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Business Models for Post-Crisis Information Ecosystems

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Business Models for Post-Crisis Information Ecosystems

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Abstract

Since early 2020, the global COVID-19 pandemic has interrupted activity across business, education, research, and communities. Public health safety precautions have forced drastic reductions in economic and educational activity, resulting in widespread economic uncertainty and sizeable budget cuts. With library budgets already declining since the 2001-2002 recession following the dotcom crash and more steeply since the 2007-2009 Great Recession spawned by the financial crash, the pandemic has accelerated trends that were already underway. Libraries' reduced purchasing power places the information ecosystem at risk of contraction in the race to contain costs. While economic contexts and publishing forms have changed considerably. Purchasing and pricing models have in large part not kept pace with these rapid changes. Yet evolving technologies offer potential for new approaches for publishing, distribution, and purchase frameworks. This paper outlines current research on declining budgets' constraints on business models and summarizes the interactive exchanges from the 2020 Charleston Conference Lively Session

(<https://2020charlestonconference.pathable.co/meetings/virtual/iynj57JqTdEgGSeis>).

The session kicked off with a summary of findings from ongoing research on business models. Pressure points include the evolution and broadening from publications to services to the broader research universe, rising costs in a context of economic constraints and declining budgets, pandemic safety measures and massive support for large-scale pivot to online instruction, complications with evolving Open Access models, and vendor mergers and acquisitions and investor pressures which impact the services they can provide. Updated pricing and purchasing models would benefit from moving away from print-based calculations toward the cost elements found in modern content production and dissemination. Session participants echoed these findings in the conference poll and the Lively Discussion, calling for new approaches to pricing and online platforms.

I. Business Models and Constraining Factors

Journal Publishing Business Models have experienced mission creep as vendors have evolved from a product model to a service model. Vendors have expanded from traditional roles of servicing subscriptions and providing published resources for libraries. Newly created services continue to inject new cost elements, as vendors branch out into function-specific platforms and research metrics. As a study on business models found, “[a]nother characteristic of the journal business is that many companies have moved towards a service model as opposed to a product model” (Phillips, 2013).

Rising Costs vis-à-vis Declining Budgets

Libraries' flat or declining budgets, in the face of continued rise in cost of library materials, leave libraries unable to bridge gap and thus unable to sustain existing collections. This leaves researchers, educators, and learners with reduced access to resources in an era of increasing research output. The authors of a study on budget erosion note that “[t]he 5 to 6 percent average price increase observed in 2020 is expected to remain constant for 2021, and this will lead to further contraction of resources for library users” (Bosch, Albee, & Romaine, 2020).

Pressure points

Pandemic

The global COVID-19 pandemic that began early 2020 has exacerbated numerous existing trends. Physical-distancing mandates triggered facility closings, move remote delivery of services, and large-scale shifts to online instruction. Health safety measures have also included limited hours and staggered work schedules in many libraries and industries whose business models depend on customers visiting their premises.

The pandemic's adverse impact on business and incomes has resulted in budget reductions for public and educational institutions. Concurrently, the massive surge in demand for online education has increased the need for more e-resources. Yet libraries have encountered an unresponsive marketplace lacking the flexibility to fully support these rapidly evolving needs.

Open Access

With continued growth and importance of Open Access (OA), libraries face declining budgets spread across larger numbers of competing cost categories. Predatory practices among some OA publishers require greater vigilance among libraries and researchers seeking to acquire knowledge and among scholars seeking to disseminate knowledge (Dempsey, 2020; McCabe et al., 2013; Peet, 2020).

Mergers & Acquisitions

Mergers and acquisitions among library vendors bring consolidation, and at times dilution or discontinuation, of vital services. Mergers can impact the services a vendor is able to provide, organizational memory of distinctive and nuanced services and products, and diluted service and reduced quality experienced by customers. In unfortunate cases, mergers can also bring mismanagement and lead to financial instability.

In the case of vendor ownership by publicly traded or holdings companies, investor pressure to produce returns for shareholders and short-term thinking can exert a negative impact on quality and service (Breeding, 2020; Enis, 2020; Hulser, 2014; Shumaker, 2020).

II. Getting at the true cost: in search of sustainable pricing and business models

Cost Structures and Sustainability

What feeds into resource pricing? Unsustainably rising rates point to the need to identify cost drivers. The Periodicals Price Survey 2020 states that “New approaches have emerged but none offer a solution to serial costs continuing to rise higher than library budgets” (Bosch et al., 2020).

Production, Pricing, Cost Recovery

Getting at the cost drivers can be achieved through activity-based costing (ABC), a costing method from the field of managerial accounting. It aims to pinpoint the true cost of products, services and outputs, and to achieve better allocation of indirect costs.

