

Convergent Evolution of Innovative Teams in Technical Services

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Image sources: [bat](#) - [bird](#) - [butterfly](#)

In recent years the need to repurpose and reuse data in and across domains, systems, and environments has required libraries to begin thinking about and working with our data and metadata in new ways. In response, each of our libraries formed a new team to address these emerging boundary-crossing data challenges. These three teams share:

- organizational location within technical services units
- a unique combination of skills
- a vision of being service points for our library colleagues

As the leaders of these teams, we will:

- describe our teams: their development and our responsibilities
- discuss similarities and differences across our teams
- share communication strategies, lessons, and opportunities we've learned from the process of creating these teams and leading them thus far

Convergent evolution?

The process whereby organisms not closely related [...] independently evolve similar traits as a result of having to adapt to similar environments or ecological niches. --https://www.sciencedaily.com/terms/convergent_evolution.htm

Share:

Bald = clean & cool

Wings optimized for soaring at high altitude

Sharp eyesight

Bills for tearing

Walking (rather than grasping) feet

Strong stomach acid + long intestines

"Old World"

Family: Accipitridae

Genus: Gyps

Species: Gyps fulvus



[image source](#)

Order: Accipitriformes

"New World"

Family: Cathartidae

Genus: Cathartes

Species: Cathartes Aura



[image source](#)

"New World" only:

Keen sense of smell (in genus Cathartes)

Oval perforate nostrils with no dividing septum

Lack bony brow

Lack syrinx (avian voice box)

Urohidrosis

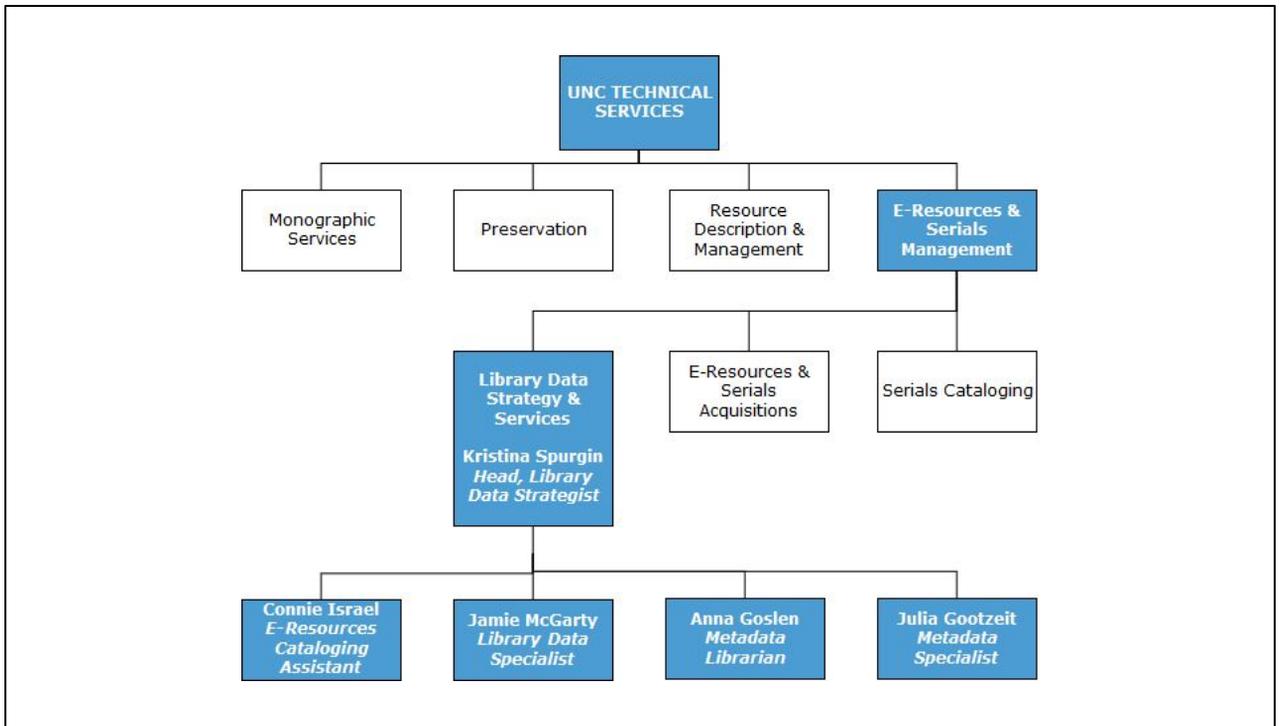
The Old World and New World vultures do not form a clade -- that is, they do not have a common ancestor whose descendants are all vulture-like birds.

