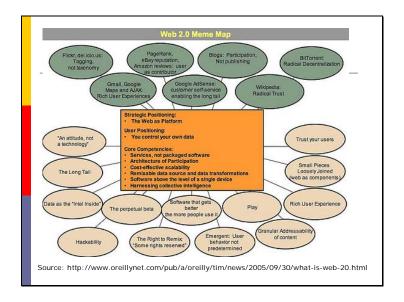
Library Delivery 2.0

Moving Mountains: Exploring Library Courier Services

Lori Bowen Ayre LBAyre@galecia.com September 14, 2006

- □ Software versions:
 - Alpha testing
 - Beta almost ready
 - 1.0 released!
 - 1.2 bugs fixed
 - 1.5 more bugs, new features
 - 2.0 major revision

What, you many wonder, is Library Delivery 2.0? In fact, what is all this 2.0 stuff about anyway? The concept of 2.0 originally refers to a version of software that has been upgraded. Version 1.0 is the first official release of a software product (it follows the alpha and then beta testing). I don't recommend buying 1.0 software. Version 1.2 would be a slightly revised version (many of the bugs have been worked out). 1.4 (more bugs, more revisions). And then version 2.0 is a major revision. Sometimes the software looks and acts completely differently between 1.0 and 2.0.



So, take that concept and apply it to the Web. That's what Tim O'Reilly did. He coined the phrase Web 2.0 because he saw how much the Web had changed as a result of new technologies like blogs, wikis, tags, and RSS feeds, and social networking sites like MySpace, Flickr, Facebook, Friendster, StumbleUpon, LinkedIn, Bebo, and Zaadz. These technologies create what he calls an architecture of participation.

With Web 1.0, the Web was designed for user consumption. With Web 2.0, systems are designed for user contribution. Let's take that 2.0 concept and move a tad closer to the topic at hand...next stop, Library 2.0.

Library 2.0

- A completely different library service that operates according to expectations of today's library users
- In this vision, the library makes information available wherever and whenever the user requires

Source: Chad, K., & Miller, P. (2005, November). Do Libraries Matter? The Rise of Library 2.0 [white paper], available from http://www.talis.com/downloads/white_papers/DoLibrariesMatter.pdf

The term Library 2.0 can be attributed to Ken Chad and Paul Miller of Talis.

They published a white paper in November 2005 entitled "Do Libraries Matter:

The Rise of Library 2.0." In their executive summary, they state "Library 2.0 is a concept of a very different library service that operates according to the expectations of today's library users. In this vision, the library makes information available wherever and whenever the user requires it."

That's Library 2.0, so what is Library Delivery 2.0?

Library Delivery 2.0

- A completely different library fulfillment service that operates according to today's users.
- □ In this vision, the library makes items available:
 - wherever
 - whenever, and in
 - whatever format the user requires it.

To paraphrase Chad & Miller: Library Delivery 2.0 is a concept of a very different library delivery service that operates according to the expectations of today's users. In this vision, the library delivers information wherever and whenever the user requires it and in whatever format the user needs it.

Today's users expect fast and efficient service. They expect each request to be filled and they expect the discovery of the items to be seamlessly tied into the process of acquiring the item.

Library Delivery 1.0 vs. 2.0 Delivery 1.0 Delivery service for the library Delivery 2.0 Fulfillment service for the user Fulfillment: the act or state of fulfilling: to witness the fulfillment of a dream; to achieve fulfillment of one's hopes. the state or quality of being fulfilled; completion; realization: a vague plan that had no hope of fulfillment. the process or business of handling and executing customer orders, as packing, shipping, or processing checks. Source: http://dictionary.com

I think of Library Delivery 1.0 as a service for the library and Library Delivery 2.0 as fulfillment for the user.

Library Delivery 2.0 is for the user.

