

Electronic Publishing Models and The Pricing Challenge

By Michael P. Spinella

How will the Internet change scholarly publishing, and how *should* it? Will print publishing become obsolete, or only be supplemented by online, searchable articles? Will the Internet somehow lead to a whole new system where raw ‘self-published’ material is commented on widely by an expert community, somehow supplanting the traditional notion of peer review by only a few, often anonymous experts?

Amid these long-term, philosophical questions about the very nature and purpose of publishing, there is more immediate interest in understanding the economics of online publishing. Publishers are under great pressure to supply new capabilities available through online publishing, and to develop viable, affordable business models to ensure the future viability of scientific publishing in the new medium. Those who fall behind, or so it is feared, may ultimately fail as publishers, or face a kind of publishing oblivion as more and more readers rely on the Internet for locating information resources.

At the same time, librarians – facing the ongoing explosion of new information sources, and consequent rising costs – hope that Internet publishing will somehow lead to radical declines in publication prices. This ideal is sought not merely to relieve budget pressures, but also to ensure that libraries may continue to fulfill their traditional role providing broad access to comprehensive collections of information.

This paper, based on a talk delivered at the PEAK conference at the University of Michigan in March of 2000, will attempt to describe the current state of the transition underway in scholarly publishing, from the publisher’s point of view. I will also review a number of the electronic publishing models currently in use, focusing on Science magazine and contrasting it with the typical scholarly publication. Finally, I will discuss the challenges faced by publishers in setting online prices, noting the critical importance of sales volume as a driver of online prices.

Scholarly Publishing in Transition

Scholarly publishing used to be a quiet, respectable backwater of the much larger, and more volatile, publishing industry. Where many consumer publications rise each year and fail quickly, scientific journals seem to prosper over time, once they overcome the considerable entry barriers. But it turns out that cross-platform searchability and other features of the Internet are ideal tools for improving the utility of scholarly journals. This characteristic has cast scholarly publishers on the leading edge of the publishing industry, and has forced them to explore both the technical and business aspects of online publishing. Many scholarly publications are managed by non-profit associations, or by relatively conservative commercial publishers, and have little experience in managing such a complex transition.

Besides the reader benefits, publishers are attracted to Internet publishing for a number of reasons. One key attraction is the promise of wider readership and recognition for the publication. Publishers see an opportunity for brand preservation and extension in this new medium which has so rapidly become so widely available. These opportunities for expanded readership and branding, of course, spell a possible business opportunity in selling subscriptions and advertising online. Some see new revenue possibilities that never existed in print, such as the chance for widespread pay-per-article, an extended economic life for older content, and e-commerce in conjunction with advertisers or other new partners. Finally, many publishers also view their online presence in a defensive mode: bringing the traditional printed work online may be necessary in order to maintain the interest of current readers and protect the revenue base that already exists in print.

The Internet is regarded as a 'disruptive' technology, one that changes the service norms and economics of publishing (and other industries) in unpredictable ways. Therefore, online publishing is seen as a threat. To understand the current milieu of scholarly publishing, it may be useful to consider how online publishing has changed 4 of the 'forces' that act on publishers: competitors, suppliers, buyers, and the market environment.

The Internet changes fundamentally the costs of publication distribution. Thus, it lowers barriers to entry, inviting many new players into the field, along with the traditional, known competitors. Start-ups that seek to exploit a new technology are generally more 'nimble' than traditional players, partly because they have less existing revenue at risk, and tend to eschew ingrained ideas about the new business.

Furthermore, a new technology with uncertain parameters leaves even accustomed competitors unsure of how to manage the new situation. Thus, as leading companies attempt different models for creating a viable business, they send confusing or unreadable signals into the market. Competitors do not know how to assess these moves, or how to respond to them.

Suppliers to the scholarly publishing industry are also undergoing realignment as the Internet comes into use. Key suppliers for scientific publishers are the researchers themselves, who submit papers describing their latest findings for review and publication. As authors find they have more outlets for their work and discover new ways to communicate findings to their colleagues, they are empowered in their dealings with publishers. Though they still seek the imprimatur of independent refereed journals, they have more leverage to demand services and concessions. Technology workers have become similarly empowered as publishers (and of course most other industries as well) increasingly depend on their capabilities. These influences will tend to increase costs, as publishers must compete for the raw materials and resources of their business.

