for birding. In all these cases, the project leaders are well aware that they must make the experience fulfilling for the volunteers or risk losing this source of labour.

¹⁴ This issue points to a challenge of the case study method: some of our case study subjects were willing to speak about difficulties with partners only off the record.



One of the most creative and intricate uses of volunteers we observed in our research was in the case of the Stanford Encyclopedia of Philosophy. The volunteer efforts of SEP's user community have benefited the project through lowering two major direct costs: content creation, and sales and marketing. First, the project leaders reached out to academic philosophers and convinced them to contribute entries to the encyclopedia for free. This is a known model for academic research projects – many scholarly publications do not pay for contributed articles or entries, or pay only a nominal fee. The SEP's project leaders took special care, however, to ensure a rigorous editing process – a step meant to reassure philosophers that although the SEP is not a print volume, their work would still receive a high degree of editorial scrutiny and would become part of an encyclopedia with similarly high-quality reviewed and edited entries.

Second, the project leaders built a community effort to help generate revenue. They wanted the Encyclopedia to remain Open Access, and sought out advisors and informal partners, creating an unofficial advisory committee of Open Access advocates from libraries and library consortia, and other key members of the community willing to devote time and resources to helping SEP establish its strategy and build the billing and processing infrastructure needed to implement it.

While these academics and librarians are not 'customers' in a traditional sense, they are users whose needs must be deeply considered; if rightly engaged, their contributions can be significant. The SEP's use of volunteers may not be exactly replicable – it seems unlikely that academic librarians would be willing to undertake this effort for a huge number of resources. However, the mindset of involving the people who value a resource is generalisable to many other projects.

4.4 Developing diverse revenue sources

What sustainable projects do:

Cultivate sources of revenue to cover both direct costs and ongoing upgrades.

How they do it:

Experiment with different revenue models to find the ones that are the best fit for the project; show willingness to try new models; cultivate the ability to identify and communicate the value of the resource to the target audience (of customers, authors, subscribers and so forth).

While most not-for-profit digital resources get start-up funding from grants and other donations, these sources cannot be relied upon to cover ongoing costs as funders are more likely to finance innovation than ongoing operations. While many projects keep direct expenses low through contributions from a host institution, these arrangements are often informal and are to some extent beyond the control of project leadership. It is clear that most, if not all, not-for-profit digital projects must seek other sources of revenue to underwrite ongoing operating expenses.



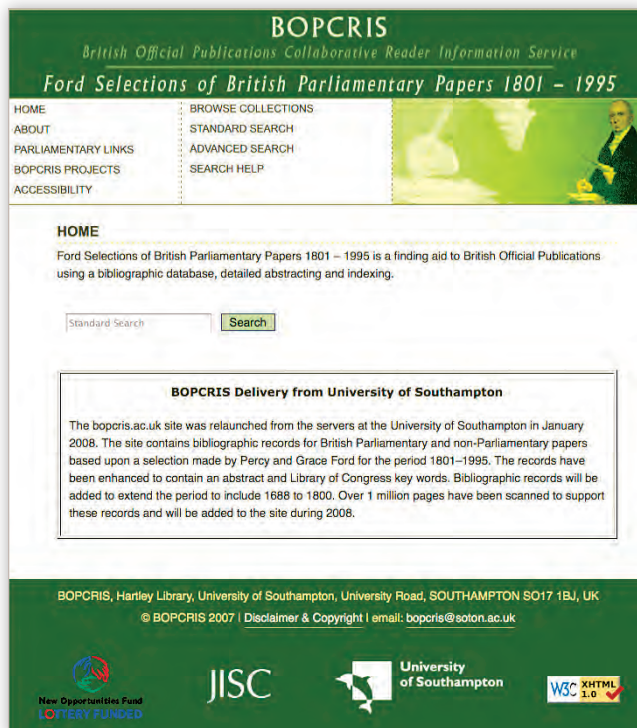
Our case studies were selected in large part to highlight the range of revenue strategies being employed by digital projects in academic and cultural sectors today. Projects are tapping into a wide range of revenue sources, both earned and donated. Projects we examined employed a range of methods for earning revenue, including subscriptions, content licensing, pay-per-use, custom services and consulting, and corporate sponsorships and/or advertising. Sources of donated revenue include contributions made by other interested entities and grants.

All of the cases we studied incorporate multiple strategies to generate revenue, which often derives from a combination of earnings and donations. As we noted in the 2008 report, this diversification of revenue sources acts as an important hedge against the risk of losing one revenue stream. In addition, a multifaceted revenue-generating strategy allows projects to leverage the value of their resource for different audiences with different interests and abilities to pay.

It is worth noting that all of these revenue models themselves create new costs for projects – often in terms of staff time and sometimes in terms of other investments. We found that in adopting a particular model, project leaders had to carefully consider the costs incurred to implement a given revenue strategy, as well as the trade-offs that may be necessary when balancing the urgency to create revenue streams and digitise content against the core missions of the organisation.¹⁵

Each case study delves in detail into the mechanics of an organisation's revenue model, highlighting the decision-making process and underscoring the trade-offs required. The cases assess the benefits and challenges of each revenue model and make recommendations about the extent to which elements of the model may be replicable by others. We recommend that for the most complete presentation of these complex processes, readers seek out the cases that address the sustainability strategy or themes of greatest interest to them. Below are short summaries of some of the ways we observed projects in our study employing these models.

Subscription



Offering a resource through subscription can provide a recurring revenue stream for digital projects, particularly those targeted towards libraries and institutions.¹⁶ Several projects studied here employ this model, which is well-suited to the framework of accepted library purchasing practices.

