

# The Open Access Contributor Pays Model: Hindawi Publishing Corporation

Cairo, Egypt

[www.hindawi.com](http://www.hindawi.com)



JISC Content

Ithaka Business Models: Case Studies in Sustainability (Draft) 4/11

Hindawi Publishing Corporation, the Cairo-based for-profit publisher of STM journals, first began as a subscription-based publisher in 1997. By 2003, Hindawi began exploring open access models and by 2007 had become an entirely OA publisher, with a current list of 160 OA journals in the fields of science, technology and medicine. Their financial model is based on charging contributor fees per article, a model also currently used by BioMed Central and PLoS, among others. Since then, 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 will explore Hindawi's path to choosing this financial model, and the opportunities and challenges that it has posed.

## Introduction

Hindawi Publishing Corporation began in 1997 as a small scholarly publisher of subscription-based peer-reviewed online journals. Its founders, Ahmed Hindawi and Nagwa Abdel-Mottaleb, were motivated to start their company because of their belief that the 'low cost base and access to a large workforce of ambitious, well-educated, young professionals' in Cairo would allow them to offer 'a labour-intensive service at a level that is not economically viable for most publishers based in the West.'<sup>1</sup> In particular, they built their business by stressing the administrative and editorial support they could offer their editors and referees, the strength of their custom-built web-based submission and publication platform, and the efficiency of their highly automated production process.

After some early success in building the subscription-based business the owners became keenly aware of the increased competition among publishers for a shrinking pool of subscription dollars from libraries. Seeking another model, they decided to experiment with open access and in 2004 launched a hybrid model that permitted journals to include both subscription and OA content. In the following years, they expanded the OA side of the business, selling off some subscription journals and converting others to the OA model. The company was profitable well before its conversion to Open Access, and since February 2007 has been an exclusively Open Access publisher sustained entirely by its Article Processing Charges. Originally specialising in maths and engineering, Hindawi has since moved into other



Cairo, Cityscape

areas including biomedicine, perceiving this as a growth area for journals. As of January 2009, Hindawi publishes 160 Open Access journals, and expects to publish over 3,500 articles this year, with a target of publishing 10,000 articles per year by 2011. New journals are scheduled to continue launching at a rate of 8 per month, as Hindawi seeks to grow its business from approximately \$2 million in revenue in 2008, to \$3 million in 2009.

## Sustainability Model: Author-side payments shift focus from journals to articles

### Goals and strategy

A subscription-based journal publisher assumes the upfront costs of developing and producing a work that they then hope to sell. This model, still in use by the vast majority of publishers of traditional print journals, relies on building a base of institutional and individual subscribers who pay an annual fee to gain access to the content, whether in print or online. In recent years, this financial model has been challenged by experiments with Open Access, whose proponents seek to make scholarly materials freely available to the widest audience possible. Open Access refers specifically to the fact that anyone is permitted to read the content at no charge – without prejudice to the business model that supports it. The predominant business model that has emerged in recent years for financing open access journals has been the contributor-pays model.

The contributor pays model, also referred to as an 'author-side' contribution model, relies on the authors to subsidise the publication of their articles, often with the help of research grants

<sup>1</sup> Pul Peters, 'Case Study: Going all the way: How Hindawi became an open access publisher.' *Learned Publishing*, Vol. 20 No. 3, July 2007, pp 191-195.

or contributions from their university departments. Hindawi administers this system through its 'Article Processing Charges.' Whereas a subscription-based model seeks to cover its costs through the fees paid by subscribing institutions or individuals, under the author-pays model a publisher must think about the volume of articles, rather than the number of subscribers required for a journal to achieve its financial goals. Article fees are established to cover variable costs and a share of fixed costs, with the publisher determining the required minimum number of articles in order to recover costs. Hence, rather than focusing on the cost and price of a journal, the author-pays model focuses on the costs of the discrete unit of the article.