On the flip side, suppliers on the distribution side of publishing have lost ground. Postal services and other distribution outlets (such as international carriers) face significant threats to their publication business if many publications ultimately choose to publish

online only. But this phenomenon doesn't benefit publishers by bringing them cost savings unless they can entirely abandon the distribution chain. In the short run, costs will, perversely, tend to rise. Since distribution costs are, to some extent, volume based, publishers may face rising delivery costs per unit as their volumes drop. The same problem applies to the printers of scholarly publications. Savings are only available to the publisher by abandoning the medium altogether. Reductions in print volume will only tend to increase costs per unit.

Another force operating on publishers is the buyers and readers of the journals we publish. These include both individual subscribers and the libraries that support many scholarly publications. Consumers of information gain significantly from the Internet by obtaining much better access to alternative information sources. Furthermore, the sharing and copying of digitized information is far easier and less expensive for users than any previous 'copying' mechanism. This will tend to lessen the opportunity for publishers to generate revenue from subscriptions and licensing. In addition, the interactivity enabled by chat groups and listservs gives consumers access to more accurate pricing and term information, which in turn makes them better negotiators for the services of publishers. Furthermore, their expectations will tend to increase for quality benefits and features from the publishers they support. Publishers will find that, with the easy access provided through convenient and inexpensive e-mail, their customer service costs will rise.

The general market environment for publishers is also undergoing transitions with unforeseeable consequences. Electronic distribution of information, and the ability of users to duplicate and redistribute materials at very low cost, holds unclear legal implications for copyright enforceability. Meanwhile, increased consumer awareness of privacy issues places pressures and restrictions on publishers' use of the data they gather about their readers.

Amidst downward pricing pressures from their buyers, publishers face increasing demands for sophisticated online services, which adds to cost. At the same time, it appears that a 'centralization' of buyers is occurring. Even though a publisher may locate more *readers* online, it is less clear that these readers will become paying subscribers. Library services have, in effect, broken out of the library, as site-wide subscriptions bring the information to users' desktops. This is, of course, a good thing for the availability of information, but it does not necessarily lead to lower prices, since it may discourage personal subscriptions.

One reaction of publishers to all these influences and conflicting goals has been to develop a proliferation of access and pricing models in search of viable solutions to the business challenges they face. Next, we will examine some of the main access systems and pricing models in place among scholarly publishers, with an emphasis on the models in use by Science Online.

Access and Pricing Models

A variety of revenue strategies exist in print publishing. There are controlled circulation magazines that rely almost exclusively on advertisers to pay the cost of producing a journal for a targeted market. The key to success in this type of publishing is to achieve very high coverage of the targeted market (and, of course, it only works if the market is a focal point for advertisers). This is an uncommon strategy for peer-reviewed journals however. Mainly, the scholarly publishing industry relies on either library sales or personal subscriptions (or memberships in a non-profit society) for the ongoing revenue to produce the journal. Some rely on a mixture of these circulation revenue streams, along with advertising sales.

In these early days, it is not surprising that online strategies tend to reflect the print strategy of the publisher. Table 1 provides a summarized version of the main print business models, and their online corollaries.

Table 1. Print Business Models and Online Corollaries

| Print Model | Revenue Stream | Market Features | Online Corollary |
|------------------------------|--------------------------------|------------------------------------------------------------------|--------------------------------------------------------------|
| Controlled circulation | Advertisers or external funds | Requires high market coverage; Seldom used for refereed journals | Free, ad supported site; or free with print and registration |
| Personal subs or Member subs | Individuals | Reviewed; tends to large audience; may be more general | Free or small fee with print; may allow online only |
| Institutional subs | Libraries | Small, specialized; tend to higher prices | Site-wide for fee or free with print |
| Mix | Members and libraries (+ ads?) | Complex interplay of markets | Unsettled, but usually fee + print required |

Controlled magazines will tend to put their contents online for free to users, attempting to attract advertising revenue to the site.

Those journals relying on library subscriptions will most likely develop a library site-wide access model; while those relying on personal subscriptions or memberships may treat the online product as an added-value benefit of the print subscription.

Mixed revenue models may include a mixture of advertising, individual subscriptions, and library subscription, not to mention licensing and authors fees, to provide revenue. Of course, nearly every magazine may have some mixture of these various types of revenue, but what is important in devising an Online strategy is to fully understand which revenue stream is the ‘driver’ of the business.

