

Electronic Knowledge: Trends and Futures

David Stern
Director of Science Libraries
Yale University

david.e.stern@yale.edu

<http://pantheon.yale.edu/~dstern/advancedsearch.html>

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Three areas of focus:

Integrated Tools

- ◆ Search and Discovery options
- ◆ Data manipulation

Pricing Models

- ◆ Beyond subscriptions
- ◆ Unbundled materials
- ◆ Alternative funding

Role of the Librarian

- ◆ Purchase/Lease
- ◆ Instruction
- ◆ Collaboration/Design
- ◆ Influence future systems

Search and Discovery Tools

- Complexity related to data types
 - ☞ (citations, raw data, media types)
- Extended service options (e.g. SFX)
 - ☞ WoS tracking/Related Records,
 - ☞ Who's Who (biographies)
- Branding
 - ☞ conflicts, hidden limited domains?
- Proprietary software support
 - ☞ downloads and plug-ins
- Novel search methods
 - ☞ Natural language
 - ☞ Dymondlinking (structures to data)
 - ☞ Beilstein multi-view options
 - Reactions, structures/data, citations

Data Manipulation (KM)

- Simple downloads and retrieval
 - ☞ Create customized bibliographies
 - ☞ Maintain local database(s)
- Linking disparate objects
 - ☞ Virtual collections/documents
- Imbedded/shared comments
- SGML/XML options
 - ☞ Portions of documents
 - ☞ Added-value data
 - (beyond captions)
- using “META-subunit links”