Today's Users

- □ Want to do it themselves
- □ Time is as precious as money
- High expectations of technology
 - Locating
 - Requesting
 - Getting
 - Tracking
 - Speedy Delivery



Let's talk about those users. The OCLC Environmental Scan tells us that users prefer to do things on their own. Studies have shown that the more unmediated a service is, the more popular it is. Libraries everywhere report increases in circulation after self-check is rolled out. ILL is more likely to be used when it can be initiated without talking with a human being. And remote borrowing (which is, by definition, unmediated) has also been shown to increase circulation.

Remember Veruca Salt from Willy Wonka and the Chocolate Factor? I Want it and I Want it Now! That's our users.

Those of us in our 40s and beyond remember when word processing and fax machines changed the definition of an "acceptable wait time." How many of you now expect to get a response to an email the same day you send it? How many use IM and text messaging? If you don't, how many people around you do? Under what conditions are you willing to wait two weeks to get something you've ordered, requested, want?

The younger you are, the shorter the acceptable wait time is. Rachel Singer Gordon is an author (The Accidental Systems Librarian to name one book) and a blogger (The Liminal Librarian). She blogged recently about her preschooler son who saw a cassette tape player for the first time. She played a song for him to show him how it worked. He wanted to hear the song again so she began to rewind the tape. JUST PLAY IT MOM!

Singer writes: "How is a childhood of instant gratification going to affect this youngsters expectations and behavior?" He doesn't know that TV shows have schedules, it used to take time to develop photos, most toys didn't used to have batteries, buttons and flashing lights. Instant gratification is a large part of their reality. Waiting a minute, a day, a week, a month? No.

Public Library Use

- 90% of library users taking out books have incomes between \$15K and \$35K
- 63% of Americans own a library card
- 26% of these 63% have not visited the library in the last year
- Everyone loves the library (whether they use it or not)

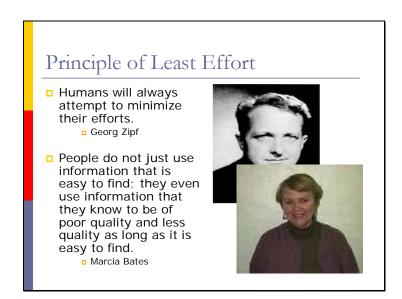
Source:

http://www.ala.org/ala/ors/reports/KRC_Detailed_Slides.pdf

Another thing about users is that they generally either have time or money but not necessarily both. A study by ALA found that 90% of library users taking out books have incomes between \$15K and \$35K. Where are the people who earn over 35K getting their books?

I will admit that I earn over \$35,000/year and so am in a position to tell you where I get my books. I get them from Amazon. Sometimes from the library, but usually from Amazon. Why? Because my time is oftentimes more precious than my money. While I'd much rather get my books from the library, I can't usually afford the time to wait for items to find their way to my little branch where I have to actually leave home in order to get them! I may end up owning books I'd rather borrow but I don't mind adding them to my personal library. I can always donate the books I don't want to keep back to the library or some other worthy cause. In my case, it is cheaper to buy the books than wait for them to make their way through interlibrary loan channels and holds processing. I can buy it and have it in my hands within two days. Done.

I don't think that my story is unique. Going back to that ALA study, they report that 63% of Americans own a library card. Like me. They also report that 25% of people with a library card have not visited the library in the last year. That could be me. The library just isn't convenient enough for many users. Everyone loves the library – in theory. But there are large swaths of the public who just don't use it because it isn't convenient enough.



Amazon is convenient. Google is convenient. Google provides instant answers. They might not be the best answers but they are good enough. George Zipf, a linguist from Harvard, said that the main predictor of human behavior is that we will always attempt to minimize our efforts. This is known as the Principle of Least Effort. Marcia Bates, IS Dept. professor at UCLA says "people do not just use information that is easy to find; they even use information that they know to be of poor quality and less quality as long as it is easy to find." Convenience matters. A lot.

In today's world, things are easy to find especially if your threshold for quality isn't too high. Things are easy to get – from anywhere! Remember when you only ate plums, peaches and tomatoes at a certain time of year? Well, now you can get them year round. Maybe those year round tomatoes aren't as good as the ones we used to get during tomato season but we can get them.