The order Accipitriformes includes hawks, eagles, and vultures.

There was not some ur-vulture species which figured out that certain traits make for optimal vulture being.

Separate branches on separate trees in different places at different points in time arrived at similarity to fill a similar niche --- there is carrion everywhere and you can make a good living for a bird by being able to clean it up (thank you to vultures!)

(Kristina admits to blatant positive spin campaign for some of her favorite birds)



The "Order" for all three units we will discuss today is: Technical Services.

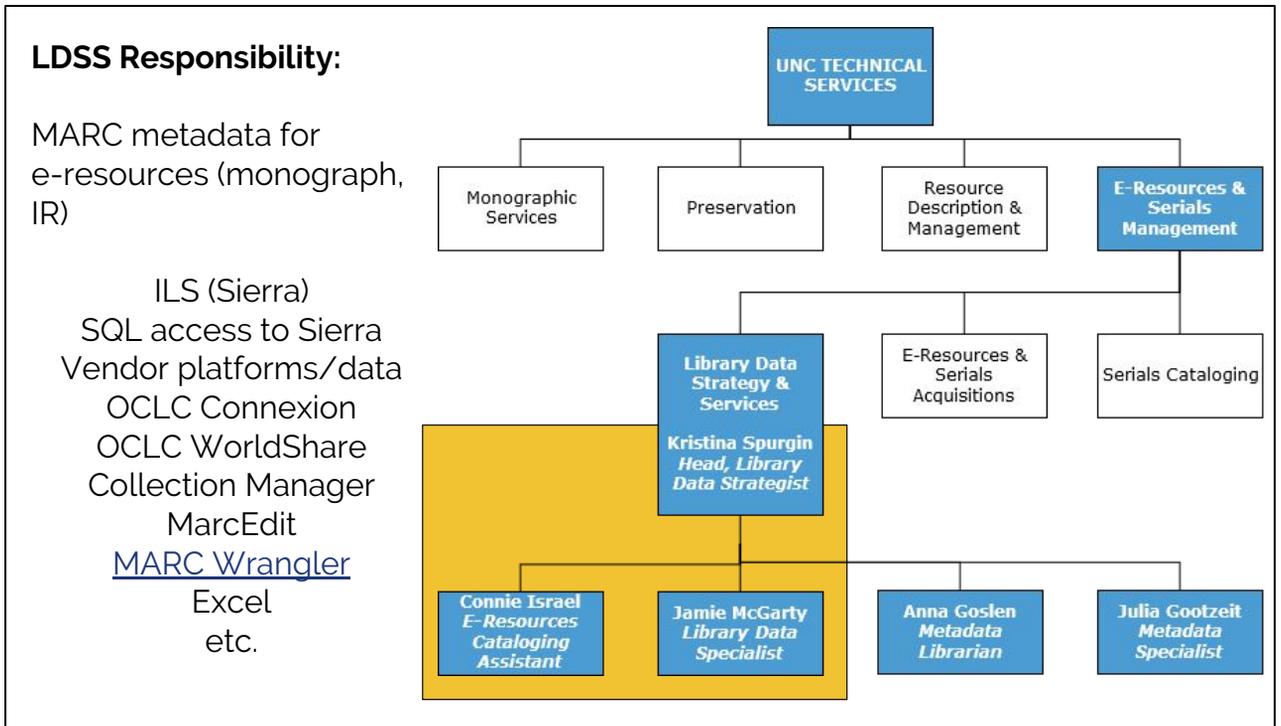
My section is Library Data Strategy & Services, or LDSS.