Science receives some revenue from every one of the sources named above, and so is a rather complex case, however, there is no question that the economic drivers of the journal are membership dues and advertising. Library subscription sales represent a significant third revenue stream. Though subscription sales and membership dues represent less direct revenue than advertising, they are nevertheless the underlying driver for all Science, since ad sales are also premised on the journal's relatively large circulation. Library subscriptions, though the smallest revenue stream of the three, represent a critical part of the mix. If there were no library sales, personal subscription rates would be appreciably higher (and the corollary is that if there were no personal subscription sales, library rates would be very significantly higher). The other revenue sources named, such as licensing, are very modest in comparison. There is little reason to think the journal could be sustained on these revenue sources alone.

I have jumped directly to the complex case of Science, but it is worth mentioning the other paid subscription models. Essentially, there are two: Library driven, and membership or personal subscription driven. A rule of thumb (for which there may be many exceptions) is that if the circulation of a magazine is under 5000, it is probably library subscription driven. Many scholarly journals fall into this category, even those published by associations.

What are the online corollaries to these print subscription models? Many scholarly journals, whether commercial or non-profit, are struggling with this question, and many different experiments with access types are being conducted. Among the most widely in use are:

- Free public access after an embargo period
- Free personal online access with membership or paid print subscription
- Institutional site-wide access free with print subscription
- Institutional site-wide subscription
- Institutional access, by subscription and restricted in some way, such as
 - Embargo on when the content becomes available online
 - Incomplete content
 - Limited geographic access, for instance, to library, or a portion of campus, or a single 'site' (which may be a building, a campus, or a city)
 - Limited virtual access to certain workstations or a subnet

The online strategy a given publisher will pursue is closely related to their view of the likely interaction between print and online publishing in the short run. Since there are many difficulties and unknowns with the revenue model for online access, publishers will often hedge their bets by pursuing what may be thought of as a 'forced print' model. In these models, online access may or may not be charged for, but all online access is made dependent on the retention of a print subscription. In most cases, the online product will be treated as a supplement to the print, and charged (if at all) as an ancillary service. Though this is a conservative approach, the 'forced print' model cannot be written off as merely a reactionary and futile attempt to preserve print. Science has substantial user

feedback suggesting print is still highly valued among readers, even as they embrace the added benefits that online products offer, such as immediacy and searchability.

At the other extreme, some publishers will seek to capture the cost-saving potential of online publishing, and, perhaps, to steal a march on competitors in the transition to electronic-only publishing. This approach will be particularly appealing to start-ups, though it is certainly not unheard of among traditional publishers. The strategy is reflected in business models that encourage the buyer to purchase online access only, and provide pricing incentives for doing so. In the case of many start-ups, the strategy could be called a 'forced online' strategy, i.e., there is no print product at all. But other publishers will continue to provide print in response to reader demand, while setting discounted prices for online only, usually at 80% to 90% of the print price, to give buyers incentives to make the switch. 'Forced online' strategies are relatively risky because of the many unknowns about user acceptance, ability to generate revenue from subscriptions or advertising, and sustainability of the system at reasonable costs. But they do make sense for smaller circulation publishers (especially of high frequency or high page count journals), where substantial savings can be gained by pushing toward online delivery.

'Forced print' models are difficult to administer if the publication relies on both personal and institutional subscriptions. This is because the institutional market impinges on the personal subscription market far more severely for online products than for print products. In print, accessibility to library copies is limited (one at a time usage) and inconvenient (the reader must be physically present in the library), so most frequent readers and many occasional readers will be strongly motivated to acquire personal subscriptions to the journals they find most important or useful.

But with the advent of site-wide access, the contents of journals are far more readily available to all users, thus presenting a temptation, especially among the marginal readers, to forego personal subscriptions. If there are site-wide subscriptions, there is no ability to reserve online access exclusively for paying individual subscribers. Further complications arise if there is an advertising revenue stream in print which needs to either be preserved or migrated to online. Responses to this situation are the most complex and wide-ranging, in part because no one knows which will be most effective. Thus, many publishers are pursuing a variety of access models simultaneously. Table 2 shows the main access models currently in use by Science Online. Note that some of the access models provide only partial content in order to approach certain market segments, or achieve different business goals.