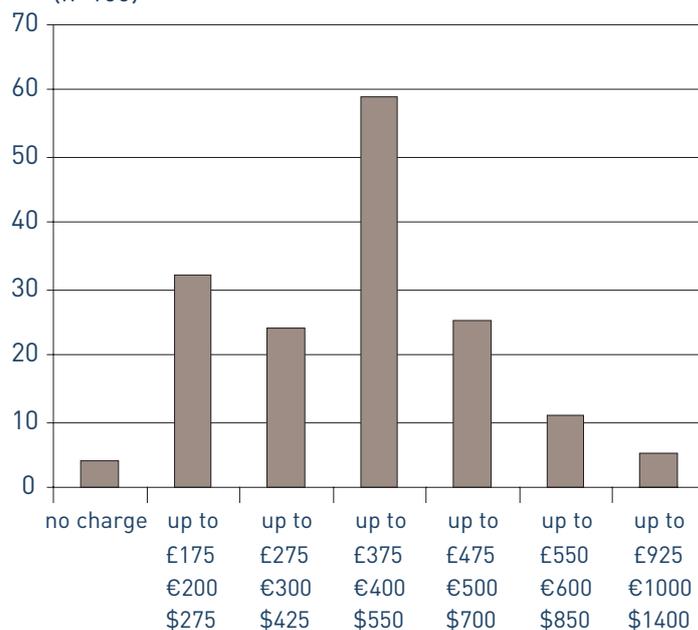
“For Hindawi, the initial transition away from subscription journals took place at the high and low margins of the business.”

For Hindawi, the initial transition away from subscription journals took place at the high and low margins of the business. For its subscription-based journals, Hindawi determined the equivalent per-article revenue by dividing a journal's revenue by the number of articles published per year. In the case of four subscription-based maths journals, they felt that the per-article revenue was too high to successfully translate to Article Processing Charges, and so these journals were sold to Oxford University Press. For those journals where the subscription revenue was low (so forgoing it would not be a risk to the company) a per-article equivalent cost was determined for each journal. An interesting middle ground approach was the case for one of Hindawi's first and most successful journals, EURASIP's *Journal on Advances in Signal Processing*. Although a successful subscription product, the transition was already underway: the journal had offered an OA option for authors, and over 35% of its articles were in fact already being paid for by Article Processing Charges, persuading Hindawi management that the others were likely to follow.

## Revenues

**Article Processing Charges.** Hindawi's Article Processing Charges range from free for publication in *Advances in High Energy Physics* to \$1400 per article for its best-established journal, *EURASIP Journal on Advances in Signal Processing*; 119 of the 160 journals listed as of February 2009 carry charges of \$550 or less.<sup>2</sup> Article Processing Charges are determined by Hindawi management, based on market research assessing both the subject matter and competitive pricing. For example, according to Head of Business Development Paul Peters, maths journals, even those with high impact factors, tend to carry lower fees per article and the field simply will not support higher pricing. While the average marginal cost to publish an article is \$500, some new journals may launch with lower or no Article Processing Charges in

Article Processing Charges for Hindawi OA Journals (n=160)



order to further remove any barrier to participation; once better established, prices can be raised to a level that makes it 'more sustainable for us.'<sup>3</sup>

**Institutional memberships.** Recently, Hindawi introduced an Institutional Membership Program to complement its Article Processing Charge model. Starting in August 2008, institutions were presented with the option of paying a flat fee that would in turn allow scholars at that institution to contribute articles to Hindawi journals without needing to individually pay Article Processing Charges from their own research budgets. In most cases, the membership is held by the library.

This feature, already a staple of other OA publishers including BioMed Central and PLoS,<sup>4</sup> was not initially favoured by Hindawi management. According to Peters, they felt that it eliminated an important feature of the contributor-pays business model, namely that this model made 'the costs of publication visible to authors and thus helped to create more price-based competition in the publishing market.' While Institutional Membership eliminates some of these incentives, Hindawi felt they needed to take this step in the interest of their authors who wanted it, and because they felt there were institutions that were interested in supporting OA in this way.