I'm head of LDSS and have four direct reports (3 SHRA, 1 EHRA).

The "Library Data" in our name is meant to:

- a) reflect that we do not deal only with what typically comes to mind when folks here "metadata" (though much of it *is* metadata -- but it's not just descriptive metadata about our resources)
- b) indicate that our focus is data in the internal work of the library
- c) differentiate us from "Data Services" as offered by our Digital Research Services (DRS) -- public/user facing, research data oriented

We are part of the E-Resources & Serials Management department. This somewhat curious positioning is related to the way we evolved...



Now I'm going to talk about our responsibilities, and in doing that, tell the story of how we became LDSS, because it makes more sense that way.

LDSS evolved out of the E-Resources Cataloging section, which was myself and Connie.

That explains our position within ESM, and our responsibility for the MARC metadata for most monograph and integrating e-resources (web sites and databases)

The left hand column lists some of the platforms and applications where we spend a lot of time to accomplish this work.

Today, Connie and Jamie basically make this happen on a day-to-day basis, and I step in to help with particularly complicated cataloging issues, thorny troubleshooting, setting up new workflows, and escalating vendor communications.

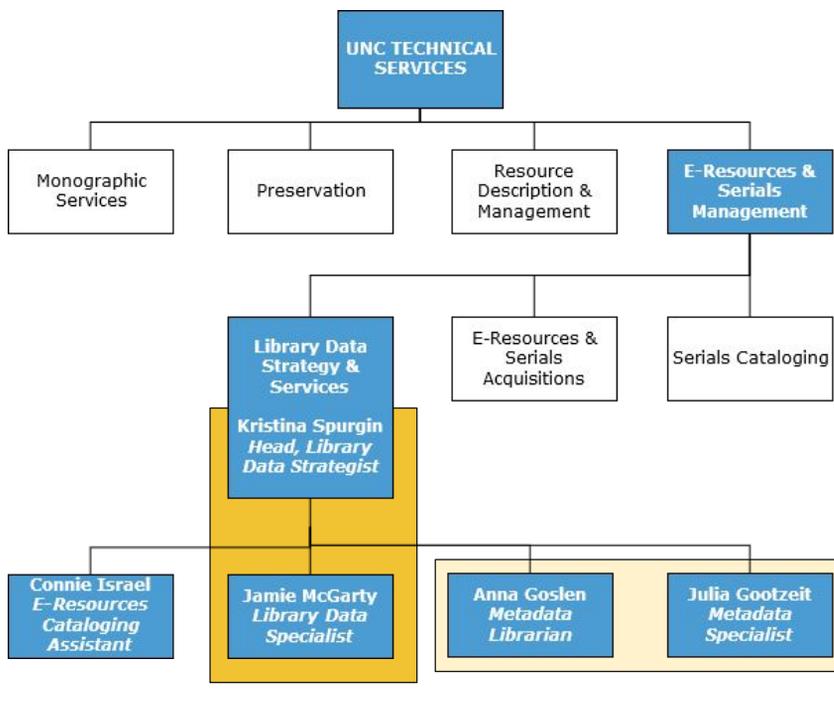
Jamie and I can batch load bib data into the ILS, and make global changes to ILS data

I also can create and revise load profiles within our ILS

LDSS Responsibility:

Data flows into TRLN
Shared online catalog

Shell scripts
OxygenXML
Proprietary Endeca tools
Applications developed by
LDSS
Applications developed by
TRLN Discovery team



The e-resources cataloging work required cataloging expertise AND skill with batch data manipulation and scripting, which made me a good fit for taking on management of the data flows into the shared online catalog.