And if the proliferation of access models is confusing, the price structures in use for these many different models are all the more so. Some principles from print subscription pricing do seem to carry over into the online world so far, although not always with the same results.

Table 2. Science Online Access Models

| Access Model | Target Audience | Business Goal |
|-------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------|
| <u>Personal access:</u> | | |
| Free Samples/Searching | All potential users | Attract prospects |
| Abstracts with Registration | Moderate user | Readership for advertising; Attract prospects for subs |
| Pay-per-View | Infrequent user | Attract prospects for subs |
| Full text access with fee | Members only | Sub revenue; Readership for advertising |
| <u>Institutional access:</u> | | |
| Workstation access | Libraries, mainly public or high school, or colleges with minimal science focus | Economy access for broad range of primary ed. Institutions |
| Site-wide full text access | Universities/Research Institutes/Corporations | Sub revenue Readership for advertising |
| Consortial Pricing | Universities, 2-year, and other HE institutions | Expand site-wide sub mkt; Readership for advertising |
| Licensed content with embargoes or usage limits | Library segments with specialized needs | Ancillary revenue |

In general, Institutional subscription prices are well above the price for personal subscriptions. Higher circulation journals tend to have relatively lower prices than small circulation specialty journals. And lastly, the narrower titles serving very small populations tend to rely on library sales much more heavily than personal subscription sales. All these rough principles seem to hold true, at least so far, in online pricing. However, as we shall see, publishers face a series of perplexing problems and risks in setting online subscription prices. These issues are far from settled at this time.

Pricing Challenges

It is widely understood that the Internet presents an opportunity for substantial decreases in the costs of scholarly publishing. Because paper, printing and postage—the principle variable manufacturing costs of publishing—are quite substantial for nearly all publications, there is an opportunity for publishers as well as their buyers to capture some cost savings through online delivery. But there is also a good deal of misunderstanding about the economics underlying print publication costs and pricing.

There is more to publishing than covering variable manufacturing costs. In accounting terms, any price must cover variable costs, fixed costs and margin. When a journal has other sources of revenue than subscription sales, of course, the costs may be spread out over different sources; thus, the subscription price will reflect a contribution to the total fixed and variable costs, but not necessarily full coverage. Even so, many scholarly

journals are largely dependent on a single revenue stream for their existence, and more often than not, that single revenue source is library copies.

Not all journals experience the same level of variable costs. The cost of serving each new subscriber can vary greatly, depending on factors such as the frequency of publication, whether the journal is distributed globally, the size of the circulation, and how many pages are printed per issue. In general, we can expect online distribution to significantly improve these costs, thus, in theory, making it possible for low circulation journals to publish many pages, circulate them worldwide, and publish as frequently as needed. But, of course, these savings will only be realized if and when publishers can abandon print publication altogether.

Another misunderstanding that may need clarification is the idea that manufacturing costs are the only variable costs. They are not. For instance, the cost of maintaining subscriber records, sending renewal notices and bills, and providing customer service are all variable costs that rise as circulation of the journal increases. Some of these items may also be improved, but not eliminated, by use of the Internet. Science, for example, has begun to accept orders and renewals online, and this 'source' of orders has increased rapidly, relative to more traditional sources such as direct mail.

The fixed costs of publishing cover things like overhead and the cost of all the staff (not just editors) needed to run a professionally produced journal. Fixed costs are not uniform across all types of print journals. They may vary based on the depth of peer review undertaken, the breadth of disciplines and issues covered, and the extent of the marketing and other support efforts needed to produce the journal. Staffing costs are not likely to be reduced by online delivery, and in fact may increase substantially. Increased reader expectations can drive demand for more editors, more technical staff, and more sophisticated customer services.

Besides staff costs, fixed costs include major technical systems required to maintain the publication. One reason for the pricing disarray that exists in scholarly publishing right now is the uncertainty about what the steady state cost structure of online publishing will be. Everyone, by now, has come to realize that merely throwing a few files onto a server will not constitute a viable publishing operation. Publishers are expected to provide added value services, to exploit the special features of the Internet to improve searchability, linking to outside resources, and other aspects of the readers' experience; to maintain a number of back issues indefinitely; and to provide for a more permanent archive. Quality control is also a much larger problem online than in print. With the expectation of retaining back issues online indefinitely – and integrating them with new material for searchability – quality control is a job that is, in a very real sense, never completed. All these activities represent new costs associated only with online publishing, and until a more settled view of expectations is reached, it will be difficult for publishers to assess accurately what their fixed costs will be.