Pricing Models

- Historical Trends

- ◆ Inflation 1995-2002

- ☞ Average approx. 8%

- ◆ Library budget increase 0-4%

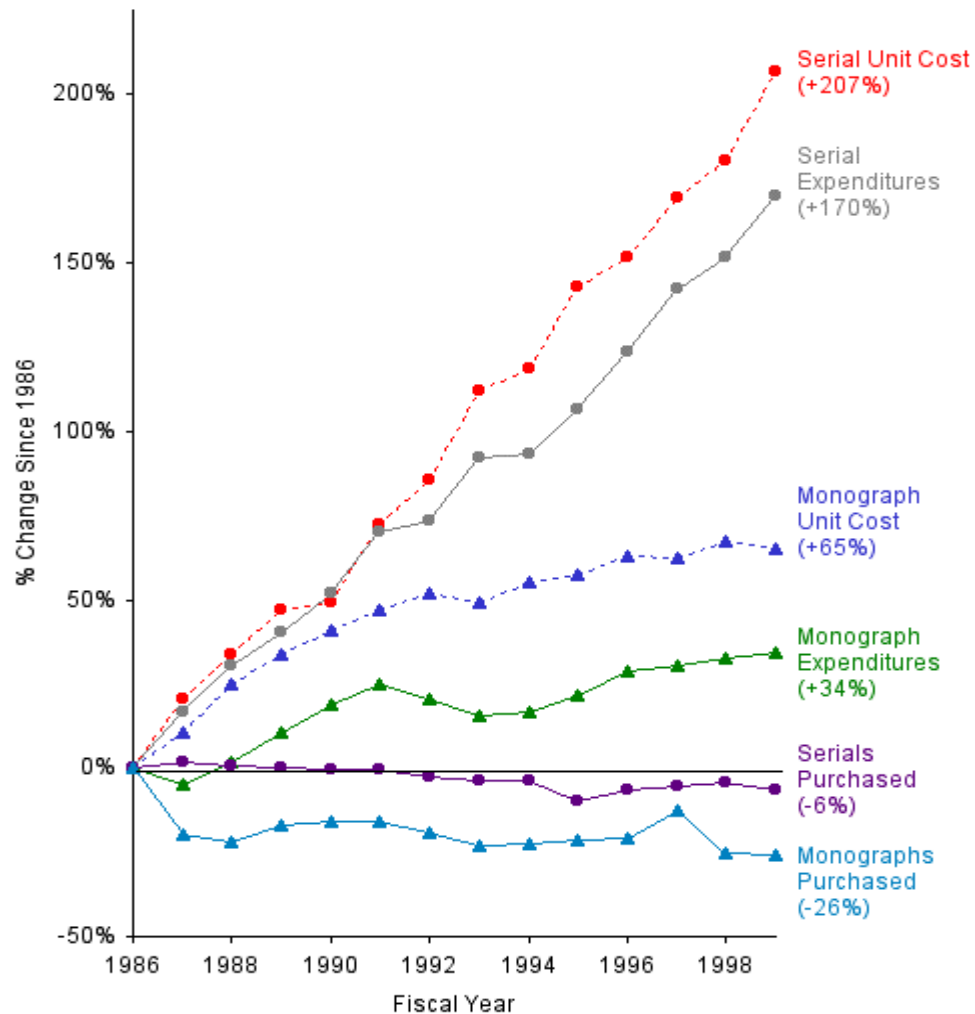
- ◆ reduction in buying power

- ◆ Document delivery replaces subscriptions
(but this requires SOME subscriptions)



