Tools for RDS

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Contents

This book was created for people who are new to Research Data Services programs and, as such, covers some basic principles as well as more advanced techniques that can help get an RDS program started at a university Library. One of the goals of the "Research as Data-Data as Research" project was creation of a toolkit to provide a step by step guide for libraries, especially those with limited resources, to prioritize needs and create offerings with the assistance of their user communities. This toolkit is a collection of those resources, separated by the phase of the project. It is intended to be an evergreen, open resource. Please feel free to contribute ideas and examples that you think other libraries will benefit from.

A wide variety of tools for creating research data services

How to Use This Book

This Tools for RDS book is designed as both a linear guide as well as a reference text. Each chapter covers a specific stage of the process in establishing an RDS program, and individuals who are starting from scratch will find information to help them at every step of the process.

In order to present many of the concepts in this book in a clear, relatable, and easy-to-understand fashion, we have created a fictional Case Study involving a Research Librarian at a medium-sized land grant university. The purpose of this Case Study is to illustrate how to apply many of the tools and techniques covered in the text, as well as give examples that demonstrate situations and scenarios that you might find yourself in as you create an RDS program.

Chapter Overviews

Start from where you are

Fill in the gaps

Make it happen

Communicate, communicate, communicate

You can't do it alone

Learning Objectives

After reading this book, you should know, learn, or be able to do the following:

Conduct an inventory of current tools and resources

Describe different types of stakeholders and identify key stakeholders within your own Library

Apply principles of equity-centered design to the foundational building blocks of an RDS program

Understand basic principles of managing a large-scale project

Describe the purpose of a Memorandum of Understanding and how this type of document benefits all parties involved.

Create a communication plan for ensuring effective teamwork among relevant project stakeholders

Evaluate the effectiveness of the RDS program

What is RDS?

All research relies on data: collecting, analyzing, sorting, visualizing, preparing, and even presenting information in order to make sense of the the world around us. While many academic researchers rely on data to perform their work, understanding and working with that data can present significant challenges and barriers to understanding. Libraries often provide access to software, tools, and personnel that can help researchers work with large amounts of data and information, and in recent times these efforts have coalesced around the term Research Data Services

   A Research Data Services program provides an array of services and support to academic researchers including workshops, trainings, consultations, and other resources to help make data easier to work with, more open to the public, and shareable across disciplines and other institutions.

Case Study: Black Mesa University

Carrol Quinlan, Ph.D., is a librarian at Black Mesa University, a Land Grant institution in the midwest region of the United State. BMU has an undergraduate population of roughly 12,000 with about 2,000 graduates, and is located near the center of a midsize city whose economy is primarily built on on agriculture and energy production.

Dr. Quinlan earned her Ph.D. in Educational Leadership and spent five years working for the Provost at another university before coming to Black Mesa University. After a year of helping build up the suite of data tools available through the library, her department head realized the importance of a full-fledged Research Data Services department and subsequently chose Dr. Quinlan to head this new initiative. Dr. Quinlan is familiar with some basic concepts of research, data science, and project management but has not yet led the creation of a major initiative such as this. Her goal is to learn as much as possible about Research Data Services, understand more about principles of Project Management, and design and implement an RDS program that can be utilized by faculty members throughout her university.

Dr. Quinlan's progress in developing a Research Data Services

program will be used throughout this Tools for RDS book as a way of illustrating how various concepts and principles are applied, show what happens when some mistakes are made, and ultimately serve as an example of how to design and implement a solid RDS program.

PART I
START FROM WHERE YOU ARE

If the idea of developing a Research Data Services program seems intimidating, don't worry. Everyone has to start somewhere, and as the proverb goes, the journey of a thousand miles begins with a single step. If you are new to the Library you will need to do a bit of pre-planning work to make sure you have a solid foundation of understanding, but even if you have already been working in your Library for a while it is still a good idea to know where you are starting from. This will help determine your destination, and then design your RDS program to meet the needs of your stakeholders.

Planning takes time, but it's worth it in the long run.

Essentially, this stage of the project involves learning as much as you

can about the current situation at your Library and your University. This will help you understand what you can build on, what gaps exist, and how to best craft your RDS program to meet the needs of University personnel. Some things to consider as you begin making plans are:

- Find out what workshops, and what subjects (i.e. coding, data management, etc.) are already being taught at the Library.
- Learn about existing partnerships between your library and other entities on campus.
- Get to know the people you will be working with
- Investigate conferences, trainings, and other professional development opportunities.

It might be helpful to gather knowledge and information about additional elements as well:

- **Policy** – does the university or any of the other academic units have policies or guidelines about how researchers manage their data?
- **Partners** – has the library worked with others on campus to encourage good data management practices or create relevant resources?
- **Resources** – webpages, research guides, publications, newsletters or any other communications that you have used to reach out to your campus.
- **Planning** – has your library or campus planned for new facilities, personnel or services that should be incorporated into research data services?
- **Expertise** – any conferences or trainings that have allowed librarians to upskill? Include a review of any outputs such as publications or surveys created as a result of these opportunities.

This initial set of information can expand to include any relevant items you see fit to include, and should be tailored to suit the needs of the RDS program you are developing. It does not require special tools or software either–often a simple word-processing document or spreadsheet will suffice, and it can be built up over time as you learn more about your Library, University, external partners, and more.