Further complicating the situation is the centralization of buyers. As mentioned earlier, there is some reason to think that, even though the Internet may bring more readers than

ever to a journal, there will be fewer paying subscribers. Libraries used to maintain multiple subscriptions to the most popular journals, but will purchase only one ‘site license’ to online publications, no matter how popular they become.

More important – if the publisher relies on individual subscriptions – is the problem of library subscriptions ‘cannibalizing’ the publication’s personal subscription base. In print, this phenomenon is a minor factor, because many people will still decide to purchase their own copies for convenience and portability. Some individuals also like to retain their own ‘library’ of key journals. All this is swept away by institutional site licenses to journals. Many of the compelling benefits of personal print subscriptions are lost if the very same product is available online at their desktop through their university. Though most readers still report a preference for the ‘look and feel’ of print, and its portability, these benefits are strained against the economic incentive to drop print and save the subscription cost.

If buying centralization continues to grow, it means that the fixed publication costs will be spread over a smaller number of payers, and thus will rise as a portion of total price. Depending on how much the size of the buying market declines, the effects on price can be surprisingly steep.

Margin, the third component of pricing, is usually expressed as a percentage of the gross cost of production. Endless arguments may ensue, about how much margin (profit) is ‘permissible’ in a scholarly journal, or even whether *any* margin should be charged by non-profit entities. In the end, it must be acknowledged that nearly all important and vibrant publications will charge some sort of margin. A publisher cannot produce cash for improvements, fund startup projects (whether charitable or commercial), or even merely ensure that the journal has enough financial flexibility to weather an unforeseen crisis – or pursue an unexpected opportunity – without generating some revenue in excess of the precise costs of producing the journal.

In business circles, it is understood that margin increases with risk. Among the risks faced by publishers navigating the transition from print to online publishing are:

- new competitive challenges
- increased demand for technically sophisticated information products
- potentially diminished print revenue base
- unclear cost basis
- centralization of buyers

All these risk factors have been mentioned in other contexts in this paper. Given this long list of unknowns, it may be predicted that publishers will price their new online products with wide margins of error.

But that doesn’t mean that online publication prices are loaded with ‘fat’ either. A very simple illustration of the overall pricing problem may be helpful here to draw out the conclusions for this discussion. For clarity, this simple model assumes no other major

revenue stream to share costs or be impacted by a transition to online, and no price differentiation among target market segments. The purpose is only to illustrate the effects of changes to the paying base on the pricing for a journal.

Imagine a print publication with 10,000 subscribers and a frequency of 12 issues per year. If the fixed costs for producing the journal are \$1 million, and the manufacturing and distribution costs are \$2 per issue, the cost base per subscriber, exclusive of margin, might be set at around \$130. Of that \$130, \$24 per subscriber would be dedicated to manufacturing costs, another \$6 for other variable costs, and \$100 for fixed cost contribution. Then the publisher would likely add between \$13 and \$26 dollars of margin to produce a price per subscriber of, say, \$149.

Now let us suppose this journal switches to online publication, entirely abandoning print as a medium. Again, this scenario is simplistic in order to underscore what the economics of a fully online journal might look like after a transition is completed. The scenario avoids, for now, the necessity of accounting for the pricing effects of producing the journal in two media simultaneously, although this is more like the reality of scholarly publishers today.

In this example, then, the variable costs will decrease quite significantly. For discussion, let's assume that the manufacturing decreases by 75% to only \$.50 per issue, while the other variable costs reduce to \$5 per year. Costs that had represented \$30 of the print price now represent only \$11. Of course, if all other factors remained equal, then this should be a boon to all parties. The publisher could lower the price and still maintain the same gross profit as before (which means the margin would *increase* as a percentage of price – but higher margins are considered in business theory to be an appropriate reward to businesses that find ways to cut costs without sacrificing quality).