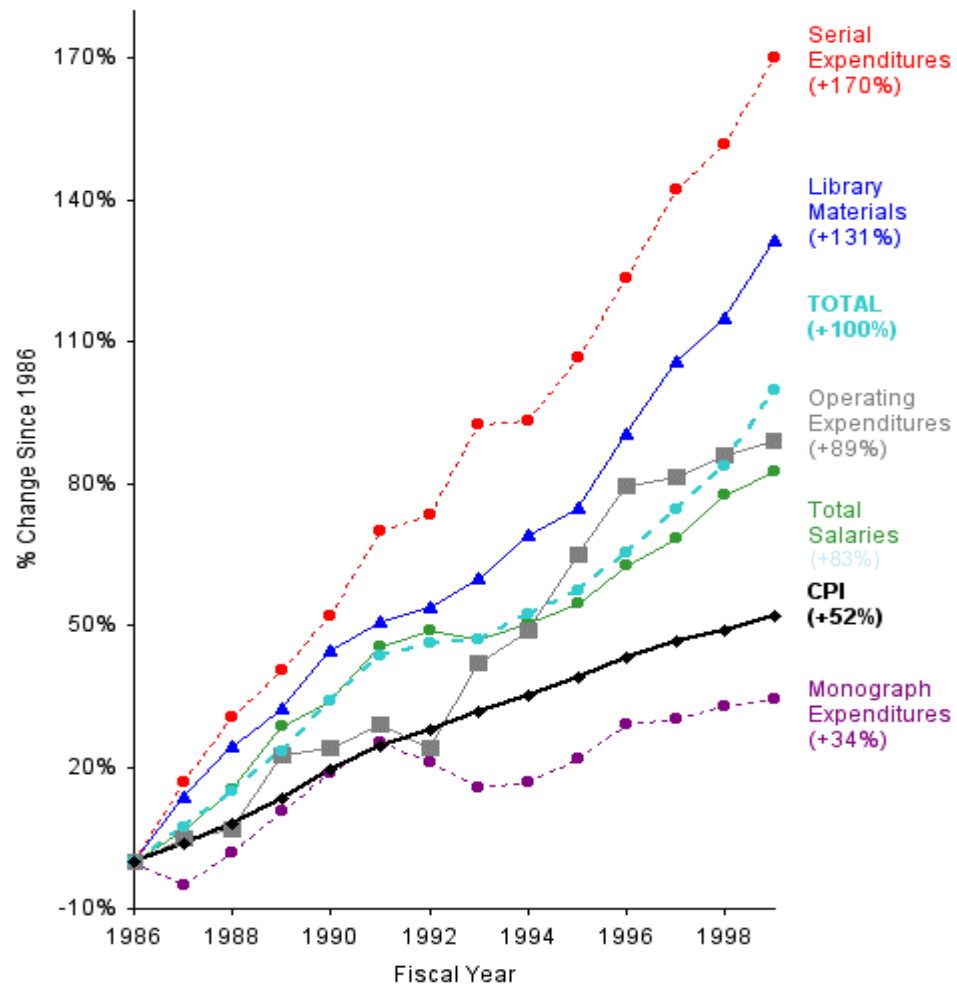
Historical Trends

Monograph and Serial Costs
in ARL Libraries, 1986-1999



Historical Trends

Expenditure Trends
in ARL Libraries, 1986-1999



Market Factors

- Value Items
 - ◆ Lower Cost
 - ☞ SPARC
 - ☞ arXiv (LANL) eprint server
 - ◆ Enhanced Links
 - ☞ Integrated media
 - ☞ Seamless: CrossRef, SFX, MetaLib
 - ◆ Backfiles (PROLA, ADS, HighWire, Elsevier, ACS)
 - ◆ Metadata (Sophisticated searching)
 - ☞ Charts, Tables, Image captions+
 - ◆ Customization
 - ☞ Preferences, commenting, Virtual File cabinet
 - At top level NOT publisher level (Axiom)

Librarian/User Desires

- ◆ Consistent system interface
 - ☞ Reduce branding icons
 - ☞ Reduce learning curve (for standard options)
- ◆ Federated/Broadcast domain
 - ☞ Search capability across publishers
 - ☞ Current awareness capability
 - ☞ NOT publisher-based searching
 - ☞ NOT publisher-based TOC delivery

Publisher Reactions

JOURNALS



- Journals
 - ◆ New paper journals
 - ☞ Niche products
 - ☞ lowering cost of titles (SPARC and PLoS?)
 - ◆ Electronic journals
 - ☞ Alternative publication models
 - Commercial (SPARC, HighWire)
 - ARLO (page charge + small library subsidy)
 - ATMP (overlay on free material)
 - PRST-AB (page charges +)
 - OAI servers (Budapest, CogPrint)
 - ◆ E-print servers <and virtual journals>
 - ☞ Not yet completely adopted (peer review/tenure)

Funding Trends

- ✎ Ejournal surcharge strategies
 - Obvious surcharge (% of paper)
 - Package plan costs (hidden %)

Range = 0% → 240 %

APS

AGU

JOURNALS



- ✎ Average = 12%
- ✎ Minimum \$50,000
- ✎ *Note: Seed funding no longer easily available*

Funding Competition

- New Electronic products
 - ◆ Indexes & Abstracts
 - ☞ \$10,000 → \$250,000 annually
 - INSPEC - \$30k
 - Web of Science - \$50k minimum
 - EBSCOhost - \$20k
 - Includes some full text journals
 - ◆ New electronic reference materials
 - ☞ Encyclopedias (contin funding)
 - ◆ CD-ROMs (chem drawing)
 - *Note: competes for limited available resources.*

**OTHER
FACTORS**



Pricing Models

Pricing model options:

■ Traditional options

- ☞ (local vs consortia)
- ☞ Package Plans (The Big Deal)
 - accountability/review?
- ☞ Backfile cost models

■ Differential pricing

Methods:

- ☞ FTE basis
 - anomalies (strengths/weaknesses)
- ☞ Carnegie (research levels)
 - anomalies (strengths/weaknesses)
- ☞ AMS (production based)
 - Commercial use criteria?
- ☞ Simultaneous user limits
- ☞ Tiered Model (beyond subscriptions)