Activity-based costing systems’ main objectives are to provide accurate costing by removing cost distortions and to help identify low-value-adding activities (Berg & Madsen, 2020; Kim, 2017).

The table below demonstrates types of activities and examples of cost drivers for each activity:

Type of activity	Cost driver for activity
Purchase of materials	Quantity of materials purchased
Machine setups	Number of machine setups
Computer usage	Computer time
Running of machines	Machine hours
Inspections	Hours of inspection time
Testing	Hours of testing time
Prepare billings	Customers served

Table 1: Types of Activities and Examples of Cost Drivers for Each Activity

(Fabozzi et al., (2007)

Getting at the true cost: in search of sustainable pricing and business models

Activity-based costing elements for the information ecosystem reflect evolving production methods supported by technologies.

Production elements:

- Digital production is growing, reflecting the waning of physical production.
 - Technology for production includes digital publishing tools, software, and machines (for example, servers, platforms, security, cloud).
 - Technical staff with expertise include, for example, engineers, computer & data scientists, and technical support.
- Physical workspaces include buildings, offices, and production spaces.
- Production equipment and supports include computers, printers, software, utilities, telecommunication costs, as well as production-related furniture and equipment.
- Lasting intellectual components of content production include:
 - Authorship, peer review, and editing (expert staff and academic researchers)
 - Layout, graphics, metadata tagging for discoverability (publishing and production staff)

Changing production has spawned the need for new product price calculations based on current cost factors (Phillips, 2013).

Cost drivers in publishing, in activity-based costing framework:

Cost drivers include resource costs, activity costs, and the costs of the cost objects. This chart provides an example of the components for publishing output:

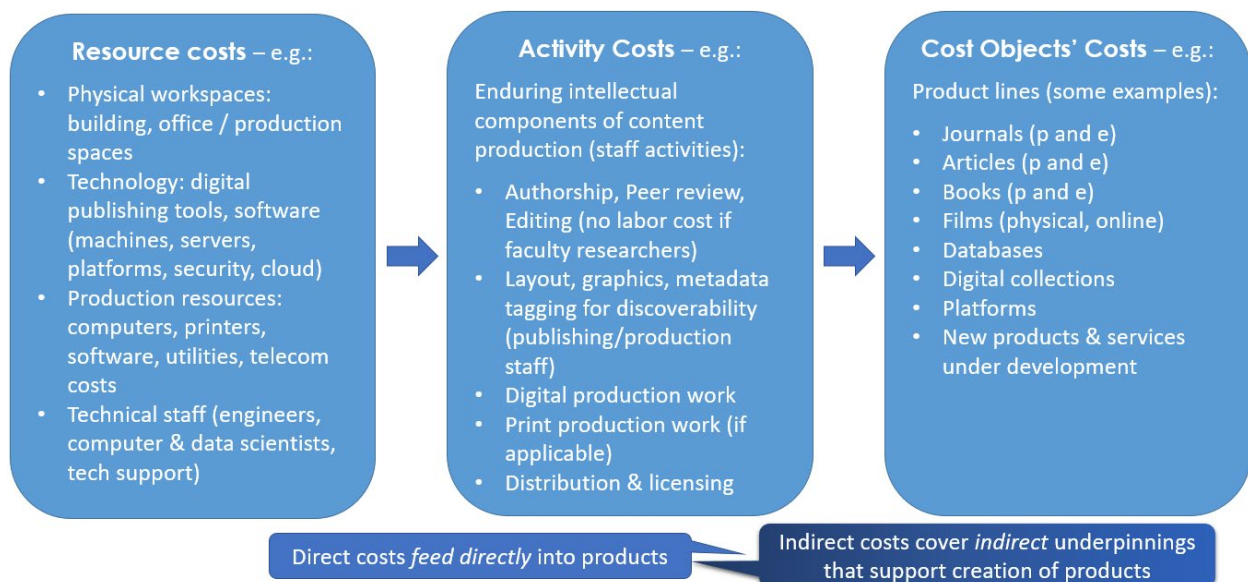


Figure 1: Cost Drivers in Publishing, in Activity-based Costing

(adapted from Kim, 2017)

III. Interactives: Conference Poll

The self-paced session poll provided by the Pathable virtual conference platform enabled the speaker's poll creation before the conference. This allowed session participants to complete the poll at their own pace – both before and after the conference session. Audience members responded to a total of 5 questions via the session's built-in poll, with anonymous responses displaying within the session's Polls portal in real time: The session's five poll questions asked the following: **(1)** Are you a librarian, publisher, vendor, technology provider, etc? This multiple choice question established basic attendee demographics. **(2)** If you answered "Other" in Q.1, please describe. This free-text question gives respondents to describe their industry position in more detail by accommodating open-ended responses. **(3)** What are your biggest pain points? This multiple choice question offered responses related to budgets, purchasing power, service capacity, recent company buyout and subsequent pressures, investor and parent company pressures, and marketplace responsiveness to evolving needs. **(4)** If you answered "Other in Q.3", please describe your specific pain point(s). This free-text question gives respondents the space to elaborate on their pain points in more depth and detail beyond the preceding multiple-choice question. **(5)** What changes would you like to see in business models? This free-text question facilitates descriptive, open-ended responses.