Libraries, just like every other industry, have a user community with very high expectations for ease of use, availability, convenience and fast turnaround times.

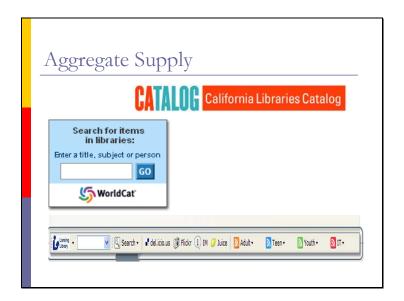
D2D Chain: Discover - Locate — Request - Deliver Expand discovery options Make process seamless Expand delivery options Calhoun, K. (2006, April). The Changing Nature of the Catalog and its Integration with Other Discovery Tools. A report for the Library of Congress. Available from http://www.loc.gov/catdir/calhoun-report-final.pdf Dempsey, L. (2006, April). Libraries and the Long Tail: Some Thoughts about Libraries in a Network Age. Available from http://www.dlib.org/dlib/april06/dempsey/04dempsey.html

Google, Amazon, FedEx, NetFlix – these companies have raised expectations of users across the entire D2D chain – Discover, Locate, Request, Deliver.

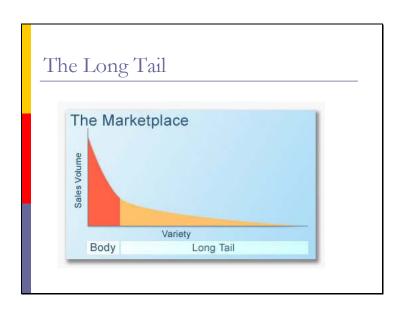
The D2D chain is described in Lorcan Dempsey's paper "Libraries and the Long Tail: Some Thoughts about Libraries in a Network Age." The article appeared in DLib (an online journal) in April of 2006. The D2D chain refers to library user's process of Discovery, Locate, Request, Deliver. Dempsey argues that the D2D chain needs to be seamless and that discovery and delivery options need to be expanded. Karen Calhoun of Cornell expresses many of the same ideas as Dempsey in her paper "The Changing Nature of the Catalog and its Integration with Other Discovery Tools." She wrote this paper for the Library of Congress and it was also published in April of this year.

Dempsey and Calhoun argue that we (libraries) need to expand the ways people discover items by aggregating supply, taking advantage of the long tail idea and

using 2.0 technologies that make it possible for people to participate in developing the content that aids in their discovery process.



When you think about 'aggregating supply," it is important to think very broadly. Union catalogs are a way to aggregate supply. State-wide catalogs are even better. WorldCat takes it yet a step further. Using RSS feeds and customized toolbars to push the library resources out to the user is even better.



Once we've made our collections more easily discoverable and aggregated supply through shared catalogs, we need to take advantage of network effects and drive users down the long tail. The long tail refers to the long narrow end of a power curve. This curve represents the number of users choosing an item. A small set of items are popular and lots of people want them. Then if you move out beyond that bubble of popular items, you get the items that are of interest to just a few users. In the old days, no one had access to those less popular, niche products because it didn't pay for a commercial entity to carry them. But if you aggregate supply, those niche products sales add up. This is known as the Network Effect. Online companies like Amazon, iTunes and NetFlix have been able take advantage of the long tail because they are not restricted by the physical world. They can easily deliver their product via download or ship it from the nearest warehouse.



They drive their users down the long tail using Web 2.0 technologies that put control into the hands of the users. In other words, they help them find the gems – the not necessarily popular personal favorites that are down there in that long tail. NetFlix provides an excellent example of how this is done. For one thing, NetFlix provides lots of different views of data. Users can search by movie title, actor, director or genre. They can browse the listings in a variety of ways including genres, award winners, critics picks, new releases, NetFlix top 100. Perhaps most importantly, NetFlix expects you to rate every movie you've rented and then builds recommendations customized to your taste for you. This last technique – a recommender service – is gaining popularity online.