Begin with the end in mind
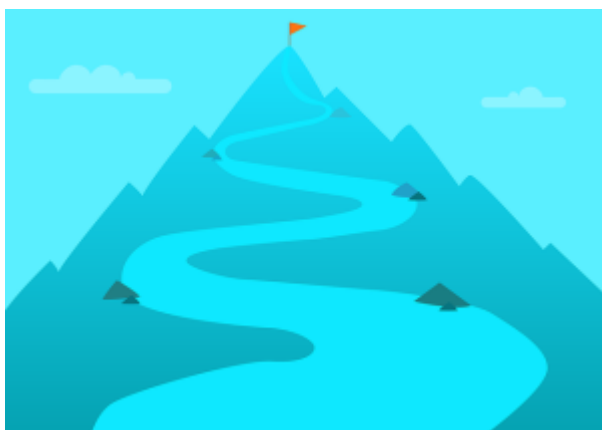
As you being planning your RDS program, it helps to have a clear sense of your goals and outcomes. If you begin with the end in mind, you can work from there to make sure everything you do meets that goal. This is a principle known as backwards design, and it helps you maintain focus throughout the creation of your RDS program.

Write down some key goals and objectives for your RDS program before you get too far into the planning stages. Having a clear sense of what you are working towards will help coalesce your efforts, increase buy-in from stakeholders, and ensure project success.

Chapter Learning Objectives

By the end of this "Start from where you are" chapter, you should be able to know, learn, or do the following:

Understand the importance of conducting initial inventories

List the various programs, trainings, resources, personnel, etc. at your Library and University that relate to the RDS program you intend to develop

Explain your goals for creating an RDS program and how that program will meet unaddressed needs within your Library and University.

1. Use Instruction as a Starting Point

Many steps need to be taken prior to initiating an RDS project in order to lay the foundation for a positive and successful outcome. For people beginning an RDS project, it is important to understand the current situation at your institutional library in order to tailor the project to best meet the needs of your faculty, staff, and fellow librarians. It's entirely possible that some workshops have recently been done that you can build on, or that there are regular professional development sessions being taught which already address some of the needs of the RDS project. Understanding the current instructional practices can help you create an RDS solution that builds on current offerings, fills in gaps and missing pieces, and addresses the critical needs that are not currently being filled.

Your Research Data Services program can build on existing workshops and seminars already being offered, but first you will need to know what they are.

If you don't know where to begin, start by talking with your department head and other Library personnel who can help you get a better understanding of what types of workshops and trainings

have been done in the past few years or are currently being planned. Take note of some basic information such as the title of the training, who led it, how many people attended, and other data points that you can use to help get a sense of what these sessions were all about. This will help ensure that your RDS project will build on current knowledge and address any deficiencies, and not re-teach what has already been taught.

Start by creating a list of library workshops taught in the last two years. Then find information that answers questions such as:

- What data and research relevant topics were taught?
- How many workshops have been taught in each category?
- Can you identify any gaps from this information?
- Are there particular instructional needs on your campus?

Know the Current Situation

The goal with this process is to find out the current situation at your Library so you can build an RDS program that addresses needs and deficiencies, rather than overlapping with what is already being done. There might already be workshops and instruction modules in place that address some RDS topics, and you can either build on those or incorporate some of those lessons into your RDS program. It helps to use a spreadsheet so this information is organized, readable, and easy for you and other stakeholders to understand. Your chart could contain information such as the following.

1. Category – software tools, coding, data management, research methods, reproducibility, other
2. Workshop title or topic
3. Instructor name and department
4. Number registered
5. Do you have names and emails for participants?

One example of how this could be done is shown below.

	Carpentry Basics	**Working with Stata**
Category	Data Carpentry	Software Training
Date Taught	June 2021	January 2022
Instructor Name	Dr. Berhane Dubaku	Finn Odran
Instructor Department	RDS	Maps and Spatial Data
Participants	17	22
Contact Info	Yes	No

When you are finished collecting this information you should have a good understanding of what the current situation is and how your Research Data Services program can build on what already exists, fill in the pieces that are missing, and who you can contact to help you along the way.

Knowledge Check

An interactive H5P element has been excluded from this version of the text. You can view it online here:
https://open.library.okstate.edu/toolsforrds/?p=146#h5p-2

2. Existing Library-Campus partnerships

When designing any new initiative such as a Research Data Services program, one trap that many people inadvertently fall into is that of reinventing the wheel or creating unnecessary redundancies. Many instructional designers and program managers have toiled away for months only to have their good intentions upended at the last minute after finding out that someone was already doing the same thing. Taking stock of existing consultations and partnerships with Library personnel and other individuals on campus helps avoid that tragic fate. This proactive step helps make sure you are aware of ongoing services being provided by Library staff that might overlap with your RDS goals, and helps you know who at your Library is already working with researchers and other stakeholders, what types of information is being shared, and where knowledge gaps exist so you can address them.

Understanding the consultations that have been done, or that continue to happen, in your Library or department will help you build your Research Data Services program to address critical needs and gaps in knowledge.

Collecting and organizing this information does not require you to rely on expensive software or hard-to-understand tools and services. Your goal is to simply gain a solid understanding of what services are already under development and the library staff who might already be providing some of the support you will bring under your formalized RDS program. It's entirely possible that people have been providing work that would fit within an RDS program without realizing it, and this is the kind of information you will need to know. A good rule of thumb is to look at consultations from the past two to three years that focus on topics such as:

- Data management
- Data storage
- Questions about data repositories or data sharing
- Citing secondary data
- Publishing and data

Your inventory should include researcher names and disciplines, what topics were discussed and whether the librarians were able to provide adequate assistance or if the researcher was referred to another resource. If more expertise has been developed in the interim, describe the specific skills. Any additional information that you think is relevant should be included as well, and you can also add longform descriptions of consultations if it would be beneficial for you and other stakeholders to read sentence- and paragraph-long descriptions.