The projects we examined that support themselves through subscriptions all have content that users see as unique or exceptional. This content may appeal to those in a wide range of disciplines, such as the digitised correspondence in the Electronic Enlightenment or the German-language scholarly articles in DigiZeitschriften, or it may be essential to a niche audience, such as the digitised Greek texts of the Thesaurus Linguae Graecae (TLG). In all cases, projects with subscription-based sustainability strategies have content for which there is enough demand from the target audience to justify paying for access.

¹⁵ In addition, at least with respect to US non-profit organisations, the tax treatment of different revenue models may vary. Thus organisations are encouraged to be mindful of this issue when considering certain revenue models.

¹⁶ As noted in Guthrie, Griffiths and Maron, *Sustainability and Revenue Models* (2008), a related model is a one-time payment for perpetual access to a content collection. Though none of the projects we examined in this selection employ this model, many of the findings about a subscription model will hold true for this model as well.



As pointed out in *Sustainability and Revenue Models* (2008), a subscription model creates a variety of additional costs for the project, including marketing, sales and billing expenses. In addition, subscribers tend to have high expectations about the quality and frequency of updates to content and functionality, as well as about user support. In short, subscribers expect more from the resources they pay for than they do from resources they may access for free, creating additional costs and requirements. Two of the cases we examined, TLG and DigiZeitschriften, have chosen to administer their own subscription plans, with some success. TLG has gradually built up a network of over 2,000 customers through its decades of operation, and relies on five-year licences to cut down on administrative costs. DigiZeitschriften has kept operations on a fairly modest scale, with 84 subscribing entities representing 192 institutions. On the other hand, Electronic Enlightenment has chosen to outsource sales and marketing through Oxford University Press, hoping that the publisher's expertise in the higher education market will help to quickly build a strong base of subscribers for the resource.

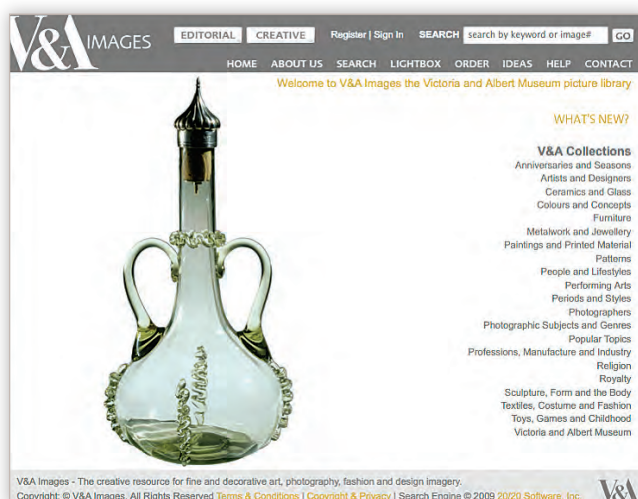
Licensing to publishers

Rather than create their own subscription-based, restricted-access product, projects may generate revenue by licensing their digital content to commercial or not-for-profit publishers.

In our case studies, we observed organisations such as the BOPCRIS unit at the University of Southampton and The National Archives that are licensing digitised content to publishers (ProQuest or commercial genealogy sites, for example) in exchange for a percentage of the revenue generated by the third party's distribution of the material. In both these cases, generating revenue was just one of a range of monetary and non-monetary benefits the partnerships provide. Licensing content to publishers enables projects to recoup some of their expenses while achieving significant cost savings associated with outsourcing hosting and access. In addition, the publisher partners may add value to the content they license by aggregating it with other relevant materials or by adding new metadata.

The projects we observed engaged in these licensing agreements must deal with a variety of risks involved in enabling long-term access to and preservation of the content through a third party. If a commercial publisher were to go out of business or decide to stop offering the relevant product, it is often unclear how the content owner would continue to provide that material to the user community. In addition, this model can create complications for projects that are obligated to make the digitised content freely available under the terms of their funding; some projects work around this by ensuring that the resource is freely available to individuals making on-site visits, or in a particular geographic region, or that it is freely available to communities prioritised by funders, such as higher education.

Licensing to users



Rather than create their own subscription-based, restricted-access product, projects may generate revenue by licensing their digital content to commercial or not-for-profit publishers.

While some projects license large collections of content to third parties that will distribute it, other organisations we examined license content directly to end-users. Both V&A Images and INA license their institution's digital content to the professional market.



They also sell content directly to the general public through print-on-demand and pay-per-view options, although these activities generate significantly less revenue than commercial licensing strategies.

Though the professional licensing business can be lucrative – professional clients, in particular, have the ability and motivation to pay for this content – there are significant costs associated with meeting the unique needs of these demanding customers in a competitive environment. Professional clients require custom tools, functionality and metadata to address their specific needs, and labour-intensive customer support must be available. For example, V&A Images has to create custom metadata that responds to the way commercial clients prefer to search for content – for images that represent emotions, for example. In the cases of V&A Images and INA's Inamédiapro, care must also be taken to carefully differentiate the value of the licensed content from the value of the Open Access content that many cultural institutions provide as a core part of their mission.

When projects seek to license their content directly to consumers, the challenges are just as great. The general public interested in still images, video and audio has many options available, many of them free. Identifying the customers who will pay to download materials which are 'better than free' is of critical importance when attempting to sell digital content.¹⁷ To succeed in this business requires a suite of strategies to drive traffic to the site and to make the content easily discoverable by those who may want it. INA's ina.fr does this, for example, by continually highlighting selections from its archival footage related to current events and trends of the day, featuring these items on its homepage, and placing them on partner sites as well (an illustration accompanying an article in *Le Monde online*, for example).