Amazon provides recommender services when it says "People who bought this book also bought that book." Recommender services can also be created from user reviews and ratings (500 users gave this book five stars, this book is a Favorite of 20 other library users, etc.).

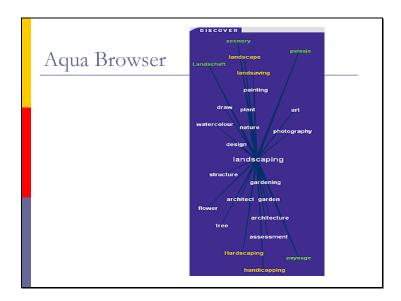
Librarians tend to get nervous about recommender services because the success of the services require gathering lots of personal information from the user. However, the anxiety about personal information isn't a good enough reason not to do it. For one thing, its what users want. And for another, it can be done safely. Recommender services allow the merchant (or library) to treat the user like a unique individual and it allows the user to contribute content by rating items, submitting reviews, naming an item A Favorite, etc.

Endeca – Faceted Search

- North Carolina State University
 - http://www2.lib.ncsu.edu/catalog/
- Narrow search results by
 - Subject
 - Genre
 - Format
 - Library
 - Call Number Range
 - Region
 - Era
 - Author

The front end of the D2D chain, Discovery, isn't doing too badly. We are aggregating supply with consolidated catalogs and we are exposing our collections so that they can be discovered at places besides just the library using RSS feeds and initiatives like Google Books and Google Scholar.

Products like Endeca (debuted for the first time in a library catalog at North Carolina State University) are utilizing facets to improve the user's discovery experience. Using faceted search engines like Endeca, a user can do a search by keyword or title or whatever they would normally do. And then they can limit their search by one or more facets of the metadata...say, time period or genre or location.



Aqua Browser is another exciting new discovery tool. It provides a visual representation of related search terms and allows the user to move through those linkages until they find the semantic space that interests them (without having to understand LC subject headings.)

The D2D chain suffers more when we move past discovery into Locate, Request and most problematic of all...Deliver.

Transaction Costs

- Measured in:
 - Time
 - Attention
 - Expertise

Transaction costs inhibit use.

With libraries, there is a transaction cost for each step. Users first discover and then they must locate the item to determine how best to acquire it. Is it on the shelf? Can I put it on hold? Can I borrow it from another library? Do I need to put in an Interlibrary loan request? Each of these steps may require additional authentication or search steps. It is anything but seamless. As Dempsey points out in his Long Tail article, transaction costs inhibit use. We need to find a way to reduce the transaction cost to the user, of locating and requesting items. These costs are measured in time, attention, money and expertise.

It can be done. It has been done before. Just a short time ago, subscription databases were something that were searchable one database at a time. You basically had to know exactly what you were after before you began. But now, with OpenURL resolvers, other discovery tools can be used to discover a

desireable article and OpenURL resolvers locate and acquire the item for the authorized user.

Just as OpenURL has removed the seams for electronic journals, remote borrowing (versus interlibrary loan) is removing more seams...one stitch at a time. Again, the trend is in the right direction. We've got a way to go – more aggregation, more ways to discover library materials, more control for users in that discovery process but it's starting to happen.

Delivery Goals

- Fulfillment
 - Fill each order (no dead ends)
 - Help the user get the item one way or another
- Get the item:
 - in the format they need it
 - where they need it
 - when they need it

Discover, Locate, Request....Deliver. Yes, what about the delivery part of that D2D chain? This is where we need to do a lot of work. This is why we're here today.

First of all, let's think about delivery as fulfillment. The last step of the D2D chain involves completing the process to the user's satisfaction. We want to help the user discover what they want and we want them to get it in a timely manner and in a format that is most useful to them.