Unlike subscription fees, which tend to remain fairly stable from year to year, Hindawi ties its Institutional Membership model closely to the volume of articles published by faculty on campus. While this has the effect of protecting the publisher's per-article revenue model, it can result in wide year-to-year variation in cost to the institution, to keep pace with the output of its authors. Annual membership fees are calculated by examining the past output of scholars from that institution and estimating what publications charges would be over the next 12 months. Peters says that this figure is expected to be an 'underestimation' of

<sup>2</sup> As of December, 2008, Hindawi has begun billing authors in their local currency: Euros and pounds for Europe and the UK, and US dollars for everywhere else. This was in response to the economic downturn started in fall 2008, and to significant losses due to their dependence on the euro. They see this new policy as both making business easier for their customers and an effort to diversify their revenue sources.

<sup>3</sup> Unless otherwise noted, all quotations from Hindawi staff members and other individuals knowledgeable or associated with Hindawi are drawn from interviews conducted as part of this case study between October 2008 and February 2009. A full list of interviewees is included in Appendix A.

<sup>4</sup> For more details on the BioMed Central model, see: [www.biomedcentral.com/info/about/instmembership](http://www.biomedcentral.com/info/about/instmembership) For further details on the PLoS model, see: [www.plos.org/support/instmembership.html](http://www.plos.org/support/instmembership.html)

the cumulative charges that year, 'since we expect that the membership will result in an increase in submissions from member institutes.' So, as the number of articles published at a university increases, so will its financial contribution to Hindawi.<sup>5</sup> This protects Hindawi's revenue, but can be difficult for librarians who may support the OA concept but find the variations in pricing difficult to manage.

*Print editions and new content types.* Another, smaller revenue stream for Hindawi, bringing in about 10% of its annual revenue, consists of print editions of the e-journals and a new line of scholarly monographs.

### Containing costs: The Cairo effect

Perhaps the most important element that has permitted Hindawi to accomplish what it has is its location in Cairo, Egypt. Cairo is home to a plentiful labour market of college graduates, and the company makes an effort to provide benefits that they feel are exceptional to their staff of 250: generous vacation, medical coverage, and free transportation to work, benefits that are apparently not common. Salaries in Cairo are substantially below those typical in Europe or in the United States, with a full time editorial staff member earning the equivalent of \$3,000-\$4,000 per year. There is some anecdotal evidence from past employees who set up their own Facebook page that while its salaries are not high, Hindawi is considered a great place to start a career, for its training and emphasis on high standards.<sup>6</sup>

“And it is this staff that Hindawi deploys to create the value of its enterprise...”

And it is this staff that Hindawi deploys to create the value of its enterprise: The 250+ employees include 40 business development staff who research new subjects areas in order to develop new journals and Special Issues; 30-40 editorial staff who liaise with authors, editors and reviewers; 60-80 editorial production staff who meticulously prepare manuscripts for publication; and 20 in-house programmers who build and maintain the platform and functionalities upon which the entire enterprise relies. Given that many publishers are already in the habit of outsourcing certain labour-intensive activities, such as production, Dr Hindawi estimates that the company's costs in these areas are on par with those of its competitors. It is in the areas of editorial and business development that Hindawi's location is most likely to result in significant costs reductions, since it is much less common for publishers to outsource these functions to countries with a low cost base. Salaries make up approximately