Custom services and consulting

Some projects are able to generate revenue by leveraging their experience and expertise for the benefit of other groups outside the organisation, by offering consulting and custom services. This revenue model was not included in our 2008 sustainability report, but it proved to be an important part of the business model of several of the projects we surveyed. In many cases, these custom services involved not-for-profit projects developing customised versions of their tools and resources for other organisations for a fee. For example, the project leaders at eBird have developed customised versions of the eBird portal for nature centres and wildlife preserves; the King's Digital Consultancy Service and the King's Visualisation Lab at the Centre for Computing in the Humanities provides consulting services for projects in the digital humanities as well as custom development of interactive and visualisation media; and INA provides similar consulting services to clients seeking to digitise their audiovisual collections.

Regardless of the specific approach, these custom services allow projects to transfer knowledge, skills, or tools developed for one resource and audience to another interested audience, extending the organisation's impact while also generating supplementary revenue to sustain continued activities. To make this work, all these projects have to develop a rich understanding of the scope and nature of community needs. It is also important that projects seeking to offer premium services such as these understand the associated costs; these services are often labour-intensive and expensive to provide, and it is important that they are priced accordingly.

Corporate sponsorships and advertising

As noted in *Sustainability and Revenue Models* (2008), advertising is a common strategy for generating revenue employed by commercial websites, but is uncommon among digital resources in the not-for-profit sector. Relatively few projects studied in this series of cases employ an advertising model, and those that do balance it with a variety of other revenue-generating strategies.

¹⁷ For more on this concept, see Kevin Kelly, 'Better than Free,' *The Technium* blog (31 January 2008). Available at www.kk.org/thetechnium/archives/2008/01/better_than_fre.php.



There are at least two ways to interest advertisers: either by attracting a large number of ‘eyeballs’ to the site, or by having access to a valued niche audience. One of the two examples we saw using advertising, ina.fr, records approximately 7.2 million unique site visitors annually. The other example, eBird, records a more modest 200,000 unique site visitors per year – but these enthusiastic birders are very appealing to the corporate sponsor, a provider of birdwatching binoculars.

As with every revenue model covered in this report, there are staff-related and other costs associated with generating funds from advertising. Both ina.fr and eBird found effective ways to minimise the cost of attracting this revenue: ina.fr outsources ad sales to a third-party agency, while eBird leveraged the professional expertise of its host institution’s major gifts manager to attract its corporate sponsor.

Author fees



A hotly debated issue in scholarly publishing is the emergence of the author-pays model in which an end-user pays a fee when his or her contribution is accepted for publication. One organisation in our sample, Hindawi Publishing Corporation, charges these author fees for publication in its Open Access science, technology and medical (STM) journals. Many elements of the Hindawi case – the organisation’s for-profit status, its ability to capitalise on low-cost overseas labour, and so forth – make it unique, but some broader conclusions may be drawn from it with regard to the importance of understanding and meeting user needs and the balance between generating revenue and ensuring the development of quality content.

Endowment

The appeal of an endowment-funding model – the sustainability strategy employed by the SEP and TLG – is clear. In this model, an intense period of fundraising generates a large fund that subsequently provides sufficient annual return on investment to keep the resource running (and, possibly, freely available), permitting project leaders to focus their energies on content development rather than on ongoing revenue-generation efforts.

As described in *Sustainability and Revenue Models* (2008), these advantages must be balanced against the model’s intrinsic challenges. First, raising the initial capital for an endowment is not easy, and the degree to which this will be feasible for other projects in difficult economic times seems unclear. Foundations – a standard source of start-up funding for not-for-profit digital projects – have not always been willing to donate funds to support an endowment, and grant-makers may be particularly cautious about making such contributions in a down market. The TLG needed many years to reach its endowment fundraising goal, even during the boom years of the 1990s; the SEP is still in the process of soliciting membership dues from academic libraries to support its own fund. The immensity of this task cannot be underestimated.

Even when the large initial fund is raised, challenges remain. The dire economic environment of 2009 has highlighted the risk associated with reliance on investment income. Project leaders using this model are watching the values of their endowments drop, suggesting the importance of diversification of revenue streams. For example, while the SEP model relies on its endowment payouts to cover more than half of its operating expenses, TLG uses its endowment alongside a subscription model,



which it sees as a way to bolster its revenue strategy in lean times. (Of course, the market for a subscription product, the advertising market, and markets for other earned-revenue-generating models are affected by the broader economic climate as well, albeit less directly than is the value of an endowment.)

And as the value of the resource to users grows, the endowment model may also make it difficult for project leaders to adjust the 'price' by raising more contributions for the fund from users. While a subscription resource or a licensing organisation can raise its prices, an endowment depends on the strength of an appeal to potential donors. This could limit the extent to which projects are able to afford significant system upgrades and migrations, without additional grant funding. In addition, because the endowment model decouples the degree to which users value a resource from the resource's funding, a project funded by endowment may run the risk of eventually becoming too isolated from the needs of its users. Projects relying entirely on this model must remain particularly vigilant about the changing needs of users as well as about day-to-day issues such as bug fixes, updates and upgrades, even though their financial sustainability may not appear to depend on these user-satisfaction safeguards.

Grants

There is growing consensus that reliance on grants to cover the ongoing costs associated with digital projects is an unsustainable strategy. While many online academic resources reasonably benefit from grant funding at start-up, the academic world is littered with dormant projects that were unable to chart a new course for financial sustainability once their main grantor withdrew support. Projects that diversify their revenue streams and are able to gain some measure of independence from a never-ending cycle of grant applications are better positioned for long-term financial health.

However, even projects that have non-grant-dependent sustainability models in place can pursue foundations or government agencies for funds for specific, well-defined initiatives – for example, the development of new features, modules or content. Funders are most interested in their grants having impact, and adding value to successful operations can be an appealing proposition. Leaders of several projects, including eBird and the Electronic Enlightenment, told us that while they no longer depend on grant funds, grantors can still be essential partners at key points in a project's life cycle.