Carnegie Price Model

Used for grant allocation

Carnegie classification	Research Level	Population
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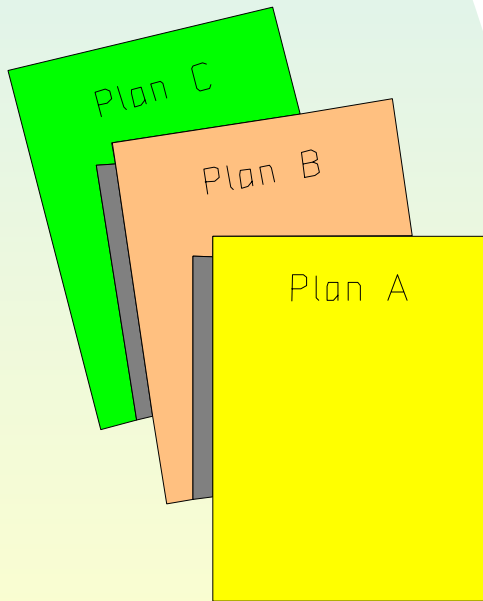
I	Intensive/Comprehensive	PhD
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II	Research	Masters
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III	Popular/General	Teacher/ Practitioner
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◆ APS Carnegie classifications

<http://librarians.aps.org/2002pricing.html>

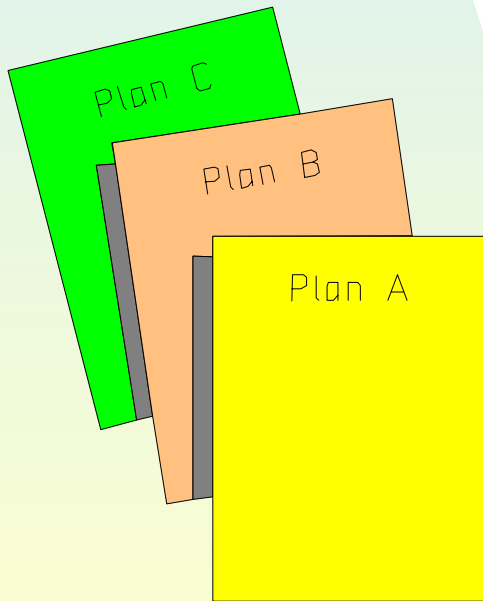


Conspectus Price Model

ARL Conspectus Classification	Collection Level	Population
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V	Intensive/Comprehensive	PhD
IV	Research	Masters
III	Explorative	Masters
II	Popular/General	Teacher/ Practitioner
I	Popular/Core	Reader

Used for cooperative collection development



Reactions to Higher/New Costs

- Individual libraries
 - ◆ Use studies
 - ◆ Cancellation
 - ☞ Elimination of duplicate print titles
 - ◆ Cancel to buy new titles/splits
 - ◆ Selected e-journal purchases
 - ◆ E-journal package plans



Consortial Pricing

- Consortial approach
 - ◆ Less specific analysis
 - ◆ Emphasis on lowest price
 - ◆ “Added value” justification
 - ☞ Subsidize lesser journals
 - ☞ (Flawed) user behavior studies
 - ☞ Questionable value
 - ◆ Migration to use-based pricing?
 - ◆ Best for small libraries
 - ☞ Tiered pricing within consortia
 - ☞ Elsevier performs this calculation
 - ☞ Consortia perform this calculation

Alternative Revenue Projects/Products

- Examples of innovative systems
 - ☞ arXiv (free LANL preprint server)
 - ☞ ARLO (library and author subsidies)
 - ☞ Euclid (math pre- and commercial data)
 - ☞ BioMed Central (pre- and commercial data)
 - ☞ ADS (integrated biblio and other astro data)
 - ☞ PubScience (extends PubMed to fulltext)
 - ☞ OAI servers (harvesting of remote indexes)
 - ☞ Public Library of Science (free delayed access)
 - ☞ IBM genetics database (non-published data)
 - ☞ Soros Foundation/eIFL Direct (free journals)
 - ☞ Create Change (SPARC education site)