<sup>5</sup> A case in point is the decision of Yale University Libraries to drop BioMed Central membership in 2007, explaining that 'while the technology proved acceptable, the business model failed to provide a viable long-term revenue base built upon logical and scalable options. Instead, BioMedCentral has asked libraries for larger and larger contributions to subsidise their activities. Starting with 2005, BioMed Central article charges cost the libraries \$4,658, comparable to single biomedicine journal subscription. The cost of article charges for 2006 then jumped to \$31,625. The article charges have continued to soar in 2007 with the libraries charged \$29,635 through June 2007, with \$34,965 in potential additional article charges in submission....As we deal with unprecedented increases in electronic resources, we have had to make hard choices about which resources to keep. At this point we can no longer afford to support the BioMedCentral model.' See [www.library.yale.edu/science/news.html](http://www.library.yale.edu/science/news.html)

<sup>6</sup> See: [www.facebook.com/home.php?#/topic.php?uid=15828196187&topic=7313&ref=mf](http://www.facebook.com/home.php?#/topic.php?uid=15828196187&topic=7313&ref=mf). Accessed 14 February 2009.

half of Hindawi's operating expenses; with overhead- including everything from office space, marketing costs, and editorial fees- comprising the other half.<sup>7</sup>

## Key factors influencing the success of Hindawi's sustainability model

As the scholarly community continues to explore sustainable paths to providing content to an unlimited audience free of charge, the OA author pays model that Hindawi and others have adopted continues to be closely watched. Several factors stand out in the path Hindawi has taken that are worth highlighting, some replicable and others not.

### Understanding and creating value for users: authors as customers

With the shift from subscriptions to Article Processing Charges came a significant shift in understanding users. No longer required to sell subscriptions to libraries, Hindawi turned its attention to its new customers, the authors themselves. This new focus, according to Peters, has helped to clarify Hindawi's mission to be a 'service provider for authors... With authors as the customer, it is always very clear.'

Among the things Hindawi feels authors care most about are the scholarly excellence of the publication, the prestige that participating in a well-regarded publication confers, high quality production services, and increased visibility of their work.

*Building reputation.* As of early 2009, only 10% of Hindawi journals have an impact factor, still considered a very important mark of a journal's weight in the field. This is largely because 90% of Hindawi's journals have only been in existence for a few years. 'Technically, it isn't difficult to set up a journal,' according to EURASIP president Marc Moonen, who has worked in partnership with Hindawi for seven years, and who was the Publications Officer for EURASIP (the European Association for Signal Processing) when the society started moving its journals towards open access. Rather, the biggest challenge for starting new journals is in building a credible reputation, 'that's the hard part and a slow process.'

Many of the issues that Moonen feels are important in developing a digital open access journal are similar to the issues for print journals: 'You have a handicap because you start from zero reputation-wise, and in terms of impact factors (which can take five years or so); Many authors would never submit to a journal that doesn't have an ISI ranking.' One way to jump-start the process of reputation building is to 'get many people involved, a well-reputed editor-in-chief, with a good collection of reputed colleagues to populate the editorial board, and that's the first step.'

Other specific strategies they have found useful include creating special issues, with guest editors who can invite colleagues to submit papers. This strategy works particularly well for creating interest in the new community-edited journals Hindawi is launching. As Moonen explains, the goal is to create excitement around a special issue so that scholars start to think, 'Who can afford not to be represented on this topic?'

<sup>7</sup> Details of the financial arrangements Hindawi has with its partners SAGE, EURASIP and its Editors-in-Chief are confidential.

Where there is an editor-in-chief, the main responsibility for attracting authors generally falls to them. 'It takes tremendous effort and focus (to attract authors),' says Badr, 'a constant awareness of the field, who publishes what and from where; knowing quality work from less-than-quality work...Contacting colleagues, attending conferences, inviting people with certain reputations to submit work...'

*Building brand through affiliation: Partnerships.* For authors considering where to publish work, journal reputation matters, and so another strategy Hindawi has employed is to forge partnerships with well-established societies and publishers.

“...in 2008, EURASIP journals accounted for about one quarter of the total articles Hindawi publishes...”