The speaker's portal captured poll respondents' multiple-choice poll answers with charts and number of answers for each response option. The open-ended free-text responses were captured with text strings. Pathable's poll software has a feature marking free-text responses with up-votes from others, adding an informal measure for intensity of agreement with these responses. The software does not provide the raw survey data; therefore no mechanism exists to group and analyze response trends by industry demographics.

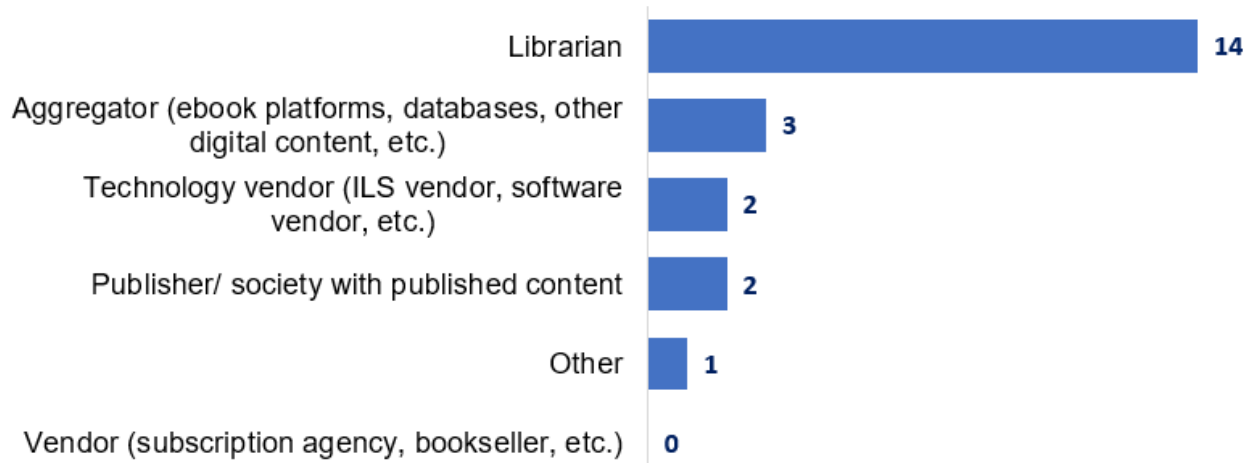
For production of the conference slides, images of the multiple-choice response charts and values were copied into the slides. For this proceedings paper, the multiple-choice responses were transcribed to Excel for further analysis. For the conference slides, the free-text responses were copied into color-contrasting speech bubbles. For this proceedings paper, the free-text responses were reported as text strings for clarity. In this paper's text body, each response that received up-votes was marked with the 👍 symbol and a number showing how many times the response was up-voted.

The online conference poll asked the following questions:

- **Q.1.** Are you a librarian, publisher, vendor, technology provider, etc?
- **Q.2.** If you answered "Other" in Q.1, please describe.
- **Q.3.** What are your biggest pain points?
- **Q.4.** If you answered "Other in Q.3", please describe your specific pain point(s).
- **Q.5.** What changes would you like to see in business models?

Poll responses:

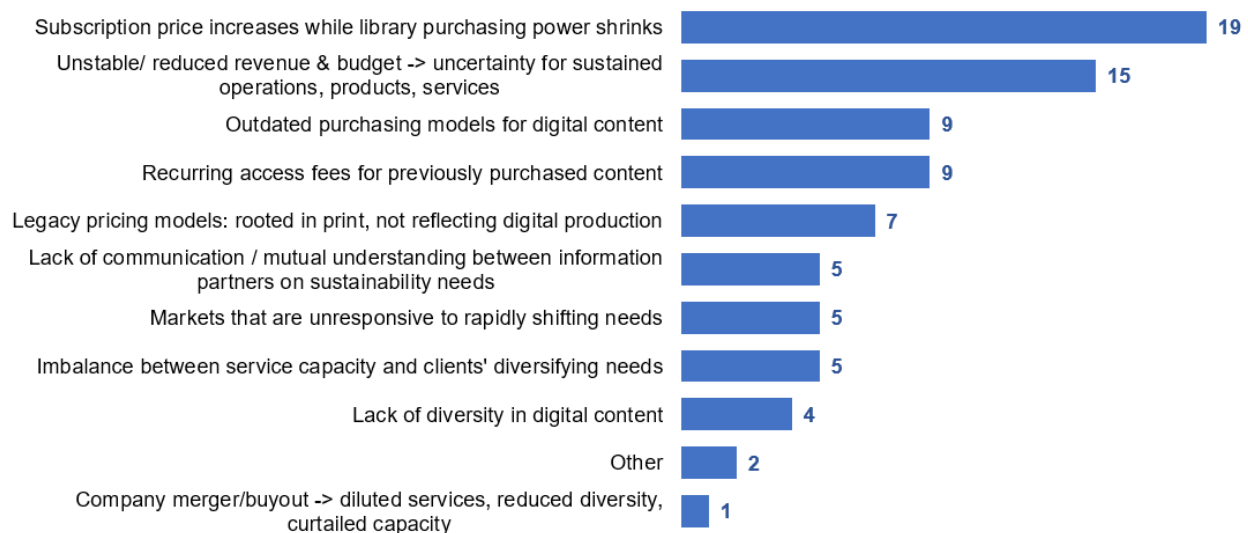
Q.1. Are you a librarian, publisher, vendor, technology provider, etc?



Q.2. If you answered "Other" in Q.1, please describe.

- No response.

Q.3. What are your biggest pain points?



Q.4. If you answered "Other in Q.3", please describe your specific pain point(s).

- eBooks and ILL - finding a path toward statewide collection development planning
- Slow vendor response to usability of online resources for users with impairments
- Lack of perpetual access

Q.5. What changes would you like to see in business models?

- Transparent pricing models that offer all libraries the same options, even if pricing is tiered.
- For example, some vendors offer an access-only model to small libraries but not to larger libraries or a subscription model to public libraries but a pda model to academic libraries.
- Offer the same options to all libraries, with pricing, and let us choose. 👍 9 (this entry received 9 up-votes from others who agreed)
- A greater transparency in e-book pricing that reflects efficiencies and economies of scale. 👍 7
- Perpetual purchases that factor in the cost of access in the original price and do not charge annual access fees. Especially for eBooks! 👍 7
- Allow institutions to purchase any ebooks, not just those ebooks that the publisher has designated as appropriate for institutional purchase. 👍 2
- Greater author rights and openness both because taxpayers and other funders pay for this but also because of disadvantaged countries and economic regions. It addition, pricing model transparency, libraries working together where they traditionally have not, and we're still waiting for non-textual publishing to be supported by all the ebook platforms. 👍 1

IV. Interactives: Lively Discussion

Pain Points

Inflexible Purchase Models, Unsustainable Pricing:

Session participants identified bundles and packages as major pain points: Specific singular desired titles are often buried in a large package which must be purchased in order to access the title. The prohibitive costs and inflexible package requirement were widely cited as a deterrent from purchase.

Recurring platform fees for previously purchased perpetually owned content were widely cited as undermining current library budgets and deterrent from purchase.

Session participants expressed concerns with FERPA and privacy implications with authentication requiring named individual users, as opposed to general IP proxy.

Addressing Cost Structures – Some ideas:

Content, Aggregation, Pricing:

Session participants agreed that publishers should stop pulling content from databases as the sudden loss disrupts the flow of research. Instead, publishers should work with aggregators toward new cost structures reflecting researchers' need for reliable access to content.

Pricing models need to evolve from reliance on dwindling subscriptions to current content and should reorient toward work with aggregators for hosting digital content. Instead of relying on legacy income from dwindling numbers of subscribers, publishers' income would come from micropayments for digital content earned indirectly from larger numbers of database subscribers by way of database aggregators.

Session participants also expressed the need for transparent pricing and purchasing models, as well as consistent structures for product lines.

License Terms & Resource Definitions:

Session participants also noted some publishers' practice of defining some ebooks as textbooks and unavailable for library purchase. Often the narrow textbook definition is a misnomer, as many such ebooks are in fact not classroom-oriented textbook but practitioner-oriented overview which students in graduate, professional, and clinical programs are learning how to use as part of their training as future practitioners.

V. Conclusions and Implications for Future Research

Pricing models for library resources have not evolved with the proliferation of digital content, although print production is receding from predominance. Declining library budgets cannot sustain the continuously rising costs. While Open Access promises barrier-free worldwide access to digital content, the financial frameworks and publishing practices are still evolving. Business models, pricing models, and publishing models need systematic analysis of cost drivers in current, rather than legacy, content production methods to bring the information profession nearer to an economically sustainable ecosystem.

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