Pricing Models: required alternatives

■ Unbundled materials

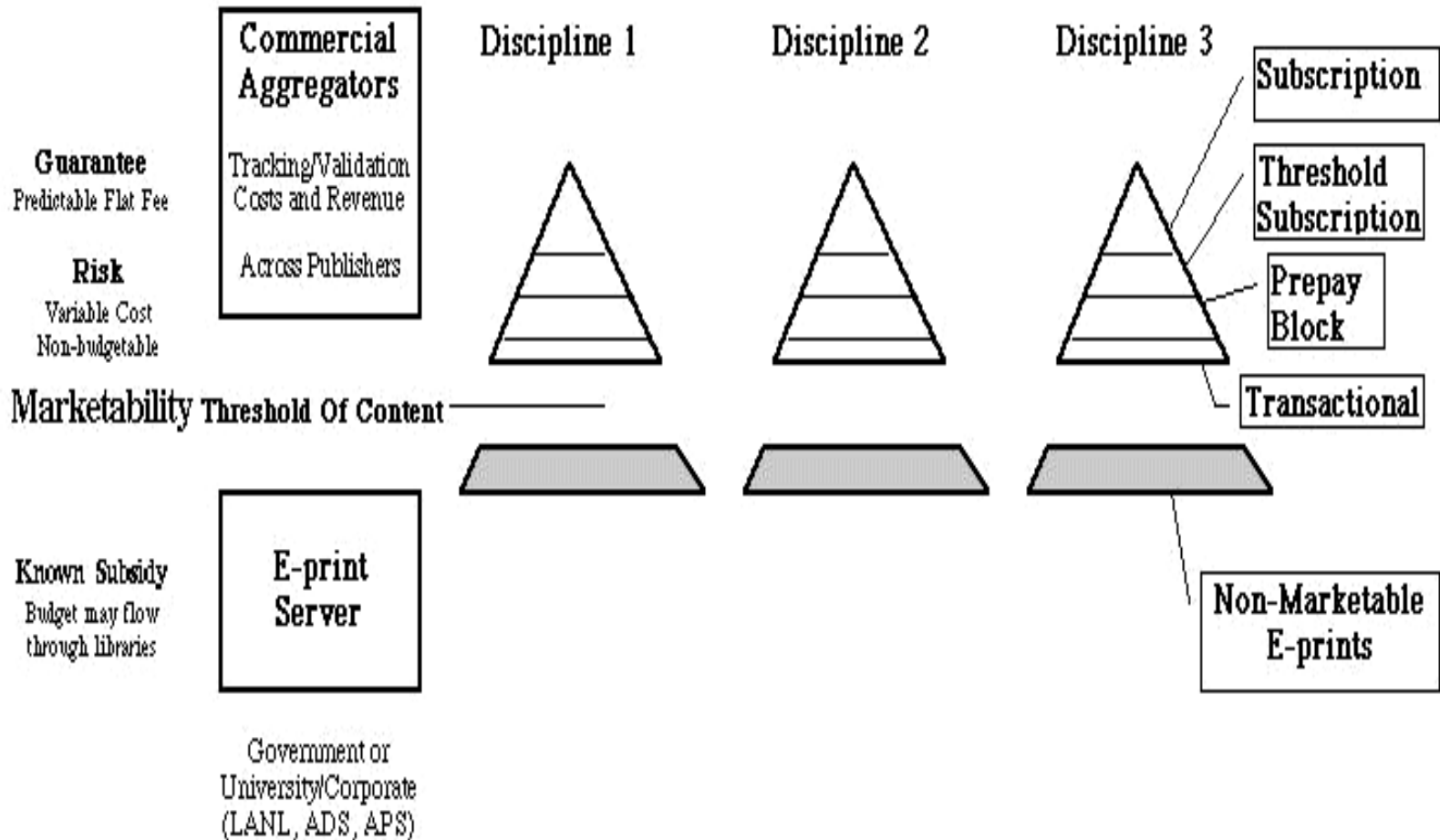
- ☞ Virtual journals across publishers
 - (personally created dynamic aggregations)
- ☞ charts, sound bytes, etc.
- ☞ beyond subscription models

■ Tiered Model

- ☞ Guaranteed revenue: based upon use
- ☞ “Levels” of subscription costs
- ☞ Blocks of prepaid materials (with an annual rollover balance)
- ☞ Pay-per-view option

The Tiered Model

Revenue Status



Pricing Models: possible alternatives

- Purchasing agents
 - ☞ Discipline profiles for library “types”
 - ☞ Economies of scale for analysis
 - ☞ Crosses all publishers

■ Future Payment (Agent) Option

◆ Subject repositories

☞ Cross publisher

☞ Both reviewed & open domain?