About seven years ago, Hindawi began working with The European Association for Signal Processing (EURASIP), which also publishes some subscription journals with Elsevier, and together launched a new OA title, and experimented with optional OA for one of its subscription journals, before eventually also converting it to the OA model. This partnership in particular has been very valuable for Hindawi: in 2008, EURASIP journals accounted for about one quarter of the total articles Hindawi publishes, as well as one third of Hindawi's annual revenue of \$2,000,000, since these journals carry the highest-priced article fees.<sup>8</sup>

Last year David Ross, Business Development Manager at SAGE publishing, was investigating new revenue models and saw that several Open Access publishers in this space were having some success: BioMed Central, PLoS, and Hindawi all appeared to be profitable or on the way to profitability. The benefits of a partnership appealed strongly to both sides: SAGE was eager to experiment with this new model by working together with a partner who had strengths in technology and business models. Hindawi benefited, in turn, from SAGE's established brand and its strengths in the more traditional publishing functions of editorial management and marketing efforts. By working together with SAGE to develop a collection of open access journals, Hindawi would benefit from SAGE's established reputation within the academic community, while SAGE would be able to enter the Open Access arena without the financial risk of major new investment in technology.

However, while the contributor-pays model is built to be self-sustaining on the contributions of the authors, it relies upon the assumption of having a certain number of contributors each year, in order to cover the operating costs of the enterprise. Each journal need not generate a pre-determined revenue level, per se, but the total collection of OA journals must bring in enough contributors to cover costs for all. With 2 OA journals launched

in 2008, and another 4 just launched in early 2009, as part of the SAGE-Hindawi partnership, they are not yet at breakeven.<sup>9</sup>

*Delivering quality production services and tools.* Hindawi must also appeal to the scholars who volunteer their time to edit journals, many of whom may be authors themselves. By removing much of the 'clerical side' of the job by creating a system that makes the process of trafficking manuscripts through the peer review process less cumbersome, Hindawi sees itself as providing a valuable service to the editors who donate their time. In exchange, Hindawi offers them discounted submission fees for their efforts. One editor, who has also contributed articles of his own, raved about the article tracking system, in relation to those of other companies with whom he has published.

*Increasing visibility.* Its advocates often cite the appeal of open access models as the increased visibility that they can provide to published work. Peters agrees that this is a major benefit of the model, in terms of benefit to the authors: 'We encourage people to take their articles and put them everywhere they want without worrying about revenues, so work with content aggregation services to distribute content just to increase visibility, without having to worry about revenue. This has simplified our mission in a lot of ways.' Mostafa Z. Badr, Associate Professor of Pharmacology and Editor in Chief of PPAR Research, launched his journal with Hindawi in 2005, and has been pleased with the range of submissions he has received from all over the world, the result, he feels, of the journal's open access status.

While Hindawi journals' open access policy, by definition, make the articles available to anyone with an internet connection, they actively work with content aggregation services to distribute content to increase visibility. To measure impact, Hindawi analyzes statistics on PDF downloads and watches general usage trends to get an idea of whether the journals are being discovered. While citation and impact factors are a widely accepted measurement of an article's importance in the field, many of Hindawi's journals are still too new for this.

### Developing innovative growth strategies: Community Journals

Hindawi's continued growth depends upon increasing the number of articles they publish, while maintaining a high quality of scholarship to continue to encourage participation from authors and editors. Recently, Hindawi is starting partnerships – for example, the one with SAGE – as a strategy to develop new journals, though so far, the number of new publications through this channel has been modest, with a total of 6 to date.

“...Hindawi has set a rapid pace for launching what it calls its 'community journals,'...”

At the same time, Hindawi has set a rapid pace for launching what it calls its 'community journals,' a format whose decentralisation and automation make it the motor behind the

<sup>8</sup> For example, the journal which published the most articles in 2008 was *EURASIP Journal on Advances in Signal Processing*, with 105 regular issue articles, and an additional 183 articles appearing in 14 special issues over the course of the year. At a rate of \$1400 per article, this journal may have generated as much as \$403,200 in article processing fees.