This work started in Library IT, became split between us and LIT, and now we are solely responsible for it.

Taking this on is what initially got us SQL access to the backend of the ILS, which has proved useful for so much more than this process...

Anna and Julia are highlighted light yellow here because this "catalog" is not just MARC bib data, but includes heterogeneous non-MARC metadata from multiple sources

This includes:

- bib, item, holdings, and sometimes order information from the entire ILS
- EADs
- IR (ETDs, Masters papers)
- Digital collections
- Metadata for datasets from ICPSR and Odum Institute Dataverse

Common themes across our work

retrieve ♦ query ♦ extract
transform ♦ validate
enhance ♦ remediate
reconcile ♦ merge
integrate ♦ ingest
map ♦ migrate ♦ manage
reuse ♦ report
verify

workflow design &
automation

repeated or scheduled

almost everything at scale

The left column here shows some processes/tasks that both of those responsibilities require.

In addition, most of what we do on these happens on a relatively large scale. A lot of it has to be repeated over and over again.

So we also do a lot of thinking about complex workflows and how to automate (or semi-automate) them.

Identifying the skills, functions, and perspectives represented on this slide as unique and valuable within the Libraries is what led to the evolution of E-Resources Cataloging into LDSS, which would also...

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LDSS Responsibility:

Service point to colleagues across the Libraries

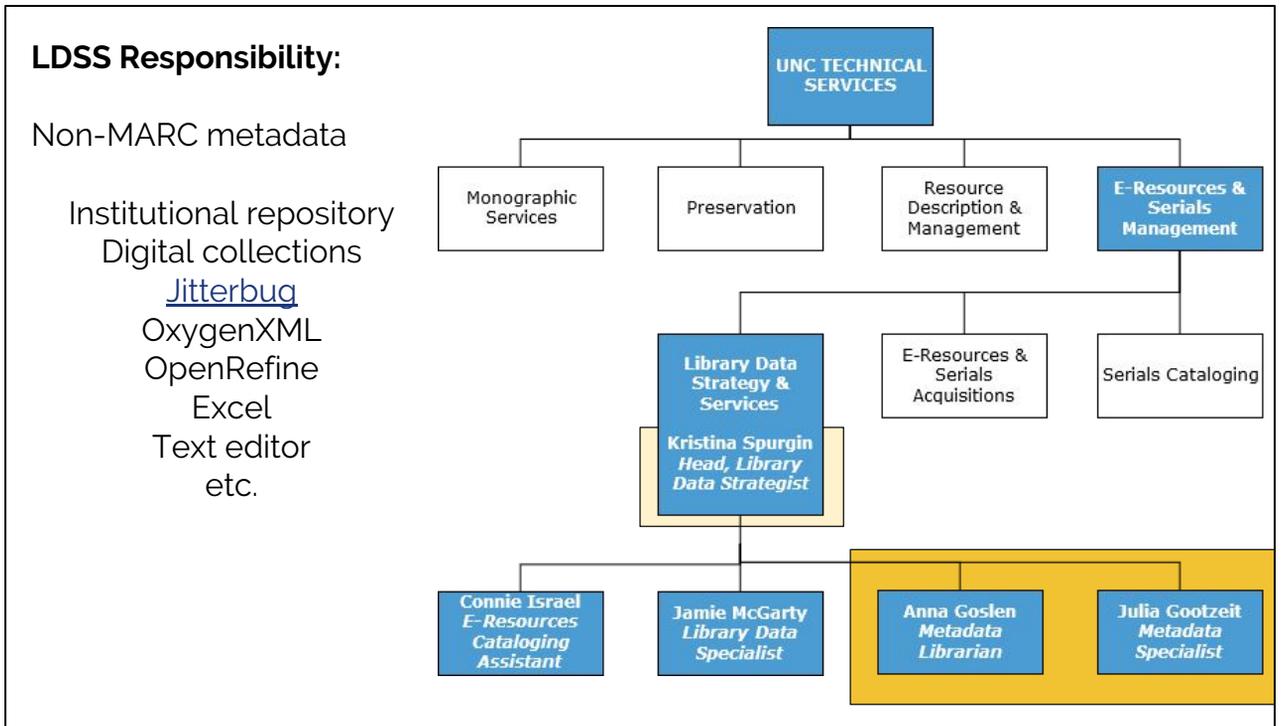
- consultation and hands-on help leveraging library (meta)data to solve problems and streamline work