Phase I

1-5 Years?

HighWire	APS/AIP	Elsevier	Springer
Subscription	Subscription	Subscription	Subscription
Threshold Subscription	Threshold Subscription	Threshold Subscription	Threshold Subscription
Prepay Block	Prepay Block	Prepay Block	Prepay Block
Transactional	Transactional	Transactional	Transactional

Phase II

5+ Years?

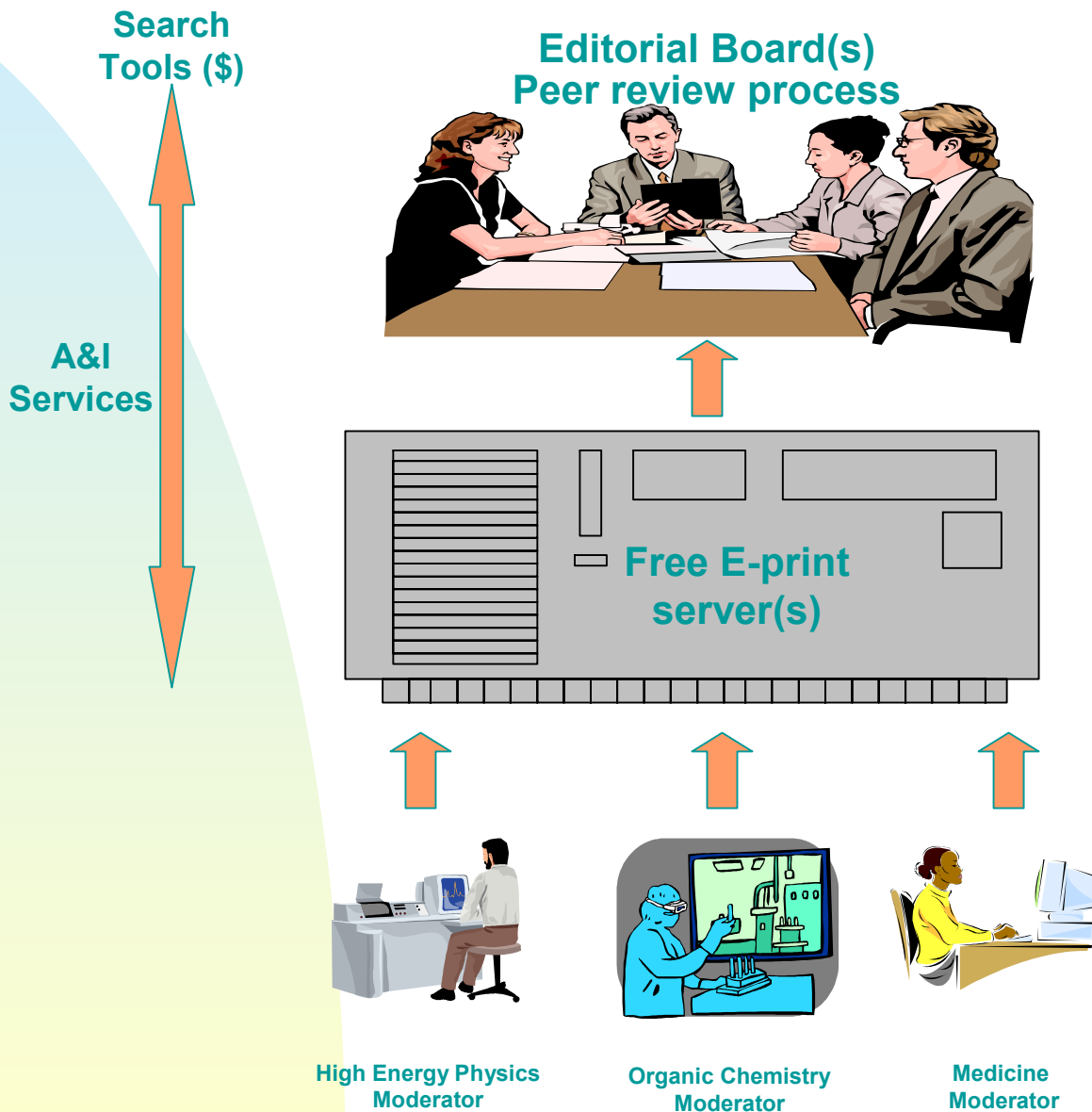
Physics
Subscription
Threshold Subscription
Prepay Block
Transactional