Other sources of donated revenue

As discussed in the earlier section on cost control through relationship with a host institution, some of the projects in our sample receive cash from their parent organisation, in addition to a variety of in-kind contributions. It is also worth noting that several projects in this sample, including SEP and TLG, have in the past solicited donations from their user communities. Fundraising campaigns such as these can be labour intensive, however, and no project told us that such campaigns were a meaningful part of their ongoing sustainability plans.



4.5 Clear accountability and metrics for success

What sustainable projects do:

Establish a system of accountability and measurement of the success of the resource and the revenue model.

How they do it:

Establish goals and targets and determine the balance between financial and mission-related returns; assess progress towards mission-based and financial goals and targets.

Systems of accountability that encourage setting ambitious but realistic targets and measuring progress toward them can help organisations focus on collective goals related to both resource quality and revenue generation.

First, there are quantitative measures that project leaders can marshal to demonstrate the impact of their endeavour. The amount of content made available (whether number of documents, volumes, hours of video footage, or the like) and the usage statistics for a site are among the most obvious. Indeed, some of the larger organisations we observed are required to set and attain certain key indicators as a condition of their government funding. In the case of INA, the system of measures was begun in response to poor performance. The 2005-2009 Contract of Means and Objectives with the French government set specific targets in terms of number of hours of content digitised, number of hours available free to the public online, and amount of the budget (34%) that INA would be expected to generate through its own revenue strategies.

Another quantitative yardstick, the success of a revenue model, may be among the easiest things to measure. Reports of subscriptions, sales or other objective financial measures, balanced against the cost of generating them, provide a clear picture of how well the model is performing. If a product or service appeals to users or meets a need, their approval, in the form of their payment, tells the story. Yet we heard from only a few of our case study leaders that their host institutions pay close attention to the success or failure of their revenue strategies.

Second, and less obvious, is how a project effectively measures and communicates intangibles: the effectiveness of the project, and its value or return on mission. This often involves 'proving' value not just to a host institution, but also to the other indirect beneficiaries and stakeholders who often are a critical part of a sustainability strategy. In the case of The National Archives (TNA), having management clearly define organisational goals and departmental accountabilities, and tie performance standards to them, has reportedly made it much easier to gain cooperation among different departments. In other cases, we heard that project leaders proactively contact new institutional administrators to talk with them about the history of a project and the value it brings to the host institution.

5. Conclusion and looking ahead

Examining these 12 cases has demonstrated that sustainability requires more than maintaining the status quo by covering basic, ongoing costs, narrowly defined. Instead, a more dynamic approach to sustainability is required – one that provides a reliable source of revenue to support the resource, while encouraging growth in a way that is informed by the needs of all of its stakeholders, and particularly the needs of the users who interact most directly with the content.

In addition, these case studies highlight the diversity of options available to projects seeking to develop a sustainability model that serves both mission and revenue needs. The variety we observed, both in the scale of the challenges each faces, and in the ways they have chosen to address them, reminds us that no single sustainability strategy will work for every project. While some guidelines apply across the board, the circumstances of each project – the type and volume of content it has at its disposal, the base of users and what they require from a resource, the skill and mindset of the project leadership, the depth of support of a host institution – will all have a determinative impact on what type of plan will be possible for a given project.

And yet, we do believe that the most successful projects have several things in common. They have passionate, dedicated leaders who are accountable for the success of the project, and who actively seek creative ways to keep operating costs low through relationships with a host institution, recruitment of volunteers or a range of types of collaboration. Successful projects look for ways to continue to develop and enhance their content by staying in close contact with the people who use the resource. Through experimentation and flexibility, they find new ways not only to generate revenue, but also to share the content – through links or widgets, by licensing materials to larger publishers, or by seeking out other content partners. They see the future of content through the lens of the user and understand that content gains value by being put to use, regardless of which revenue models support it.

While *Sustainability and Revenue Models* (2008) focused squarely on methods for generating revenue, the case studies have helped to expand this discussion to include the full range of strategies that projects are currently using to piece together the support they require. Our research underscored the important role that host institutions play in financing the operation of their digital resources. Even the most dynamic, entrepreneurial projects we examined – with the exception of our one for-profit example – demonstrated strong dependence on their host institutions, whether for office space, server space, additional staff time or even direct cash payments.

While many of our case studies, particularly the studies of projects embedded in larger institutions, suggest that this level of host support is a normal state of affairs, we caution project leaders not to take this support for granted. Project leaders should regularly ask themselves whether the host institution will continue to provide these contributions, particularly as more and more digital resources emerge and their collective costs may become more of a burden to bear. Leaders will have to continuously make the case that the project advances the mission or otherwise supports the interests of the host institution. In the absence of clear measures of how this support advances the mission of the host institution, these contributions are at risk, particularly in a time of economic uncertainty.



Twelve case studies can only provide a snapshot of the challenges and successes projects around the world have experienced as they work to provide permanent access to online resources. Yet even within this small set, important themes emerge. It is our hope that these case studies will provide a rich and valuable resource to help guide project leaders, policy makers and funders as they work to increase and accelerate the broad dissemination of knowledge in digital form today and in the future.

Appendix A: Methodology

If *Sustainability and Revenue Models for Online Academic Resources* presented theoretical models, these case studies were conceived to illustrate the real-world scenarios as they are playing out today, with all the particularities that each unique project brings to the table. The cases do not just focus on static 'models' but examine the team leaders and the choices they must make when deciding how to balance mission with revenue generation, and how to consider the near-term benefits against the longer-range risks. In sharing the valuable experiences that actual project leaders have had while confronting their sustainability challenges, we hope to provide the community with a set of detailed narratives of a process that is central to the survival of these resources, and yet rarely openly discussed.