<sup>9</sup> Four of the journals that have been launched in 2009 as part of the SAGE-Hindawi partnership will initially be subsidised by the publishers, enabling authors to publish in these journals without charge while the journals are in the process of establishing their reputation.

Hindawi strategy for growth. Within the business development group Hindawi allocates 20 people to the function of researching the scholarly landscape to identify promising areas to launch new journals. Working in small teams of 3-4 people, staff research a promising field, assemble editors and launch new publications, a process that takes on average 3-4 months. In 2008, these teams launched 8 new 'community edited' and one new 'editor-in-chief' journal per month. Unlike many journal development positions, Hindawi's staff does not travel extensively, but rather they identify potential editors for their journals using objective selection criteria based on data from a number of publication databases as well as academic websites. To reach potential authors, Hindawi runs display advertisements in areas where journals have strong readership, conducts email marketing to reach out to new authors, and launches topic-oriented Special Issues.

Community Journals are run by a large editorial board, ranging from 30 to over 100 members, recruited by Hindawi staff. Authors seeking to have their work considered are asked to determine which board member (based on examination of research interests and recent publications) would be the most appropriate reader for his or her paper. Hindawi staff monitor the process to control for conflicts of interest, but aside from that, leave the process in the hands of the editorial board. The benefit of these community-based journals is that they can cover broad subject areas while at the same time ensuring that every submitted manuscript is handled by an expert on the subject of the article, since each editor is expected to handle only those articles that are closely related to their area of expertise. Although Hindawi's management admits that many of its strongest journals are those run by designated Editors-in-Chief, they see a number of advantages in developing journals that are not run under the leadership of a single editor. One important benefit is that it enables Hindawi's editorial staff to manage the editorial boards of its journals, replacing editors who do not act in a timely manner with editors who more promptly handle the submissions assigned to them. The board members, who are asked to handle an average of 2 submissions per year, are unpaid, but receive a discount of 50% on publication charges for their own articles that they submit.

The board can discuss issues among itself via a mailing list, but there are generally no in-person meetings or regular conference calls. The community journals have only been in existence for about a year and a half, so their long-term success is still too early to gauge.

## Balancing volume with quality

For a financial model that generates more revenue the more articles are published, the question of quality control must be raised. While in theory, a publisher stands to make more money the more articles are published, the reality is more subtle than that. First, all those interviewed stressed that allowing in-subpar work would only backfire on a journal and its publisher by lowering its prestige. Indeed, Hindawi rejects on average 60% of the submissions they receive, and points out that their success will rest, ultimately, on maintaining the high quality of the work they publish.

## Technology and innovation

Several elements in the organisational structure of Hindawi contribute to what it sees as one of its greatest strengths: the ability to shift gears quickly in response to the market and to user needs. Rather than engage outside programmers, Hindawi

has custom built its platform with its staff of 20 programmers, which Paul Peters sees as critical to providing 'better quality control and providing much more flexibility, since changes can be implemented in a matter of hours or days, rather than weeks or months.'<sup>10</sup>

*Hindawi's technological solutions and a decentralised editorial process have been important factors in allowing it to quickly scale up its volume of articles.*

Hindawi's technological solutions and a decentralised editorial process have been important factors in allowing it to quickly scale up its volume of articles. A strong selling point to the editors who must manage the traffic flow of hundreds of articles is the Manuscript Tracking System, an automated system that Hindawi developers created to follow the workflow from submission through peer review, and then production. Other recent examples of innovation include releasing its articles in the ePUB format which, according to Peters, combines the 'beauty of a PDF with the flexibility of HTML' allowing greater portability of the journal content, without any loss to the production values they felt were important. In general, having highly qualified, inexpensive full time programming staff on hand has helped them to be flexible, and to respond quickly to changes.