Ranganathan's Five Laws of Library Science

- Books are for use
- 2. Every reader has his or her book
- 3. Every book has its reader
- 4. Save the time of the reader
- 5. The library is a growing organism

Remember Ranganathan's Five Laws of Library Science?

Books are for use

Every reader has his or her book

Every book has its reader

Save the time of the reader

The library is a growing organism

Everything I've said here today can be summed up in those five rules. The difference is that now every reader has his or her book and his or her format too. Books are for use, therefore it matters how and when the user is going to use the book. A user might want the physical book, they might want the e-book. They might not need the book right away or they might need it that afternoon...[more]

How much effort are we obligated to make in order to save the time of the reader? What if we would have to charge the user in order to implement some of those time-saving services? Is that against the rules? Am I suggesting a library might digitize a book on demand??

Delivery Options

- Select from shelves
- □ I'll come pick it up when you tell me its here
- □ Send it to me via
 - UPS Ground
 - Next Day
 - 2nd Day
 - Personal Messenger
- □ Send me a digitized version via email

I'm saying we have to put all the options on the table. Books are being digitized by Google, the Gutenberg Project and yes they are being digitized on demand by libraries in Austria. Why not make it an option for your customers to provide them with a digital version if that's what they want (taking into account copyright laws of course).

I believe that libraries have to start giving users the option to have an item hand-delivered, UPS'd, or NextDay FedEx'd. Whether the item is 'sourced' from the local library, a consortial partner or from a library with whom you have no particular relationship...we have to be able to get those items for our users and we have to get the items into their hands promptly.

Adding a Delivery Service Layer

Dempsey:

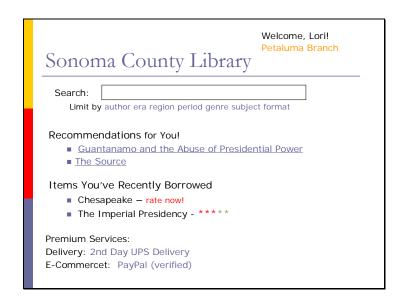
- multiple discovery experiences connect to multiple fulfillment service via a service router
- Catalog represents one target (to be discovered)In coming years we will see a new accommodation between the ILS, metasearch, resolution, electronic resource management, repositories

Calhoun:

- Rely on statwide, national and global aggregations of catalog data for discovery
- Use the library ILS as a middle switching layer to enable delivery

Dempsey, L. (2006, July). The library catalogue in the new discovery environment: Some thoughts, <u>Ariadne</u>, 48. Available from http://www.ariadne.ac.uk/issue48/dempsey/

Karen Calhoun and Lorcan Dempsey again offer some insight into this future. They suggest a future where multiple discovery experiences are connected to multiple fulfillment services via service routers. Library holdings would be among the items being 'discovered.' Both agree that items would be delivered instantly whenever possible – in full text. When that is not possible, a range of unmediated, quick delivery options would be available to the user. Dempsey envisions a registry of services that would match users to their delivery options based on their location, preferences and affiliations. Calhoun sees the possibility of the catalog providing that delivery service function.



For example, if I'm a member of Sonoma County Library and I live in Petaluma, then my delivery options for a book I've selected might be to put it on hold, have it delivered, have a digital copy or URL emailed to me. Another option I'd like to see through my library is the option to purchase a new or used copy. In my user preferences, I've set up a link to PayPal which makes it possible for the library to order books for me which I pay for from my PayPal funds. These options have to do with choices I've made. Preferences I have. Services I'm willing to pay for. Making these options available to me turns my library into my service provider for information resources.

Akerman Delivery Strategy

- □ Libraries need to outsource and insource
 - connect out to partners
 - let partners connect in to you
- Consider partnering with:
 - your postal service
 - local and national couriers, e.g. FedEx and UPS
 - other local delivery services, like your local newspapers
 - volunteer organizations
 - Ebook, audiobook, mobile device providers
 - Google, Amazon, AbeBooks, Alibris, WorldCat, LibraryThing, Project Gutenberg, ...