	Dr. Berhane Dubaku	Anson McCormick
Researcher Name	Orley Weaver	Michael Johnson
Date(s) of Consult	August 2020	May 2021
Topic Discussed	Data management	Research citations
Researcher Department	Geology	School of Business
Adequately Assisted?	Yes	Partly
Computing Resources Required		
Data Storage Platform		
Notes	The consultation took place over the course of four weeks, and Dr. Weaver indicated that he was able to understand and utilize data management tools much more effectively.	Dr. Johnson had not previously used EndNote for his citations, and as a result was having trouble adapting his research workflow to BMU. McCormick offered assistance in the form of Zoom meetings and a one-on-one consultation, but Dr. Johnson did not seem confident in his abilities even after several sessions.

It can help to gather information by answering some questions as you take stock of existing partnerships between the library and your broader campus community. These questions can give you valuable insight about the types of workshops, programs, and materials you will create in your RDS program to better address the needs of the university community. Some questions to think about are:

- How are the workshops commonly taught? (Face to face, virtual, hybrid, self-paced, etc.)
- How often are training sessions and workshops made available to faculty and staff?
- What software is used for data management at the university?

- What data skills or prerequisites do people need to have in order to advance in their roles as researchers or support?

Answers to questions like these can help you know as much as possible about the current situation on your campus before starting your RDS program, and make sure you are targeting the needs that matter most to your campus community.

Knowledge Check

An interactive H5P element has been excluded from this version of the text. You can view it online here:
https://open.library.okstate.edu/toolsforrds/?p=148#h5p-3

3. Learn who you are working with

As you go through the planning stages it's important to consider the people who will be involved with, or affected by, the Research Data Services program you are developing. Some of these individuals are easy to identify, such as your department head or other colleagues, but others are not so obvious. Your RDS program will likely have many more people involved than you realize at first, and taking a thorough inventory will help you target your efforts and make sure you build the best program possible.
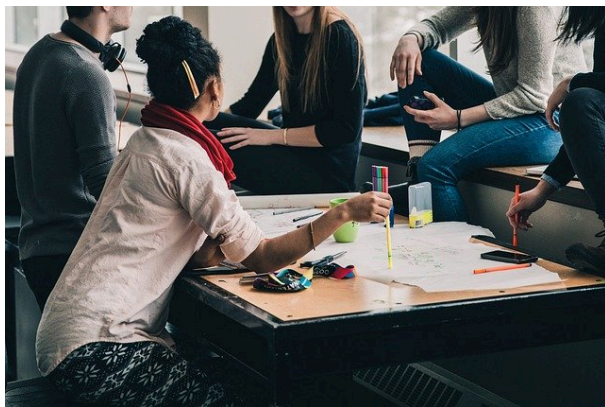
Stakeholders are anyone involved with, or affected by, a project.

The people involved with or affected by your Research Data Services program can easily go well beyond the border of your library. Your document will likely involved with planning RDS trainings and events, support personnel, and library staff and faculty as well as those who will receive your services and are most directly impacted by them. If you are just starting to build your RDS program you

might not be aware of all the individuals who could be classified as stakeholders, so you can start by taking an inventory of people in your immediate area of the library and working out from there. This document will grow and expand over time, and will change as people leave and join your library and university, but it's important to establish an initial stakeholder inventory so you have a good understanding of the people involved in the project.

This inventory should not be treated as a private document. Use a tool like Google Docs to prepare this inventory so you can easily share it with others, and invite people to contribute to the information contained within. Keep the information factual, general, and easy to understand so anyone who sees the document will know right away who is involved with, or affected by, the RDS program. This is not a place to air personal grievances or put down sensitive information, and most of the data on this inventory can be gleaned from commonly-available sources such as the university directory or simply by talking to people in your department. Other data such as Interest is more of a personal judgement call on your part. While a stakeholder inventory can contain any information you see fit, some elements to consider including are:

- **Stakeholder Name** – The person's name
- **Title** – The person's title in the university system
- **Department** – The person's department or college
- **Communicate Via** – Preferred method of communication, which can help your messages and conversations be more effective
- **Interest** – How closely they are involved with the RDS program. Someone with high interest will be part of the program on a near-daily basis, while someone with low interest will need to be kept in the loop but as often.

Stakeholder Name	Title	Department	Communicate Via	Interest
Dr. Carrol Quinlan	Program Lead	RDS		High
Dr. Berhane Dubaku	RDS	RDS	Slack	High
Finn Odran	Supervisor	Maps and Spatial Data	Email	Medium
Kacie Murtaz	Department Head	RDS	Slack	High
Koldo Bakir	Dean	BMU Library	In-Person Meeting	Low
Dr. Timothy Darin	Faculty Member	Engineering	Videoconference	Medium
Topper Harley	Technician	Library IT	Email	Medium
Ahmed Rahul	Comm. Specialist	Communications	Phone	Medium

As with the other information you will be collecting at this stage of the process, your overall goal is to establish a certain level of baseline knowledge. As you build up the RDS program you will get to learn more stakeholders and can update your Inventory accordingly.

They are the ones who should be targeted by your needs assessment. Others who may also be impacted include service providers such as librarians and other resource groups. This group is sometimes included in the needs assessment but should properly be considered in the later steps of the process. A third group that is considered separately is those who provide support or facilities such as classroom space, learning and library management systems or software and IT support.

Knowledge Check

Altschuld, James W, and Belle Ruth Witkin. 2000. From needs assessment to action: Transforming needs into solution strategies. Sage, p. 9.