Choosing the cases

To arrive at the set of 12 case studies, it was necessary to establish clear selection criteria. The primary requirement for the set was that it should illustrate a wide range of sustainability models, beyond the grant funding and institutional support that many projects rely upon. We sought cases that demonstrated experience using the following models:

- Advertising
- Author pays
- Content licensing
- Corporate sponsorship
- Donations
- Endowment
- Membership
- Pay-per-view (-per-download, -per-unit of time, etc.)
- Premium services
- Subscription

While identifying a range of revenue models was the priority, other elements were important as well. The Joint Information Systems Committee (JISC) and the Strategic Content Alliance (SCA), as the primary sponsors of this project, requested that we develop several cases studies of projects in the United Kingdom, and some of projects in European countries. Our US-based funders supported the writing of cases located in the US. Other elements we took into consideration included:

- *Sector*: Cultural heritage, education, public health, academia
- *Organisational model*: Independent board, dependent on a larger organisation, consortium, virtual organisation
- *Outcomes*: Independent sustainability; alternatives including merging, being bought or closing down operations
- *Access model*: Open Access, Open Access with registration, paid registration or subscription



While the notion of a 'digital resource' is quite broad, for this study we chose to focus in particular on those projects that are content-based rather than on software-development projects, and we have made efforts to include examples of various media types, including text, data, still images and video.

Once we had our targets assembled, we approached project leaders to invite them to participate. Not all were interested in having their project become the subject of a case study, sometimes citing lack of time, but more often citing privacy concerns. The topic we were most interested in exploring was the ability of digital projects to sustain themselves – a sensitive subject, particularly for those projects or divisions of organisations that may find themselves struggling at this time. On the other end of the spectrum, we encountered some projects in the for-profit arena that appeared to be thriving but were not keen to share the valuable methods they had developed, for fear of weakening their competitive edge. Even among not-for-profit organisations, those with contracts involving for-profit partners can be required to maintain confidentiality on details relating to terms of service and financial results.

The group of 12 projects selected in the end represents quite a range, from small projects deeply embedded in very large organisations, to independently run resources; from projects whose sites register millions of visitors per month, to those whose sites register just thousands per month; from projects whose goal is to generate a profit, to projects whose leaders acknowledge that their revenue streams will never be able to fully support the costs of running the sites without additional sources of support, but who define 'sustainability' in terms of fulfilling the mission of the host institution.

Interview process

To discover as much as possible not just about the revenue model, but also about the cost structures of the organisation and the strategic decision-making processes that led the organisation's leaders to the model they are using, we attempted to interview key personnel most familiar with the model at hand. In most cases this involved the project leader, who frequently served as the point person for arranging other interviews within and outside the organisation. Often this process led us to interview others, sometimes outside the organisation, in order to obtain a richer view of the strengths and weaknesses of the models under investigation. Interviews were conducted on site where possible, and most often by at least two team members: one to conduct the interview and the second to take notes. The interviews were followed up with additional queries by phone or email, as needed, and supplemented by documents researched or supplied by the interviewees, including sample forms, annual reports, planning documents and presentations.

Case study framework

The case studies as written are intended to accomplish two main goals: first, to present in as much detail as possible the inner workings of the sustainability models that these projects are currently using, including revenue-generation and cost-savings strategies; and second, to highlight the strategic decisions that leaders of these initiatives have had to make, including the trade-offs inherent in many of the choices.

Thus, the case study format that we have used is a hybrid of description and analysis. The opening sections of each case help to situate the project within its larger organisational structure and outline its sustainability goals and methods. The next sections are analytical in nature, addressing key issues in sustainability that appear to have had a strong impact on the success of the sustainability model: how the project leaders understand their users, communicate the value of the project to others, and seek to innovate and experiment in order to grow. Finally, the last sections assess the benefits and the challenges of the particular sustainability path the project has chosen to follow in terms of meeting the project's goals, as well as our assessment of the strengths and weaknesses of the model and the extent to which it might serve as a useful exemplar for others.

Appendix B: Case study abstracts

BOPCRIS Digitisation Centre: Experimentation with Sustainability and Partnerships for Library Digitisation Projects

Hartley Library, University of Southampton
Southampton, United Kingdom
www.bopcris.ac.uk/bopcris/digbib/home

The University of Southampton's Hartley Library has been engaged in a number of large-scale, grant-funded digitisation initiatives focused on heritage materials such as parliamentary papers and British pamphlets. These projects left them with a challenge familiar to many grant-funded projects – developing a strategy to preserve access to the content after the grant period concluded. Early experiences suggested to library leadership that they were not well positioned to host this content locally, so with subsequent projects they began to experiment with different models of partnership with aggregators of scholarly content, such as ProQuest and JSTOR, that enable the library to focus on content creation while the partner organisation takes responsibility for facilitating public access. This case study traces the evolution of the library's thinking about how best to provide access to these collections, explores the characteristics of the partnership models with which they are experimenting, and highlights some of the benefits and challenges associated with this approach to sustainability, in terms of both content and infrastructure.

Centre for Computing in the Humanities: Leveraging Shared Infrastructure and Expertise to Develop Digital Projects in an Academic Department

King's College London
London, United Kingdom
www.kcl.ac.uk/schools/humanities/depts/cch

The Centre for Computing in the Humanities (CCH) at King's College London, an academic department focused on the advancement of the digital humanities, engages in a wide variety of research projects that often lead to the creation of electronic scholarly outputs. Using a model that is rare among humanities departments, CCH supplements government and institutional funding for research and teaching with a remarkable number of outside research grants and with revenue generated through knowledge transfer activities that leverage the department's expertise to provide consulting and development services to the broader community outside the department. This case study explores some of the advantages that CCH enjoys through leveraging shared human and technical infrastructure for the benefit of multiple projects, and it discusses some of the implications of creating digital resources in a research-focused rather than a user-focused context.