But all other factors do not remain the same. In all likelihood the fixed costs will be higher, as reader expectations increase. Even if the fixed costs do remain the same, but there is a centralization of buyers, the fixed costs will have to be spread across a smaller group, and therefore will rise. And the increase in the fixed cost portion of the price can be disproportionate to the loss of subscriptions. If, for example, the number of buyers reduces by 30%, dropping from 10,000 to 7,000, the fixed cost portion of the price will rise by nearly 43%, from \$100 to \$142.85. And overall, this would result in a higher base cost of $\$142 + \$11 = \$153$. Even if the publisher accepts the same gross margin (which would be a thinner percentage), the final price would rise to \$172, a 15% price increase to subscribers, despite the substantial decrease in variable costs.

Of course, many counterarguments may be adduced for why things wouldn't turn out this way, or how a creative publisher could turn their online presence into other revenue opportunities, such as advertising. These arguments are not necessarily incorrect, but they may be too facile. For example, there is little reason to believe that a publisher who cannot sell ads in the print journal would succeed much better merely for having the journal online. Even if the publisher does sell print advertising, the transition may not be

simple, since many advertisers remain skeptical of the medium, or at minimum highly resistant to paying prices similar to print advertising rates.

Another counterargument is simply to deny that subscription losses of this magnitude will occur. It is certainly true that the scenario described above allows some flexibility for the publisher to lose subscriptions. The 'breakeven' amount of subscription loss in the case above is around 16%. That is, assuming a drop in subscriptions to 8,400, and assuming the fixed costs for producing the journal stay the same, then the variable cost savings are enough to offset the increased portion of the price dedicated to fixed costs. So the problem for publishers isn't whether they will lose *any* subscriptions, but a more complicated problem: how much will fixed costs increase due to online publishing; how much will subscriptions decline; how much variable cost savings will there really be? It is the complicated interplay of these uncertain effects, along with the enticing but uncertain prospect of developing other revenue streams, that leaves the pricing of online journals a very tricky matter.

From this example, we can ascertain a few distinguishing principles to help guide publishers in estimating the risks and assessing the costs of their transition to electronic publishing. First, when the publication's variable costs are a larger portion of the total cost than the fixed, it will likely be far less risky to move online. This is because the greater the savings that can be accomplished from electronic publication, the deeper the subscription losses would have to be before they caused the fixed cost distribution to rise more than the variable costs savings. Typically, journals with low circulation, and high page counts or high frequency would have relatively high variable costs. If the journal is narrow in its editorial scope, it may also have relatively lower fixed costs. Such a journal would be the very best candidate for moving to online publication.

In addition, the breadth of the print revenue base is an important consideration in moving online. Any publication without advertising, and that relies primarily on library subscriptions rather than personal subscriptions for its operating revenue, can much more readily determine the cost sensitivities and risks of electronic publishing. These circumstances describe a very significant number of scholarly journals.

Should we, therefore, not expect to see journals moving online that do not meet these criteria? In some ways, high circulation journals with a variety of revenue streams might seem to have everything to lose and nothing to gain by undertaking the transition. However, recall from the beginning of the paper, that the attractions of online publishing for larger scholarly journals are many:

- greatly enhanced reader benefits;
- broader and more convenient accessibility;
- brand extension and preservation;
- possibility of substantial variable cost savings combined with the promise of novel revenue streams;
- need to remain up-to-date and relevant to readers, to defend against obsolescence.

With both reader demand and library demand for enhanced service so high, it is inevitable that journals of all stripes will begin moving online. One important factor for the larger publications will be trying to create some way to either preserve the print subscriptions or translate the broad print audience of buyers to an equally broad audience of buyers online. The more widely fixed costs can be distributed the lower will be the price for all parties. In the print world, of course, this would be a commonplace understanding. Ironically, however, in the current context of online publishing, this modest insight seems like heterodoxy, since it follows from the counterintuitive assertion that – in some circumstances – online publishing could actually result in higher priced subscriptions than print.

Publishers, librarians and readers of scientific journals are all rightly inspired and intrigued by the great possibilities for electronic publishing to revolutionize and democratize scholarly communication. But if the publishing and peer-reviewing process adds value to those communications – and most observers continue to agree that it does – then these cooperating parties will need to come to a fuller understanding of the economics that underlie the process. Care must be taken that in the rush to implement new technologies to benefit readers, we do not undermine the fundamentals that make publishing a useful, as well as a financially viable, enterprise.