... act as a service point for colleagues across the Libraries who needed help with this kind of thing to answer questions, solve problems or improve processes.

People were already coming to EresCat for this kind of help! That's part of why I was able to identify this as an organizational need.

Our evolution into LDSS:

- named this work and made it VISIBLE;
- allowed us to create and hire for Jamie's position; and
- clarified that one more major responsibility belonged in LDSS instead of RDM or IT...



LDSS also has responsibilities for non-MARC metadata in the IR, digital collections, and in various systems and projects across the libraries.

This work requires many of the same abstract functions, ways of thinking/working, and perspectives named on the previous slide.

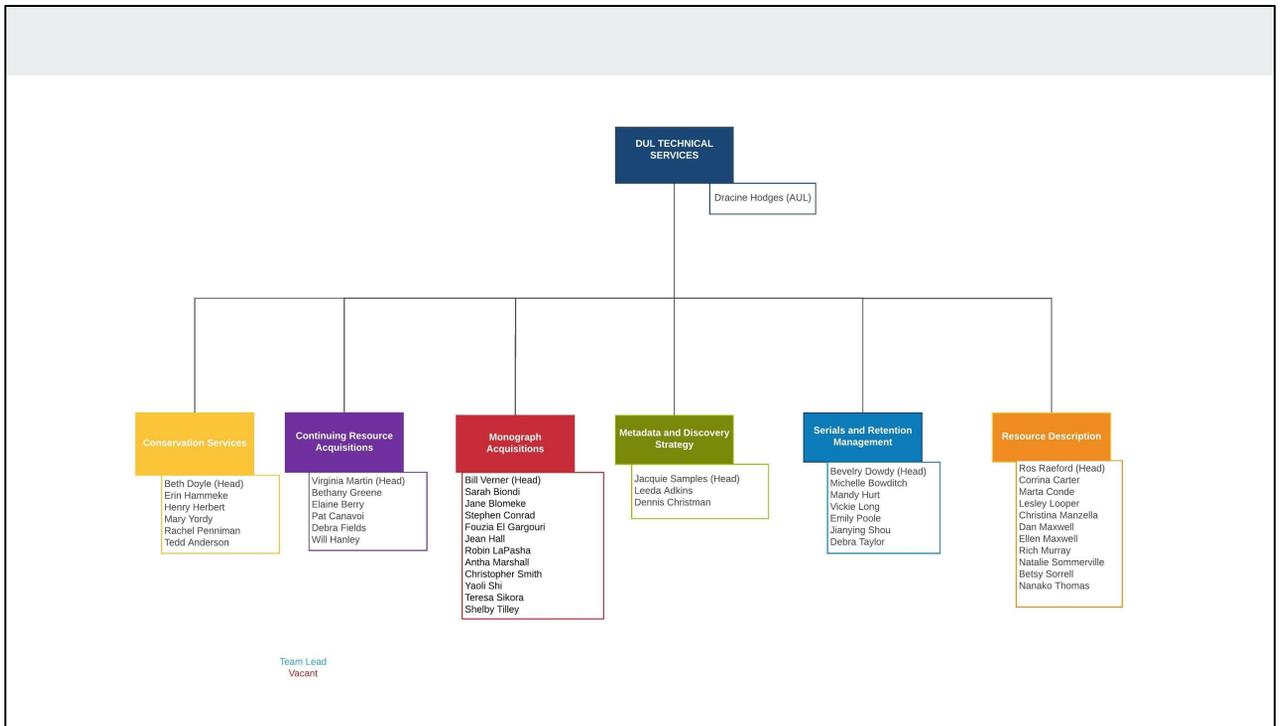
Anna and Julia are primarily responsible for this work. I'm in light yellow because I keep track of it all at a high level, sometimes weigh in on policy, etc., and because it overlaps with the online catalog data flows.