4. Conferences and Training

Professional Development is critical to faculty members, administrators, and even support personnel at a university and especially in an academic library. Local, regional, national, and even international conferences and training sessions are important venues for sharing information, making professional connections, and keeping apprised of the latest research, innovations, and changes in academia. In recent years these types of events have broadened their reach with many taking place virtually via Zoom or other videoconferencing tools, giving attendees the ability to engage in presentations and discussions from the comfort of their own home or office.

Conferences and other professional development sessions can help you build your skills and construct a highly effective Research Data Services program.

As you begin laying the groundwork for your Research Data Services program, think about the events you or others in your department have attended that relate to this particular field. Have you or others attended conferences about library research data support? Does your campus offer training opportunities for software and research services that you could build on with your RDS program? Are there

online professional development programs such as workshops, courses, or certification programs that you your others have participated in? Do you or your colleagues have digital badges or other certifications that you can use to display your subject area knowledge and expertise? Your Conferences and Training Inventory can also include upcoming or ongoing trainings and professional development opportunities.

Items to consider including on the Conferences and Training Inventory can include:

- Title of the event
- Date of the event
- Organizer of the event
- Names of key participants such as Leader, instructor, keynote speaker
- Notable topics and important takeaways
- Products or deliverables created from the event. (i.e. instructional modules, surveys, publications, etc.)

Knowledge Check

An interactive H5P element has been excluded from this version of the text. You can view it online here:
https://open.library.okstate.edu/toolsforrds/?p=152#h5p-5

5. BMU: Starting Out on the Wrong Foot

As Dr. Carol Quinlan started work on her RDS project, she felt intimidated and overwhelmed at all the information she had to collect, people she had to meet, and tasks to perform and ended up taking a few days just to sit in her office and think, jot down notes, and sort through her ever-expanding email Inbox. She soon realized that she wasn't going to get very far without first understanding the current situation at her campus library, and it would help to just start talking with people to get a sense of where things stood before going much farther.

Sometimes it helps to just take a moment, grab a cup of coffee, and find some time to think and sort through all the information coming your way.

After collecting her thoughts and sorting through all the information on her to-do list, Dr. Quinlan emailed Topper Harley, the head of the BMU Library IT Department, to talk about some of the trainings that had been done over the past two years. She found out that he and his team do some basic computer skills sessions that cover things like Microsoft Office, OneNote, and how to access the

Library's suite of digital tools and services as well as how to edit LibGuides. While much of this did not relate specifically to Research Data Services, Dr. Quinlan did find their discussion to be useful since Topper clearly had a great deal of institutional experience and knew how to organize and conduct training sessions. Carol and Topper discussed how he could help her with promoting some professional development sessions, using the hardware and software in the training room, and working with IT staff to deal with computer issues that can crop up over time.

Dr. Quinlan decided that her next step in planning her Research Data Services program was to start putting together some workshops for OpenRefine, a software application for working with somewhat messy data sets. She was quite familiar with this tool and had used it extensively throughout her Ph.D. program, and figured it would be a good way to really get her RDS program off the ground. She worked with Topper to set up some workshops in the library training room, and also called Ahmed Rahul, the library Communications Specialist, to get the program listed in the weekly Library e-newsletter.

Not long after Dr. Quinlan started to get the ball rolling with all of this, she got a Slack message from her department head Kacie Murtaz asking about the OpenRefine sessions that were on the Library calendar. Instead of congratulating her on a job well done, Kacie wondered why Dr. Quinlan was doing these workshops in the first place and she appeared to be somewhat confused by the whole matter. She wasn't upset, just confused, and asked if they could meet the next day to discuss the situation.

Dr. Quinlan was worried going into the Kacie's office the next day, and confused about why this meeting was even happening. As it turns out, the Library already had a series of workshops for some data-management software including OpenRefine, and the trainings that Dr. Quinlan had planned were going to be almost entirely redundant. After clearing up the initial confusion, the two colleagues had a pleasant, productive, and respectful conversation about how Dr. Quinlan could adjust things going forward and come

up with some workshops and training programs that were better suited to what the Library and the University really needed.

While the experience was a little unnerving, it did give Dr. Quinlan a new perspective on developing her Research Data Services program. She learned that, first and foremost, her department head was on her side, believed in her, and wanted her to succeed. Kacie wasn't upset about the OpenRefine trainings, just confused, and once the two of them got that sorted out things went much more smoothly. Dr. Quinlan decided to slow things down, way down, and learn as much as she could about the current situation before making any big plans. She needed to know what was being taught so as not to make the same mistake that she did with OpenRefine, as well as spend time getting to know the people in her team, at her library, and on the campus in general. This would mean her Research Data Services might take a bit longer to get up and running, but it would be well worth it in the long run.

FILL IN THE GAPS

The first step in building an RDS program involved developing a solid understanding of where you are, and using that to help inform your goals about where you would like your RDS program to be. After taking stock of things such as what is already being taught and the people you will be involved with, you can start to identify gaps that need to be addressed.
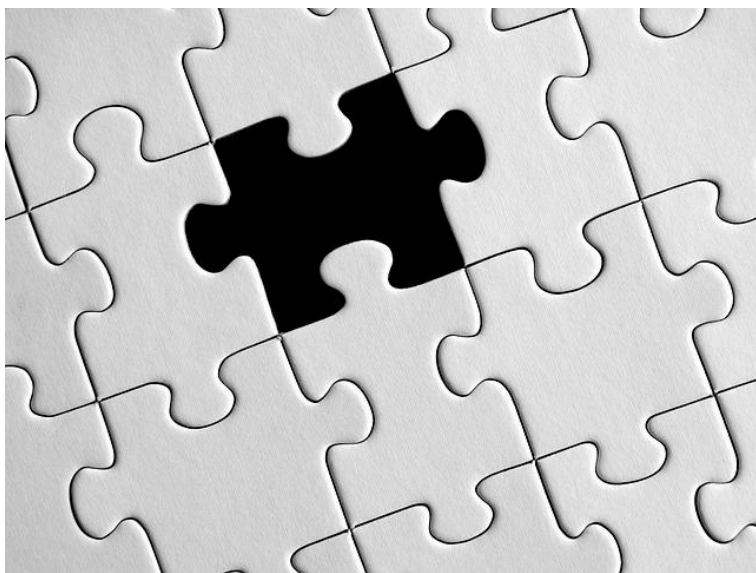
Creating an RDS Program is like putting together a puzzle. After the initial planning phases, you can start filling in the gaps and other missing pieces.