Through Aggregators
Through Consortia
Customized For Sites

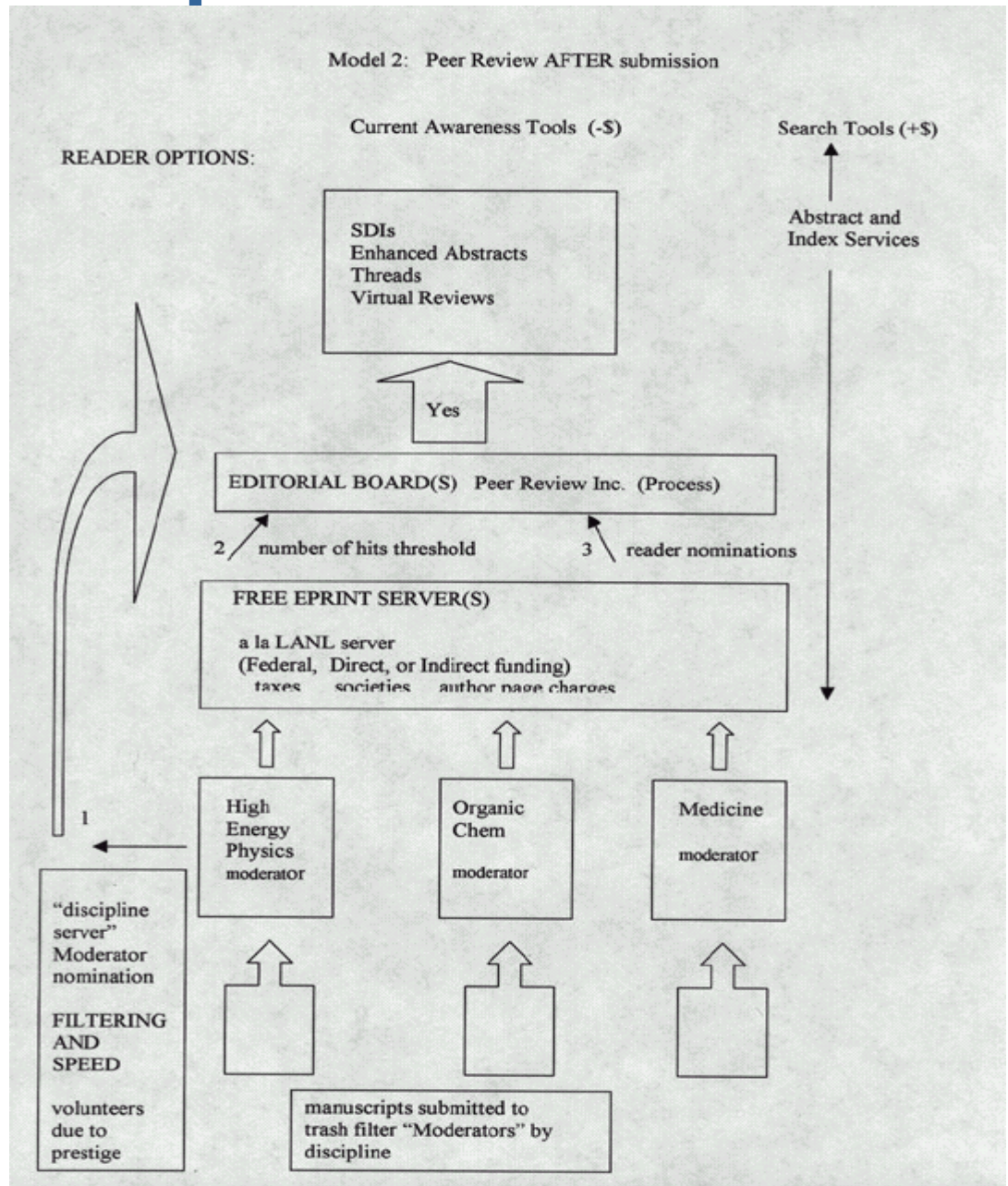
Pricing Models: alternatives

- **eBooks**
- **Seamless packages**
 - searching across ALL products
 - Books (chapters, tables), Series,
 - Encyclopedic material, Journal articles
- **Non peer-reviewed alternatives**
 - **Deep Web** (free for now, but ...)
- **Alternative Peer Review options**
 - ☞ post-publication review
 - ☞ Value/cost for filtered materials

Post Publication Peer Review



Post Peer Review Options



Radical Trends – New Players

- **ARL / SPARC** (libraries enter new realms of activity)
- **Agents** ⇒ **Aggregators**
- **A&I Services** ⇒ **Portals**
(INSPEC, Web of Science, EBSCOhost (Inc. full text journals))
- **Societies / Professional Gateways**
(EI Village, APS SPINWeb)
- **Government / University ePrints**
arXiv LANL (preprint server)
- **Discipline-specific repositories**
Euclid, BioMed Central, ADS (pre-print & commercial data)
- **Web based self publishing**

Changing role of the librarian

- From:
 - ◆ Purchase, and
 - ◆ Tool-based Training
- To:
 - ◆ Purchase/Leasing
 - ☞ (contracts, technologies)
 - ☞ archiving solutions?
 - ◆ Critical Thinking Instruction
 - ☞ layers of extended options and open windows
 - ☞ MetaLib and other Federated overlays
 - ☞ both peer-reviewed and public domain items
 - equipment, reviews, biographies, SIGs
 - ◆ Collaboration with researchers
 - ☞ Personal databases
 - ☞ Metadata infrastructures for OAI compliant federated systems