Akerman, R. (2006, August). Online library role in discovering and delivering. Science Library Pad [blog]. Available from http://scilib.typepad.com/science_library_pad/2006/08/online_library_.html

Richard Akerman, the information architect at Canada's National Science Library and a blogger at the Science Library Blog suggests that libraries need to outsource and insource. Libraries need to connect to partners and let partners connect to them. He recommends creating partnerships with the post office, local and national couriers, volunteer organizations, ebook/audiobook/mobile device providers as well as Google, Amazon, AbeBooks, Alibris, WorldCat, LibraryThing and Project Gutenberg.

In other words, expand the options with multiple alliances. More and more libraries are seeing the benefits of consortia. Consortia extend a library's service options and usually aggregate supply. Look outside of the library market and expand the customer options by taking advantage of non-library service providers. Consider modifying workflows so that they can fit into a non-library environment. Not everything we do has to be 'uniquely library.' Calhoun goes so far as to say libraries should stop thinking that they are special. She recommends eliminating customized workflows, cutting out redundant work,

streamlining operations, learning from other industries and above all standardizing.

Expand Use of Standards and Increase Interoperability

- ISO 10160/10162 (ILL)
- G39.50 (sharing catalog records)
- NCIP (communication with ILS)
- OpenURL (retrieve article from bib record)
- SRW/SRU (search/retrieve via Web/URL)
- ONIX (publisher-provided info)
- EDItX XML Document Formats
- RFID Library Data Model Standard (not yet available)

Standards are what allow everything to work together. We need to develop standards that not only work within our library but across library systems. Some standards even need to extend beyond libraries. Systems based on open standards create options. So many library systems are proprietary and that works against us. We need to take advantage of existing standards and work to develop new standards that open up those options.

SRW (Search/Retrieve Web service) is a web service for search and retrieval. SRW provides a SOAP interface to queries, to augment the URL interface provided by its companion protocol SRU (Search/Retrieve via URL). Queries in SRU and SRW are expressed using the Common Query Language (CQL).

Standards for SRW, SRU, and CQL are promulgated by the United States Library of Congress.

SOAP is a protocol for exchanging XML-based messages over a computer network, normally using HTTP. SOAP forms the foundation layer of the Web services stack, providing a basic messaging framework that more abstract layers can build on.

SRW use HTTP with SOAP encoding SRU use HTTP with URL encoding

ONIX (Online Information Exchange)

ONIX is a standard format that publishers can use to distribute electronic information about their books to wholesale, e-tail and retail booksellers, other publishers, and anyone else involved in the sale of books.

EDItX: these XML EDI transaction document formats will mirror and extend the functionality of existing X12,

TRADACOMS and EDIFACT messages for the book trade and library sectors.

Trade Book Supply transactions

<u>Library Supply transactions – transactions between library booksellers and libraries</u>

Consumer Direct Fulfillment (CDF) - transactions between booksellers and consumers

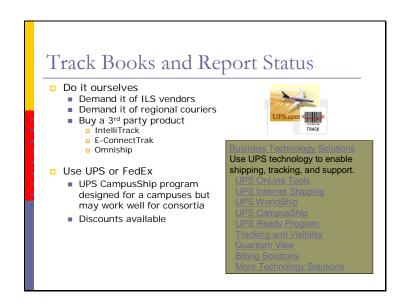
Digital Sales Reporting



RFID is an example of a technology that shows a lot of promise but which suffers from lack of standards. Today's library RFID systems do not work across systems. The tags are useless once an item is loaned out even if both the lending and borrowing library are using an RFID based system. This is a limitation of the tag and a limitation of the ILS but its an unacceptable limitation.