There are several actions you can take at this stage of developing an RDS program, and they don't necessarily need to be done in any particular order. Also, the methods you choose to use can vary from project to project depending on your goals, desired outcomes, and

institutional norms. What's important is that you understand what *you* need to do for developing *your* RDS program, and know what tools and techniques are available to you to help accomplish your goals. Here are some things to consider doing after getting a solid understanding of where you are:

- Conduct a Needs Assessment. This is a formal process that can help you identify what your Library and University are missing that can be met by your RDS program.
-

After surveying what your library has already put in place, it may be time to conduct a formal process that will help you find out what researchers want and need. The needs assessment is a formal set of processes that will help you set priorities and make decisions about how to allocate resources for improving your services. You may need to do this in a series of steps in order to make sure that the scope is manageable.

For each needs assessment stage, you will also need to do a gap analysis and revisit some of the information you have collected about what is already in place. The gap analysis is the "how" that addresses the "what" identified in the needs analysis.

Read about needs assessment and gap analysis in detail in the selected references. We will describe the use of two innovative techniques that can be used for needs assessment, Customer Journey Maps and Design Thinking, in some detail.

6. Conducting a Needs Assessment

The first phase in creating a Research Data Services program is to find out everything you can regarding the current situation: what is already being taught, existing partnerships, who is involved, and what conferences and trainings people have attended. This will give you a solid footing on which to begin building your Research Data Services program, but this data by itself is not particularly actionable. It helps you get a clear picture of where you are, but doesn't necessarily help you know where to go next. A Needs Assessment can help you find out what your Library and University need and how you can best address these needs.

Hosting a Dinner Party

Picture this scenario: You have friends coming over for dinner in a week, and you want to make sure everything is just right. You know what you have in your kitchen and you know what you like to eat, but over the past few days you have been receiving a barrage of messages from your guests:

- "I'm gluten-free. Do you have any desserts I could eat?"
- "Will there be any vegetarian options for the main course?"
- "Super excited for the dinner! My doctor said I have to cut down on dairy. Just wanted to let you know."
- "Do you mind if I bring my brother? I know it's last minute but he just told me he would be visiting this weekend."

This presents some challenges for you as you get everything ready for the big event. You already have a pretty good understanding

of your current situation, and now you have a much better idea of what the dinner itself will look like. Now you have to figure out the missing pieces that are needed to bridge the gap and pull off a successful dinner party, and one way to do that is by conducting a Needs Assessment.

Planning an RDS Program is a little bit like planning a dinner party.

A Needs Assessment is a process that involves gathering data to find out what pieces are missing between your current situation and your goal. When planning a dinner party with friends who have specific dietary requirements you almost certainly can't pull off the event with what you currently have, but you might not know everything you need. To start your needs assessment you would gather data by looking through your kitchen cupboards and pantries to see what ingredients you already have. This would give you information on what to purchase at the store, or ask friends to bring, to help fill the gaps between what you are currently capable of cooking and the end goal of a fun social get-together. Of course you could head right to the local market and start filling up a

shopping cart, but this would inevitably lead to food being purchased that you do not need, and money being wasted buying items that your guests can't eat. Similarly, when building an RDS program, a Needs Assessment is is a formal process for identifying what will fill in the identified gaps in services so you can create programming that fills in those gaps.

Finding What You Need

The same idea holds true when building an RDS Program. Conducing a Needs Assessment will help you identify what is missing from your current situation so you can begin targeting specific programs, processes, trainings, and other elements that will need to be created. You can gather this data internally by visiting with people on your team, in your department, in the Library, and within the campus

A Needs assessment is defined as a "systematic set of procedures undertaken for the purpose of setting priorities and making decisions about program or organizational improvement and allocation of resources" (Witkin & Altschuld, 1995, p.4). Essentially, a Needs Assessment helps you understand what to do with the information you collected in the initial phases of building your RDS program, and figure out how best to tailor your Program to meet the needs of your Library and University.

The article by Matthew Benge et. al. charts an outline for how an organization can undertake a needs assessment project which could be useful to you as you begin this process on your own.
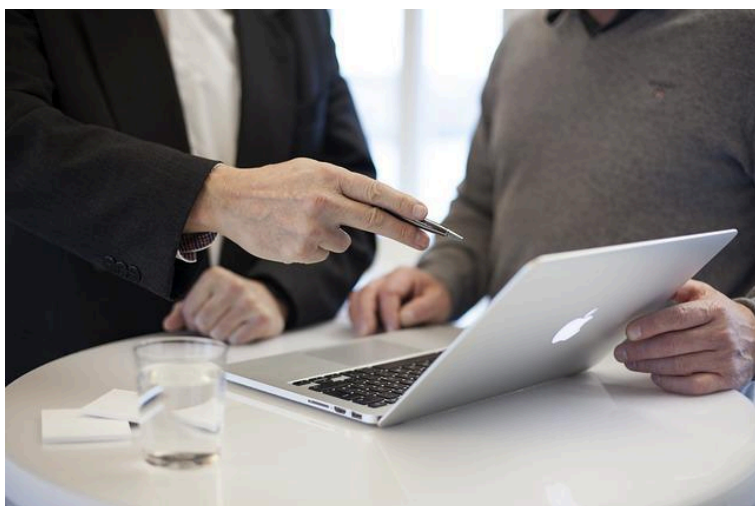
After conducting the Assessment you might learn that your library and your campus have the following needs:

- Data security and integrity
- Research tools and services
-

As an example, let's say that after gaining a solid understanding of where you currently are you have identified some key goals for your RDS program such as:

- Conduct regular trainings on data carpentry
- Attend regional and national SAS conferences to learn new skills and build professional relationships
- Write a weekly "Research Data Tips and Tricks" column in the library e-newsletter
- Raise awareness of the importance of data integrity and security for all Library faculty members

Once you have these goals identified, you can start to gather information about the missing pieces that will help you accomplish

those goals. Do you have the right computer software? What about access to current journals and other research materials? Are there staff or faculty members whose expertise you can draw on to create your training programs? What about travel funding, research opportunities, or even access to shared Library resources like file storage and internal databases? You may need all of this and much more, but you won't know it until you start examining your goals and the gaps between your those goals and your current situation.

The mechanics of conducting a Needs Assessment can be as simple or as complicated as you would like. A basic spreadsheet is a good place to start, such as the example below.

Objectives	What do we have?	What do we need?	How can we get it?	Success Criteria
Conduct regular trainings on data carpentry	• Large sample data sets • Computers and internet access	• Access to OpenRefine • Zoom licenses for myself and other trainers	• Visit with the IT staff	
Attend regional and national SAS conferences	•	• Travel funding • Access to SAS	• Visit with the Dean's Office • Visit with the IT staff	
Write a weekly "Research Data Tips and Tricks" column	•	•	•	
Raise awareness of the importance of data integrity and security for all Library faculty members	•	•	•	

(Can we cut the material below this line, or move it to another chapter? It was in the original book and it's highly academic and not specifically related to a Needs Assessment.)

As an example, let's say that the overall goal of the needs assessment would be to determine what types of technology resources might be useful for individuals within a specific geographical area-these could be adults, children, a specific demographic, or similar. Objectives might be outlined as:

- Understand existing technology usage within this particular population
- Analyze perceived assets and barriers to accessing and utilizing technology
- Determine necessary training and support to increase technology usage within this population

Data collection could entail doing focus groups/interviews or asking them to draw their perfect scenario-information on specific data gathering methodologies is available further in this chapter. Once the data is collected, you can identify cross-cutting themes that could help inform priorities for action. The final steps would entail sharing the draft action items with these individuals and seeking an additional round of feedback using similar methods before launching a pilot initiative where additional data would be utilized to provide direction for a more fully-developed program.

Perhaps focusing on what is lacking rather than what is already available is not an ideal way to proceed. The Human Services Commission also recommends thinking about what a community already has through asset mapping. This technique: "(1) uncovers resources found in a community; (2) relies on the assets within a community at a specific time; and (3) seeks to build linkages among local people, institutions, and organizations" (Human Services Commission, 2013, p.3). Asset mapping does not necessarily involve the creation of an actual map, but rather the development of a framework of connections among individuals/groups, resources, and infrastructure that create a holistic view of where the

community is starting and what it has to work with. This approach will allow for gaps to be identified more easily and works as an additive, rather than a reductive process, whereby needs translate into additional resources and support that can be added to round out the constellation of assets within a particular community. Asset mapping incorporates a similar set of steps as those for a needs assessment in terms of framing goals and capturing the assets in question by identifying existing expertise, fiscal allocations, infrastructure and tools, and/or physical resources.

Asset mapping can also pave the way for a gap analysis, which consists of measuring the current state or situation, identifying the desired state or situation, and determining what the organization needs to do in order to achieve that ideal state (Lucidchart, n.d.). In this case, embracing a new role for the library represents the future and depending on the role in question, the library is analyzing organizational culture and values, staffing, training, funding, infrastructure, and partnerships to ascertain how it will achieve that role. The Lucidchart blog (n.d.) discusses several different methods (SWOT, Fishbone, McKinsey 7S framework, Nadler-Tushman model, and PEST) that can be used to address these areas, and although they all vary to some degree or another in the type of analysis that can be undertaken, they also all share some commonalities. First, the analysis must take some inventory of its current state or assets as described above to help establish the starting point or benchmark by which future progress will be measured. Next, the ideal state is represented as the proverbial finish line with a desired outcome in mind-whether that is reflected in a new role, initiative, partnership, strategic goal or similar. The final aspect of the gap analysis would then entail being able to answer the following questions: Given the current levels of capacity, staffing, etc. which have been identified, how would the library move from one role to another and/or undertake a new role? What additional skills, resources, and partnerships would the library need in order to make that transition and how long would it take? Who would need

to be involved both internally and externally? How would success be measured and what would happen if that desired state or role would not be achieved?

7. Professional Development Opportunities

As you build your Research Data Services program, it's important to look for opportunities for faculty and staff to engage in professional development including conferences, trainings, workshops, classes, and more. The following Conferences are great opportunities to connect with other RDS librarians.

The following is a list of conferences and professional development opportunities, but it should be considered a starting point and not a final, authoritative collection.