We do not create or own all of the non-metadata, but play a coordinating, policy setting role in planning and configuring systems reliant on metadata with an eye to ensuring interoperability

Think: designing the form people use to submit items to the IR. What fields are required? How is that information mapped into reusable metadata on the back end?

When metadata needs to be migrated or reused, we create mappings and transformations to do that, and perform necessary remediation to protect against data loss/corruption/etc.

Also we act as a service point for anyone across the libraries needing expert consultation on metadata for projects.



The TS division at Duke comprised of 6 departments, Originally it had 5, but Conservation joined us last year. DUL TS has 50 positions including our AUL, Dracine Hodges and several vacancies.

MADS was added to the organization in December of 2016. At this time, we'd recently decided to back away from an ILS implementation, were facing the retirements of long-term colleagues, and had a relatively new AUL. As always, TS was seeking ways to articulate our importance to the overall library, so after several months of conversations and planning, Dracine took Technical Services from 3 departments to 5. Seeing the need for a small group of experimenters to focus on the future, and based on one of the libraries strategic priorities to "Advance Discovery," MADS was created.

Me, Head of MADS
 Dennis, Metadata Transformation Librarian
 Leeda, Metadata Ingest Specialist

MADS, an Innovation Lab for Technical Services

Develop approaches to improve and creatively shape the discovery of and access to the libraries collections through a wide array of activities in metadata analysis, creation, consultation, enhancement, and maintenance,

for example ...



My department collaborates with all of the other TS departments. We investigate new technology, workflows, and processes to make recommendations, either internally with DUL and TS colleagues, or externally with larger library communities (FOLIO, SVDE, LD4)
For example, we ...

- Ready DUL for the transition from the present MARC environment to one that facilitates the management and use of library data as linked data
- Investigate new technology, workflows, and processes to make recommendations to internal DUL and TS colleagues; to be a sounding board for workflow changes and projects involving large-scale changes and metadata maintenance
- Create automated processes using query and scripting languages to “automate the automate-able”
- Transform metadata for a variety of projects and initiatives

We were brought together, to really create some capacity for future-proofing the work of technical services so that the other departments can focus on their specific areas of expertise. MADS work, my main role, is to look at the various workflows or projects with an eye for efficiency and different ways to accomplish work, so we can evolve as a division and be ready for a linked data future. But also so that what can be done effectively by computers at scale uses computing power; to free the human brain to do the complex things only human brains can do.

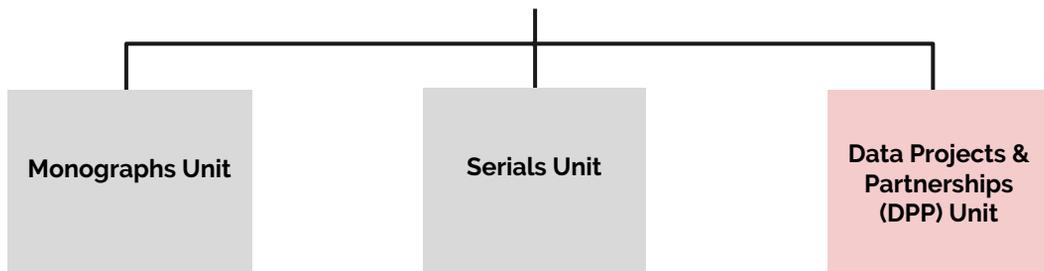
NOTE for last bullet: Could use “Kaseboxing” or “Print retention” projects as examples of collaboration, metadata transformation, and process improvement.