I find it troubling that a library will spend over a million dollars on RFID tags that allow items to be sorted (which bar codes do already) and used in self-check (which bar codes do already) but that same library doesn't track an item during transit. The value of an RFID system is that as an item pass through certain checkpoints (library shipping dock, warehouse door, truck door), the system automatically captures its location. That's how Walmart and friends use them. Libraries used RFID as glorified bar codes. Someday, RFID systems will be used for more than sorting and self-check. They will help the user locate an item in the library. They will allow us to track a book's location while in transit. They will make it possible to keep users informed of the status of their request.

expect that RFID tags will someday be able to even send bibliographic data about a book to the user's PDA.



Keeping track of items as they move around libraries is going to become more and more critical as we aggregate supply. The more libraries send items to non-patrons, the more important it will be to keep track of where those items have gone. All the major delivery companies have been tracking items for years now. Why not the libraries?

Libraries haven't done it because we haven't demanded it of our service providers or we're doing delivery ourselves and that kind of tracking is too expensive. For large volume delivery between library branches, handling delivery in house makes some sense. But for delivery between library systems where the volume is low and the systems disparate, it might be most advantageous to consider using the delivery experts. It will cost more but it will extend the options for users and it will provide a quality of service they expect.

What's Acceptable to Users Today?

- □ Five to seven days to get an item from one library to another within the region/consortium?
- □ Five days to three weeks for an interlibrary loan request?
- No status reports on holds or interlibrary loan requests?
- □ Come and get it!



Is it really acceptable to spend more than 24-48 hours to move an item from one library to another within a region or consortium? Is it really acceptable to ask a customer to wait weeks to fill an interlibrary loan request? Is it really acceptable to accept an order from a customer and then not having any more communication with them about the status of that order until the item eventually turns up at their local library for pick-up?

Why should the way fulfillment happens in libraries be so very different from what it is in all other aspects of our lives?

Libraries and librarians, even more than some others, don't like to change how things are done. Vendors of integrated library systems follow in this same 'slow to change' model and there are reasons for that. They have a small market. They have a limited number of customers. They have a limited pool of R&D funds that they can reasonably expend. That's why the open standards are so important.

As long as the library systems do their core job well (circulation, acquisition, serials control, etc) and as long as they have open, standardized systems, than some of these new functions can be provided by the startups like Endeca and AquaBrowser.

Calhoun refers to this as decoupling the functions of the ILS. In the case of delivery, there is no decoupling necessary. Delivery isn't a piece that exists yet unless you count the delivery to home bound patrons module.

I'd like to see some library system add-ons that actually address delivery in the broadest sense. That provide e-commerce options for the user like using PayPal and "purchase on demand' options. That provide direct shipment via a range of services including FedEx and UPS or maybe even personal messenger! Or which offer to provide items in a range of formats (ebooks, PDF, online). Just as the front side of the D2D chain – Discovery - is expanding, so too must the back end – Delivery.

Libraries must start demanding changes from their vendors, expanding their idea of business partnerships and start thinking about delivery as fulfillment. Make options available that users want and perhaps more importantly which users expect.

Library Delivery 2.0: Summary

- It's more than delivery, its fulfilling the user's information request
- The library delivers the information wherever and whenever the user requires it and in whatever format the user needs it
- A service that operates according to expectations of today's users
 - It is a seamless part of the discovery process
 - It is convenient and flexible
 - It is fast and efficient

Think about NetFlix when you consider whether your delivery options are acceptable. With NetFlix, items arrive in the mail automatically because I've built up my movie queue. Why couldn't I maintain a similar book queue on my library website? Books I've put on my queue (using all those nice browsing and recommender services) would arrive at my door or be put on hold for meaccording to my preference. And I'd be notified via email. When I'm done with the book, I return it in a handy mailer or I drop the items off at the library — whichever works best for me. As soon as I return my items, the next book is ready for pick up or is delivered to my home within days — all according to my preferences.

Library Delivery 2.0 is a concept of a very different library delivery service that operates according to the expectations of today's users. It is seamless, convenient, flexible, fast and efficient. It is a service that fulfills an information request. In this vision, the library makes information available wherever and whenever the user requires it and in whatever format they need it.