Another interesting use of technology is illustrated by the first co-published journal from the SAGE-Hindawi partnership. *Human Genomics and Proteomics*, launched by SAGE-Hindawi in September 2008, was notable for its connection to a database. As Ross said at the time, 'We keep hearing, as publishers, that open data is going to be the next big development. With the internet, we can now disseminate the datasets that underpin articles, and in genomics there is a willingness to share data.'<sup>11</sup>

## Benefits and challenges of the open access/author pays sustainability model

The most obvious benefit of the contributor pays model is that in this case, it supports the mission of providing free and unlimited access to all readers with access to an internet connection. The project leaders hope that this will increase readership and expand the audience for the work. In addition, supporting the Open Access movement itself confers a certain prestige, or at least the endorsement of many in academia who believe it is a value that deserves to be championed.

<sup>10</sup> Peters, page 193.

<sup>11</sup> 'Journal unites research articles with raw data,' Siân Harris, *Research Information*, See: [www.researchinformation.info/features/feature.php?feature\\_id=186](http://www.researchinformation.info/features/feature.php?feature_id=186)

A second advantage is the securing of revenue in advance of publication. Cost recovery level is established and covered as each article comes in, so that in theory the project is paying for itself as it goes, rather than hoping to recoup costs only after the publisher has already made all of the investment.

A third benefit to the publisher of an author-pays publication is the lowering of barriers to entry for new journals. While creating a new subscription model today requires competing with deep pocketed and well established publishers for a shrinking pool of library collections (serials) budgets, the relatively new OA model can appeal directly to those authors who seek venues to publish and who have funds available to them through research or departmental budgets.

A fourth benefit, at least in the case of electronic journals, is the lack of limits to the number of articles published in an issue. The model is very different from the concept of a print journal, where there are fairly clear minimum and maximum numbers of articles or pages that an issue can accommodate. The contributor pays model acknowledges that there need not be these limits due to space constraints; as the volume of articles increases, so will the revenues to cover the costs of producing them.

There are several challenges to this model, however:

The first challenge is that not all authors may have access to the funds needed to pay the Article Processing Charges. While this has become a standard practice in many STM fields, it is nearly unheard of today in the humanities and social sciences. And even within STM, while journal prestige is likely to be the most important factor in attracting authors, all things being equal, it is not clear that all authors would necessarily choose to pay fees to support the logic of Open Access, if free alternatives of similar or better quality were available.

The institutional membership model may facilitate some author payments by shifting the burden to departmental or library budgets, but in practice, it ends up looking very much like a subscription, albeit a subscription whose price may change widely year to year. The variability of the annual charges may not be acceptable to all librarians, and even more difficult to manage when budgets are shrinking. So far, Hindawi's institutional membership has been quietly rolled out to those institutions who feel it suits their needs.

Challenges may arise from concerns that allowing authors to pay for publication could produce an incentive to accept a higher volume of articles, but of a lower quality. By placing more emphasis on the unit of the article rather than on the journal, there is less incentive to create a corpus of scholarly content of consistent quality. Without subscribers to journals, the peer review process takes on even more importance as it is the only direct control on quality of the submissions. Determining the right balance of attracting sufficient volume and sufficient quality is a difficult but necessary step.

And, the flip side of rapid expansion is in the demands this makes on readers' attention, particularly in the system of community-based journals, where the topics are broad and no one person or board's vision is responsible for shaping the content of the journal. The special issues have been one means to focus attention on specific themes, and this seems a necessary strategy to guide readers to the material they are most likely to want to read.

Finally, several elements critical to the success of the Hindawi model – a responsive technology group, meticulous production standards, and a large team of people focused on market research and new product development – are feasible due to the lower average salary in its Cairo office. Without the number of skilled workers who make these features possible, would this model work as well as it has?