Also in our domain

- Functional support for
- Proxy server and access issues
- Management of the AskTech ticketing system
- Discovery systems administration (Summon, KB, A-Z lists, etc.)
- TS Documentation Portal
- Batch record loading, including authority control loads, MARC record services, and acquisitions loads
- Global changes to ILS data
- Administration of TS-related permissions for ILS and Connexion accounts

Of course, there is also some work that just makes sense to have MADS be responsible for. Some of this work followed either Leeda or myself when we first formed MADS but some of it has developed since then.

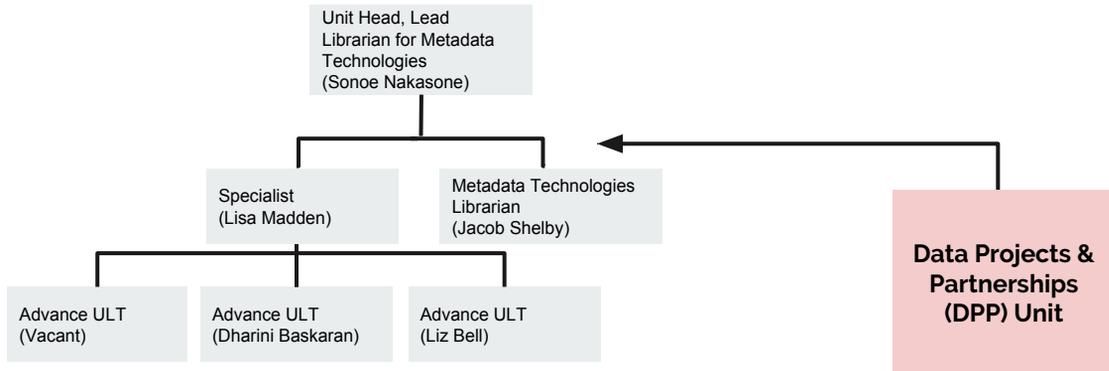
Acquisitions & Discovery Department = Acquisitions + Cataloging & Metadata



Acquisitions & Discovery Department. A few years ago it resulted from a merger between the Acquisitions Department and Cataloging & Metadata Department. The department does resource description and acquisitions for library resources, including books and journals. There are three units within the department: Monographs, Serials, and our unit, Data Projects & Partnerships.

DPP unit. This unit provides administrative and technical support for the other two units. This includes database and financials support. We also provide some metadata services such as data modeling and data cleanup. We are currently in the process of exploring new services and re-defining what services our unit provides to the department, as well as the Libraries and broader NCSU community.

Data Projects & Partnerships (DPP) Unit



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Data Projects & Partnerships (DPP) Responsibilities

- Administrative
 - Financial approvals and collections budget tracking
- Technical Support
 - Procedures, workflows, documentation, or lightweight tools to **solve problems**
- Metadata Exploration
 - Trends in metadata
- Library-wide metadata and data support
 - Consult or build tools or perform tasks

Data Projects and Partnerships (DPP) unit applies traditional cataloging and acquisitions expertise to the growing array of projects that include, but are not limited to, enhancing discovery of collections materials on the open web, building efficient tools for the acquisition of library collections, collaborating with other departments in the Libraries to build high-quality data and enhance discovery of library services, and working with researchers to find the best metadata schema for their research endeavors. Specific types of data services include, but are not limited to, data modeling, data transformation, data creation, database design, and applying semantic web technologies.

Similarities and divergence

Jacque: We wanted to talk about the ways our groups have similarities and divergences specifically, not simply as demonstrated in the last few minutes. So, we are going to talk about these in more detail in the next part of the presentation.