Changing role of the librarian

- ◆ Advocate for the design of next systems
 - ☞ scalability (integration standards)
 - ☞ long-term commercial viability
 - SPARC and PLoS awareness
 - subsidize only what is necessary
 - Underwrite promotion and tenure?
 - exert pressure on commercial skimming
- ◆ Administrative Support
 - ☞ provide facts and figures for
 - productivity
 - comparisons (depts, schools, labs)

Trends/Directions

- ☞ Metaphor-driven interfaces
- ☞ Seamless links to extended/integrated media
- ☞ Knowledge management tools
- ☞ Fewer books purchased
- ☞ Society based editorial boards
- ☞ Fewer commercial journals/packages
- ☞ Differential pricing options
- ☞ Unpackaged instant delivery platforms
- ☞ Replacement of the subscription model?
- ☞ Less expensive e-print servers
- ☞ Post-publication peer review methods
- ☞ Collaboration initiatives to shape the future

Comments/Questions

- ☞ Trends in the information industry ...
 - are chemistry players following the trends?
- ☞ Knowledge management tool development.
- ☞ Users: early adopters of new tools?
- ☞ Societies: 'alternative' awareness/actions?
- ☞ Commercial publishers:
 - are new packaging strategies adopted?
- ☞ Librarians:
 - Collaborate on initiatives to shape the future?
- ☞ Unbundled instant delivery gateways:
 - Revised cost/subscription models?
 - Less expensive OAI e-print servers?
 - Post-publication peer review methods?
 - Integration of non-peer reviewed material (WWW)

The End ...

Not really, actually just

The Beginning