DigiZeitschriften: Library Partnership and a Subscription Model for a Journal Database

Göttingen State and University Library, University of Göttingen
Göttingen, Germany
www.digizeitschriften.de

DigiZeitschriften, a German-language archive of scholarly journals, was created in 1997 with funding from the German Research Foundation. Since its launch as an online service in 2005, DigiZeitschriften has implemented a sustainability model that includes a partnership of libraries contributing time and expertise, and a financial model of institutional subscriptions that has more than covered its operating costs to date. This case study examines the decisions leading DigiZeitschriften to adopt this plan for sustainability, and explores the benefits as well as challenges inherent in a partnership of this kind.

eBird: A Two-sided Market for Academic Researchers and Enthusiasts

Information Science Department, Cornell Lab of Ornithology, Cornell University
New York, United States
www.ebird.org

The Information Science Department at the Cornell Lab of Ornithology is home to eBird, a site where birdwatchers of all levels – from weekenders to academic researchers – can record their avian sightings and upload them for future use by scientists. The site serves a two-sided market: on one side, the birders who record and share their observations, and on the other side, the scientists who use that data for research. This project is notable for the level of interest it generates from users; for the range of revenue streams it draws from, including a corporate sponsorship and a franchising service for its core software; and for its home in a department that, despite its academic roots, encourages entrepreneurial activities. Through an examination of eBird, this case study approaches several larger questions for digital project leaders: How can academic digital projects think about increasing user interest? In what ways can a project maintain an Open Access core while generating revenue from premium services? And how might digital resource leaders approach the tension between project mission and revenue generation through a combination of sustainability strategies?

Electronic Enlightenment: Subscription-based Resource Sold Through a University Press

Bodleian Library, University of Oxford
Oxford, United Kingdom
www.e-enlightenment.com

After several years of reliance on foundation support, Oxford University's Electronic Enlightenment (EE) – a database containing the digitised correspondence of over 6,000 thinkers and writers from the long 18th century – needed to transition from a grant-funded project to an independently sustainable research project. After hiring a business planning consultant to help them think through different options, project leadership concluded that a sustainability model based on institutional subscriptions to the resource was the best fit for the project's needs. In addition to the revenue model, another important component of the sustainability plan was the establishment of a new set of institutional relationships, including the project's move from its prior home at the Voltaire Foundation to a new base at the Bodleian Library, and the development of a sales, marketing and delivery agreement with Oxford University Press. This case study explores the factors that made EE well suited for a subscription model, the reasoning behind the establishment of its new institutional relationships, and the challenges surrounding the continued development of this unique resource.



Hindawi Publishing Corporation: The Open Access Contributor-Pays Model

Cairo, Egypt

www.hindawi.com

Hindawi Publishing Corporation, a Cairo-based for-profit publisher of science, technology and medical journals, was founded as a subscription-based publisher in 1997. By 2003 Hindawi had begun exploring Open Access models; by 2007 it had become an entirely Open Access publisher, and it now publishes 160 Open Access STM journals. Hindawi's financial model is based on charging contributors a fee per article published, a model also currently used by BioMed Central and PLoS, among others. Since 2007, Hindawi has continued to refine its business model, in particular through its partnership with scholarly publisher SAGE and by introducing institutional memberships earlier this year. This case study explores Hindawi's path to choosing this financial model and the opportunities and challenges it has posed.

L'Institut national de l'audiovisuel: Free Content and Rights Licensing as Complementary Strategies

Bry-sur-Marne and Paris, France

www.ina.fr

www.inamediapro.com

Since its founding in 1974, L'Institut national de l'audiovisuel (INA) has undergone a profound shift in activities, developing from its role as the protector of the audiovisual heritage of France to the more dynamic role of manager of diverse media assets reaching a variety of audiences, including the general public. Today INA places great emphasis on its mission to enhance and communicate the value of its content to end-users, and it supports these efforts through a range of economic models. This case study examines two divisions of the organisation responsible for providing access to and monetising the collection in different but complementary ways: the public website, www.ina.fr, which offers free access to the public while serving as a laboratory for experimentation with online revenue models; and Inamediapro, an audiovisual licensing service for professionals. Both function as entrepreneurial efforts at the heart of this large not-for-profit organisation. This case study examines them in light of the business models they employ, their focus on understanding users, and the necessary balance between generating revenue and fulfilling the broader missions of the organisation.

The Middle School Portal 2: Math and Science Pathways, National Science Digital Library: Early Sustainability Planning for a Grant-Funded Digital Library

The Ohio State University

Ohio, United States

www.msteacher2.org

The Middle School Portal 2: Math and Science Pathways project (MSP2) aims to provide middle school teachers with high-quality materials they can use in the classroom, and to foster greater sharing and communication within the middle school teaching community. The original Middle School Portal was a prototype for the 'Pathways' projects funded under the umbrella of the National Science Digital Library (NSDL), and MSP2 remains today entirely funded through NSDL. But the project faces a challenge: how will it cover the costs of operation and development when its current three-year grant runs out in 2011? This case study examines how the leaders of MSP2 are planning for the long-term sustainability of the resource. First, they are exploring a range of revenue-generating activities that build on current strengths of the partner organizations involved in the project; second, they are considering a 'plan B' of building a community-run site that would rely on a free social networking platform, the technical infrastructure of NSDL, and user generated content – a site that its leaders hope could function even with limited paid project staff.