Similarities and divergence

- Blurring lines between Tech Services and IT

We bring IT skills (databases, programming, systems analysis/thinking) to the table

These are things Tech Services would have once upon a time had to go to IT for, and that often feels like a big ask and has significant friction

Bringing these skills (and in some cases higher levels of admin/backend access to systems) into Tech Services breaks down barriers to changing the way Tech Services does business

we don't build full-blown, user-facing applications

we usually don't have to care about tech infrastructure, security, etc for what we do

important communication role w/IT about requirements/needs

Similarities and divergence

- Blurring lines between Tech Services and IT
- Process/workflow improvement and documentation

Process/documentation improvement (outside our units). Sometimes collaboratively across library departments (IT/TS/PS)

Sounds like MADS / Jacquie has been very wise in being extremely clear that MADS consults on workflows but gives the work back. LDSS has not always been so smart. Part of this is that some workflows (or end products) were identified as needed but had no clear existing home within the organization. Since we knew how to get them done, they ended up with us.

Similarities and divergence

- Blurring lines between Tech Services and IT
- Process/workflow improvement and documentation
- Bringing a different perspective to the work/tasks at hand

- communication strategies, lessons, opportunities
 -
 -
 -

A cuter example of convergent evolution

Both are:
Small
Arboreal
Nocturnal

Both have:
Membrane extending
between forelegs and
hindlegs, used for gliding

Large eyes

Countershaded fur
coloration



Sugar glider

[Image source](#)

Class: Mammalia
Infraclass: Marsupialia
Order: Diprotodontia
Family: Petauridae
Genus: Petaurus
Species: Petaurus breviceps



Particolored flying squirrel

[Image source](#)

Class: Mammalia
Order: Rodentia
Family: Sciuridae
Genus: Hylopetes
Species: Hylopetes alboniger

Kristina's planned moderator questions

- I already covered this in talking about our responsibilities, but can you tell us the story of how your unit came to exist in this form?
- What are some projects you've done that have had impact or increased your visibility in your organization?
 - KMS:
 - development of IA/Scribe metadata-first materials workflow
 - materials review support
 - HSL weeding project
 - SN
 - Work for assessment librarian -- close to admin -- built databases, workflows, and other solutions to help organize, model, query and process data more effectively or efficiently.
 - Textbooks -- affordability
 - Emergent scholars and DVS partnership
 - Website partnership
- How have you marketed yourself or promoted the work you've done to the library in order to gain projects or advocate for your role in library work?
 - KMS:
 - we had a plan to market ourselves/promote the new LDSS

- service point at an All-Staff meeting but that didn't happen for various reasons -- now I'm scared to 'market' because we don't currently have much extra capacity
- build and maintain strategic relationships with folks in IT and across the libraries;
- in large institutions it's impossible to know everything that is going on; it's a bad feeling to learn a project was rejected (or student workers spent countless hours doing something tedious) when you could have helped automate a thing or merged the relevant data to make something possible -- you want to be on people's radars so you are called into the room
- I'm a consistently overwhelmed introvert with a capital-I so I'm not always great at the above.
- I try to balance this by taking every opportunity to present/speak about what we are up to -- that takes a different kind of energy, and it reaches lots of people at one time. Hopefully they will remember you when a project or problem comes up.
- SN
 - Started developing promotional flyer
 - Department visits
 - Lunches and networking
 - Completing a project
 - SWAPs and Workshops (ex. Jacob)
- Have you learned any lessons in the process of developing and/or leading your unit?
 - JS: not taking on new services permanently -- always give the work back -- up front agreement
 - SN: We can learn from Duke about giving work back.
 - KMS: switch (or rebalance) service vs. training emphases
 - importance of saying no (importance of having support for saying no)
 - importance of having a discussion about the priority for this work -- what should be bumped down the list for this project? -- difficulty of balancing internal unit and external project priorities
 - SN: focusing/scoping partnerships and prioritize the department. We can learn from Duke about giving work back.
 - KMS: don't take on big new responsibilities without making sure you are relieved of some existing responsibilities