## Broader implications for other projects

*In an OA/author pays model, it is critical to find the right balance between scale and quality.* This should be an obvious concern for any publisher employing a revenue model based on contributor payments. While publishing as much as possible would, in theory, lead to greater returns, Hindawi is aware of the delicate balance between driving volume while maintaining high scholarly standards: if the volume is not sufficient, the entity will not be sustainable; yet if publishing a high volume of articles permits inferior articles to be published, the reputation of the journal will suffer, and may make it more difficult to attract future authors, which will in turn harm the sustainability of the enterprise. It is a difficult balance that must be carefully maintained.

*Look for areas where you can have a competitive advantage.* In this case, Hindawi had the benefit of a highly educated, but inexpensive workforce which they could leverage to build and maintain a competitive infrastructure and offer personal attention to authors. They also chose a business model based on attention to authors as customers that favoured this low cost-base advantage. The exceptional circumstance of location and a favourable labour market may make some of Hindawi's best features impossible to replicate elsewhere.

*Experimentation is a valuable and ongoing part of business development strategy.* Hindawi's market research exploring new areas of growth within STM has allowed them to rapidly increase the number of journals they publish year to year. Once the journals are launched, the experimentation does not stop: the special issues concept allows Hindawi to continue to try out more specialised journal topics at little risk, and to foster the ones that perform best.

*Seeking out partnerships that complement your organisation's strengths can allow it to focus its energy on the things it does best.* Hindawi's partnerships with established publishers such as SAGE have allowed Hindawi to continue to develop content, build its audience, and explore new ways of publishing, while benefiting from SAGE's established brand and strength in editorial management and promotion.

*Customers are not necessarily the same as end users, and the needs of both must be considered.* Hindawi focuses great efforts on attracting and serving its main customers, the authors who pay the Article Processing Charges to have their work published. But these authors only make up a part of the full audience of a journal. Making it easy for end users to find the articles they need, whether through various online discovery mechanisms or by the framing of topics that special issues provide, is a critical part of maximising the impact of the articles.

## Appendix A: List of Interviewees

Note: an asterisk (\*) denotes a primary contact

Mostafa Badr, Associate Professor of Pharmacology, University of Missouri, Kansas City, and Editor-in-Chief of PPAR Research, 25 February 2009

Ahmed Hindawi, President and Founder, Hindawi Publishing Corporation, 10 February 2009

Marc Moonen, President of EURASIP and former Publications Officer for EURASIP, 9 January 2009

Ann Okerson, Associate University Librarian for Collections and International Programs, Yale University, 17 February 2009

\*Paul Peters, Head of Business Development, 12 October, 2008, 13 January, 2009 and 12 February 2009

David Ross, Business Development Manager, SAGE Publications, 22 December 2008

## Appendix B: Summary of Revenues and Costs

### Hindawi Publishing Corporation

Revenue Category	Description	Approx. amount
Article processing charges		£1,452,000
Sales of books and print journal copies		£145,000
<b>Total revenue</b>		<b>£1,597,000</b>

Cost Category	Budgeted Costs			In-kind/volunteer contributions
	Description	FTE	Approx. cost	
<b>Personnel</b>				
Management	7 FT upper management	7	yes	
Content selection & production	80 FT production staff 50 FT editorial staff	130	yes	In addition, journal editors, members of editorial boards, and peer reviewers volunteer their time
Sales & marketing	40 FT journal development 10 FT Marketing and design staff	50	yes	
Technology	20 FT programmers 10 FT content management staff	30	yes	
HR, Financial, Accounting	50 HR, Accounting, Administration staff	50	yes	
<b>Total personnel costs</b>		<b>267</b>		<b>£726,000</b>
<b>Other non-personnel costs</b>			Included in budget?	
Administration & overhead	All organizational overheads		yes	£508,000
Sanning, metadata, etc.	Database subscriptions		yes	£36,000
Hosting & technology infrastructure	External costs related to hosting and infrastructure		yes	£73,000
Other	Revenue shared with societies, editors and partners		yes	£109,000
<b>Total other non-personnel costs</b>				<b>£726,000</b>
<b>Total budgeted costs</b>				<b>£1,452,000</b>