The National Archives: Digitisation with Commercial Partnerships via the Licensed Internet Associates Programme

London, United Kingdom

www.nationalarchives.gov.uk

The challenges of digitising, preserving and providing access to over 1,000 years' worth of material held by The National Archives (TNA) are considerable. In recent years, TNA has developed a strategy to digitise content quickly through its Licensed Internet Associates programme. These commercial partnerships, closely managed by TNA staff, have allowed the institution to digitise millions of pages of material at minimal direct cost. This case study explores the model developed by TNA in light of the opportunities that commercial partnerships can provide for public service organisations. This study also highlights the challenges such a partnership can bring to bear on a number of critical questions, including user needs, balancing mission and the commercial partner's need to drive revenue, and long-term preservation and access considerations.

The Stanford Encyclopedia of Philosophy: Building an Endowment with Community Support

Stanford University

California, United States

plato.stanford.edu

Endowments are often thought of as a source of reliable support for established institutions such as universities and foundations, but in recent years online academic resources have also begun experimenting with the endowment model as a means of sustainable funding. The model holds forth the promise of guaranteeing access to a resource in perpetuity, with the investment returns from the endowment continuously generating funds to sustain the resource. Since 2004, the Stanford Encyclopedia of Philosophy has successfully raised three-quarters of a planned \$4.125 million endowment. This case study highlights the factors that make a project a strong candidate for an endowment model, describes the steps that are necessary for implementing such a model, and explores the advantages and disadvantages of endowment funding.

The Thesaurus Linguae Graecae®: Specialised Historical Content for a Niche Audience

University of California, Irvine

California, United States

www.tlg.uci.edu

Online resources are often described and evaluated in terms of their ability to serve vast amounts of diverse content to wide audiences, but well-targeted, specialised digital projects can have a profound effect on an academic discipline. The Thesaurus Linguae Graecae® (TLG), a digital corpus of over 12,000 works of Greek literature ranging from the ancient era to the modern age, has proven its value to scholars and has been able to convert that value into a sustainability model that incorporates multiple revenue streams. The resource is targeted toward academic classicists and medievalists, who rely on it as the only comprehensive body of historical Greek-language works available online; it also offers a small Open Access selection of canonical Greek works for use by a wider audience. The project, which is hosted at the University of California, Irvine, depends on three main revenue streams: subscription fees, direct financial support from the university, and a project endowment. The endowment was originally intended to supplement the other two revenue streams, but the project's goal now is for the fund to some day cover all of the ongoing costs for the TLG. This case study looks at some of the questions facing the TLG and outlines the broader implications for other resources with highly specialised content: How does such a project build



an audience and keep users excited and engaged? What characteristics make a project a strong candidate for a subscription model? And how do the leaders of the TLG envision their resource – and its funding – evolving in the future?

V&A Images: Image Licensing at a Cultural Heritage Institution

Victoria and Albert Museum
London, United Kingdom
www.vandaimages.com

For many museums and cultural institutions, the digital environment provides an exciting opportunity to expand access to their collections and enhance their brand. At the same time, the high costs of creating and maintaining digital collections lead some organisations to think about ways to generate revenue from these assets. V&A Images, a department of the Victoria and Albert Museum's commercial trading company, licenses photographs of objects in the museum's collection for commercial, educational and personal use. The unit is tasked with the sometimes-competing goals of generating profits for the museum, while also encouraging access to the collections and fostering scholarship in the field of art and design. Its challenges are to compete successfully in a crowded commercial licensing marketplace, to cover costs and to balance revenue-generating imperatives with the museum's other digitisation efforts. This case study focuses specifically on V&A Images, while contextualising its activities within the museum's broader digitisation programmes. It highlights some of the factors that are important to the success of an image licensing operation, and discusses challenges related to balancing market imperatives and mission-based goals.

Appendix C: How to read the financial data in the case studies

The financial data included in each case study's Appendix B: Summary of Revenues and Costs are intended to provide a picture of the major sources of revenue and ongoing costs for each project studied. The data were compiled as part of the interview process with project leaders and staff, and in some cases supplemented with publicly available documents such as annual reports. Project leaders were asked to review this financial data prior to publication.

We chose to develop these charts in order to make it easier to assess at a glance some of the financial aspects of each project's sustainability plan. Below are explanations of ways in which we feel the data can be most useful, followed by a cautionary note on the limitations of this data.

These financial data illustrate:

- How project revenues compare to the direct costs of the resource. Is the project currently generating more in revenue than it must pay each year in direct costs?
- How much the project spends each year in direct (budgeted) costs. What does it cost to run this project or service, and what types of costs make up the greatest part of the budget?
- The other types of expenses currently covered through in-kind contribution of resources or volunteered efforts. (One common example of this is an in-kind contribution of office space to a project from its host institution.) In these cases, the value of these contributions was often unknown or unavailable, but cataloging the types of contribution as well as the range of sources – from host institution, to outside partners, to volunteers – shows just how important this strategy is for keeping projects afloat.

Limitations of the data:

- The financial data provide a relative measure of a project's operating budget, not an absolute one, so we advise against any direct financial comparison between line items in project budgets. There are several reasons for this: many leaders provided rounded numbers or estimates for the categories for which we sought data. Other leaders preferred not to offer figures at all, but suggested percentages instead. In many cases, we were asking project leaders to provide us with information they do not typically render in this way. For example, some departments might share staff with other departments in a long-standing informal arrangement; we asked leaders to determine how many FTEs that might constitute. While project leaders have made their best estimate of these figures, we stress that these charts are most useful as an overall picture of the balance within a project budget.
- Data is provided in different currencies, from different financial years, and with different levels of precision. In dealing with projects in several different countries, we have chosen to present the financial figures project leaders provided during our interviews in the currency in which the data was reported to us.
- Different organisational structures have very different ways of budgeting. While some of the projects we studied were accustomed to budgeting for all or most of their costs, several of the cases Ithaka chose to examine are digital initiatives residing within a larger institution. While the budgeting practices of the organisation might understand the initiative as just one project within a larger department or unit, we asked that costs for the project itself be broken out. All project leaders did their best to estimate these direct costs and staff allocations in cases where no figures were readily available.