Ranking	
+++	High value for learning skills, developing expertise
++	Some expertise development, good networking
+	Networking, discipline specific data info

Conferences	Focus	Value for building RDS	Notes
Midwest Data Librarian Symposium	Unconference, networking, theme varies	++	Hands on and interactive, good opportunity to meet colleagues in the region
Southeast Data Librarian Symposium	Proposal driven by data librarians	+++	Topics are peer reviewed before selection, emphasis on new developments in the field
RDAP Summit	Three-day, global conference. Competitive proposal submissions	+++	Broad range of talks and formats. Presenters with recognized expertise.
IASSIST Annual Conference	Global conference on all aspects of social science data		Broad range of topics and discussions, not all pertinent to United States

Level	
Novice	New to librarianship, new to data librarianship
Intermediate	Library experience, new to data librarianship
Experienced	Skill development for working data librarians

Training	Focus	Level
Research Data Management Librarian Academy	Reskilling for librarians who are new to data librarianship	Intermediate
Data Curation Network (DCN)	Modules for learning specific data curation skills	Experienced
Library Juice Academy	Online courses, professional development for certification or reskilling. Paid registration	All

8. Equity-Centered Design

This type of process is useful if you aren't sure where to begin and you want to involve your stakeholders in defining the problem and generating a solution. Design thinking has been criticized as being one size fits all and trying to gloss over some of these more complex issues, but equity-centered design, if done correctly, will help you uncover biases before the process even begins. The information on the Stanford website provides additional activities you can utilize to help create a shared understanding of the challenges your users have that you can address as you go through each step and generate solutions, then implement them and gather additional feedback as you test out these ideas and build on what you are learning. As with some of the other methods we discussed, this process requires time as well as the ability to identify patterns and themes while focusing on one or two solutions to follow-up on. Asking open ended questions and letting users drive the direction of the guided conversation can also be challenging but can yield meaningful results and a potential to create or update services and initiatives in new and interesting ways.

SEE INFO FROM NEW LINK!

In this case and due to the complex nature of research data, we opted to implement a two-pronged approach where we asked participants to fill out the customer journey templates prior to the design thinking session so that we could better understand their pain points ahead of talking to them. In addition, we wanted to provide them with an opportunity to describe their processes directly, rather than discuss them passively with us as that can also have an effect on how the qualitative data is represented. It allows the story behind their research to emerge as opposed to focusing solely on the data itself which is important, but not a central player in the narrative we are trying to uncover about researcher challenges.

How can design thinking powerfully serve as a force for equity + address the effects of oppression on education? Liberatory Design as an equity-centred practice creates the opportunities for the equity practitioner and the designers to build from their skillsets and develop a new approach to their work. THE PRACTICE This is not a step in the traditional DT process – this is something we are introducing to our DTK12 work. We will be bringing in new curriculum around this area, want feedback, your thoughts, ways you can connect this to your own work and life.

- Identity: Who am I/we? Who are our users?
- Power: How are we respectively situated (relative to opportunity, institutional power)?
- Context: What is our situation, our equity challenges?
- Partnership: Given the above, how can we create a partnership that is liberating for all in the process?

So really, being aware of and reflecting on the impact of your own beliefs and biases in relationship with/to your users and their context is practiced throughout the design thinking process.

https://docs.google.com/presentation/d/1S-7fZojfgGs3M3T110vaXZFztRvjmMdkCjJ4UiIQ5i0/edit#slide=id.g204dd7f89b_0_80

Try it yourself!

- What biases are you or could you be bringing to this process?
- What are the systemic inequities your design might be propagating?
- Are there any voices/perspectives that might be excluded from this design and/or design process?
- How can you better understand who your users are and what their challenges are especially in terms of the discrimination they are facing whether implicit or explicit?
- How can you build trust with your users so that they are providing you with meaningful and authentic feedback?

- How can you define those challenges as well as make the biases within them more explicit?
- What are some ways in which your solutions are addressing these inequities?
- Do the solutions themselves favor one group over another or do they have built-in assumptions that can be challenged?
- How can you ensure your model(s) are reflective of their user populations and their needs?
- Are there any unintended consequences to your design-especially those that might further marginalize vulnerable populations?
- How can integrate user feedback into your design so that you are making changes that are truly valuable?
- How have the biases you uncovered at the beginning of this process been addressed-have they? Why or why not?
- Have you provided an opportunity for your users to reflect on the changes made to the model(s) based on their feedback? If not, how can you do that?

9. Participatory Methods Overview

User (or participatory) design, is a term coined by Alison Carr-Chelman who defines a model that "extends stakeholder involvement beyond mere input to create empowered users who have design and decision-making powers". The focus of user design is to empower users to have an equal voice in the process of creation so that library employees are working alongside stakeholders to develop the strategic plan. This can take many forms, but the basics of participatory design include:

- Control over the process and agenda is handed over to the participants. Participants also analyze and reflect on the information generated by the planning process
- It involves library employees and participants working together to understand a problematic situation and change it for the better
- This type of design focuses on social change that promotes democracy and challenges inequality; is context-specific, often targeted to the needs of a particular group; is an iterative cycle of input, action, and reflection

One critical element to understand is that in seeking to empower user communities in this way, there is no "liberator" who is here to save the day and de-marginalize this process. The emphasis is very much on collaboration as equals working together towards shared solutions-this is crucial and you must have a clear understanding of this element prior to engaging in any type of discussions and activities with stakeholders. Methods under this heading include ethnographic approaches, user experience, and equity-driven design.