Acknowledgements

Ithaka S+R would like to thank the many individuals and organisations who participated in the Case Studies in Sustainability project. First and foremost, we thank the Strategic Content Alliance (SCA) and the Joint Information Systems Committee (JISC) for their continued support, and in particular Stuart Dempster, Project Director of the SCA, whose guidance has been instrumental at every stage of this work. For their generous support of the US-based cases, we thank Brett Bobley, Director of the Office of Digital Humanities at the National Endowment for the Humanities, and Hal Richtol of the National Science Foundation.

It would not have been possible to write any of these case studies without the cooperation and support of the leaders of the projects we profiled and the cooperation of project staff and others who agreed to participate in this process. We would like especially to thank the following individuals for their generosity and willingness to share information with us in order to help significantly deepen the community's understanding of what economic sustainability looks like today, and where its deepest challenges still lie:

- For the case study on the BOPCRIS Digitisation Centre, Hartley Library, University of Southampton: Mark Brown, Christine Fowler and Richard Wake.
- For the case study on Centre for Computing in the Humanities, King's College London: John Bradley, Harold Short, Simon Tanner and Paul Vetch.
- For the case study on DigiZeitschriften: Berndt Dugall, Martin Liebetruh, Norbert Lossau, Caren Schweder and Georg Siebeck.
- For the case study on eBird: Paul Allen, Barry A. Bermudez, Rick Bonney, Marshall Iliff, Steve Kelling, Brian Sullivan and Chris Wood.
- For the case study on Electronic Enlightenment: Claire Dowbekin, Robert McNamee and Richard Ovenden.
- For the case study on Hindawi Publishing Corporation: Mostafa Badr, Ahmed Hindawi, Marc Moonen, Ann Okerson, Paul Peters and David Ross.
- For the case study on L'Institut national de l'audiovisuel: Roei Amit, Christophe Barreyre, Max Benoît, Hélène Bettembourg, Lydia Boutot, Stéphane Cochet, Stéphanie Godbert, David Hivet, Xavier Lemarchand, Eric Rault and Michaël Swierczynski.
- For the case study on The National Archives' LIA Programme: Jess Ahmon, Caroline Kimbell, Christine Lawrence, Oliver Morley, Gemma Richardson and Laura Withey.
- For the case study on the Middle School Portal 2: Math and Science Pathways, National Science Digital Library: Mary Henton, Kaye Howe, Kimberly Lightle, Robert Payo, Sarita Pillai and Susan Van Gundy.
- For the case study on Stanford Encyclopedia of Philosophy: Tim Cherubini, Rick Johnson, Heather Joseph, Margaret Landesman, Uri Nodelman, John Perry, Stephen Ross, Tom Sanville, Susanna C. Siegel, Michael Stoller and Edward N. Zalta.
- For the case study on Thesaurus Linguae Graecae: Maria Pantelia and Betsy Shanor.
- For the case study on V&A Images: Jo Prosser and Andrea Stern.



Over the course of this project, peer-review workshops have helped us test out ideas and seek feedback from a range of stakeholders in the community. Participants in workshops held December 1, 2008, January 29, 2009, and March 25, 2009 in London and on May 5, 2009 in New York have been critical to the process, providing insight and suggestions throughout. We are grateful to all those who participated in these work sessions as well as others whose input has helped to improve this work:

Helen Agüera, Roei Amit, Chris Batt, Emma Beer, Andrew A. Beveridge, Brett Bobley, Richard Boulderstone, Julia Brandt, Martha Brogan, David Brown, Mark Brown, Richard Brown, Kate Carreno, Karen Cariani, Sayeed Choudhury, Helen Cullyer, Jennifer Curtis, Stuart Dempster, Catherine Draycott, Paul Ella, Joseph Esposito, Sarah Fahmy, David Flanders, Christine Fowler, Eleanor Gawne, Paul Gerhardt, Catherine Grout, Heather Joseph, Lisa Kahlden, Peter Kaufman, Caroline Kimbell, Christine Lawrence, Danielle Lamb, Kim Lightle, Judy Luther, Mary MacDonald, Ross MacIntyre, Christine Madsen, Mike Mertens, Deborah Meyer, Renee Orr, Maria Pantelia, Sandy Payette, Katie Pekacar, Stanley Peters, Nick Poole, Sarah Porter, Richard Ranft, Joyce Ray, Mark Saunders, Roger Schonfeld, David Scruton, Jane Shaw, Poppy Simpson, Humphrey Southall, Simone Spence, Bruce Tate, Stefanie Walker, Donald Waters, Ben White, Matthew White, Jackie Wickham, Caroline Williams, James Wilson, Jo Woolley and Grant Young.

In addition, members of the Ithaka S+R team, in particular Tom Nygren and Kate Wittenberg, have offered significant contributions to this work at critical junctures, improving it immeasurably with their skill and insight.

Sustaining Digital Resources: An On-the-Ground View of Projects Today

Ithaka Case Studies in Sustainability

Further information about JISC:

Web: www.jisc.ac.uk

Email: info@jisc.ac.uk

Tel: +44 (0)117 331 0789



This document is available in alternative formats which can be found at:

www.jisc.ac.uk/contentalliance

This work is licensed under the Creative Commons Attribution-No Derivative Works 3.0 Unported Licence. To view a copy of this license, visit

<http://creativecommons.org/licenses/by-nd/3.0/> or send a letter to Creative Commons, 171 Second Street, Suite 300, San Francisco, California, 94105, USA.