Ethnographic approaches

- Ethnographic approaches cover everything from drawing to interviews and observations. Nancy Fried Foster has worked extensively with libraries in this instance:. These types of methods are all fairly involved, and they require a high level of interpretation and synthesis. These approaches are best used when you want to collect direct data about user behavior. Both observations and drawing require an understanding of what you are trying to study via each method, as well as the ability to elicit themes out of what you are seeing rather than impose a predisposed notion of the results ahead of time.
- Drawings can also provide interesting results, but you will have to think about what patterns they help you uncover-if everyone is drawing a service desk of some sort, it will be up to you to decide what importance this element might have for your planning vs if there are fun but ultimately unique elements such as green spaces that might be of less interest. Drawing projects will need specific prompts and you will want to provide participants with the opportunity to ask questions without guiding them too much as to what or how to draw. There is no specific template for this type of user engagement as it really depends on your context and what your goals are for the study in question.

User Experience approaches

- Typically, user experience is related to discussions surrounding virtual environments such as website design, but there are increasing applications for face to face interactions with users. The Nielsen group provides an overview article of when to utilize what type of methodology such as directly engaging with users vs observing, collecting self-reported data vs obtaining it indirectly. One popular method is that of customer journey mapping which allows users to tell you what they are experiencing and feeling during each step of a particular service or activity. Customer journey maps are a

great way to put yourself in your users' shoes so that you are seeing their challenges and successes with fresh eyes which will help you make improvements or test out a new offering. Creating a flowchart of each stop along the journey will help you analyze the action with the corresponding experience. Customer journey maps typically involve the following steps:

- Understanding your users as a group-there may be different groups of users that you want to do this separately for
- Timeline (is it a one-time event or does it occur across a longer time span?)
- Touchpoints are all of the things and people where the user is interacting with your service, program, space, etc.
- Asking open ended questions will help users fill in their own thoughts and feedback

Design thinking and equity-centered design

- While the other two methods work well if you are seeking specific feedback regarding a either an existing state (i.e. is this service being used and how it might change in the future) or as more of a way to envision new possibilities, equity-centered design can help you think through the overall process rather than the content itself. Equity-centered design is a derivative of design thinking-both of these approaches were developed at the Stanford D school. This type of process focuses on the first step in the design process, that of building empathy by examining biases and power structures inherent in our approaches to generating new ideas for planning. They entail:

1. Building awareness of and about the impact of our beliefs and biases as they relate with/to our users and their context
2. Who are we and who are our users and where does each come from (perspective)?
3. Making power dynamics explicit

4. What are the equity challenges we/they are dealing with?
5. How can collaboration help address these challenges?

Design thinking has been criticized as being one size fits all and trying to gloss over some of these more complex issues, but equity-centered design, if done correctly, will help you uncover biases before the process even begins. The information on the Stanford website provides additional activities you can utilize to help create a shared understanding of the challenges your users have that you can address as you go through each step and generate solutions, then implement them and gather additional feedback as you test out these ideas and build on what you are learning. As with some of the other methods we discussed, this process requires time as well as the ability to identify patterns and themes while focusing on one or two solutions to follow-up on. Asking open ended questions and letting users drive the direction of the guided conversation can also be challenging but can yield meaningful results and a potential to create or update services and initiatives in new and interesting ways.

10. Engaging Stakeholders

When you involve stakeholders in your strategic planning process, you are more likely to:

1. Increase stakeholders' awareness of and commitment to the strategic plan
2. Increase the chances that stakeholders will support your efforts and advocate for your work
3. Increase the chances that the strategic plan will be successful
4. Increase the credibility of the plan

Stakeholders can make many important contributions to the evaluation process, including:

1. Providing a reality check on the appropriateness and feasibility of your plan
2. Offering insight on the populations that may affect program implementation or evaluation
3. Reviewing and commenting on the plan itself
4. Helping to disseminate and report the strategic plan and its related initiatives
5. Providing ongoing feedback and recommendations for improving your plan or activities

You can start by developing a stakeholder engagement framework and understanding their roles, concerns and questions

- Implementers: involved in the day-to-day operations of the plan/activity to be evaluated
- Decision makers: have authority to make changes to the plan/activity to be evaluated
- Participants: served by the program/activity
- Partners: invested/interested in the program/activity

There is a delicate balance to achieve between incorporating their perspective without compromising the extent to which the library can actually implement that feedback. Some things to consider as you determine how stakeholders should be involved in your strategic planning process:

1. Maintain open, honest, and regular communication with the stakeholders by keeping them up to date on issues pertaining to the planning process and relevant considerations
2. Identify stakeholder expectations from the beginning and take them into account when planning and implementing your process
3. Let them know how their feedback will be incorporated into your strategic plan (this may vary depending on their role)
4. How many of each type of stakeholder will need to be involved?
5. Follow through on what you agree; avoid making promises you cannot keep
6. Participation

    1. How available are they to participate in the process? Identify stakeholders' barriers to participation, and when possible, address them
    2. Plan before meeting or requesting stakeholder assistance so that everyone's time can be spent wisely
    3. Request volunteers for specific sub-tasks, if needed

The National Library of New Zealand provides a good overview list of ways to engage with stakeholders:

1. Partnership: MOU, project management, meetings
2. Collaboration: Focus groups, facilitated consensus building, forums for deliberation and decision making, workshops
3. Knowledge sharing and information: Social media, website, outreach campaigns, written materials, tours
4. Feedback: User engagement methods (participatory design,

ethnographic methods, user experience)

5. Advice: Formal advisory boards or groups, panels of experts, consulting models

11. Customer Journey Mapping

The Nielsen Norman Group has a comprehensive website that provides how-to information on the most popular types of user experience activities such as customer journey mapping (https://www.nngroup.com/articles/journey-mapping-101/). In addition, they provide an overview article of when to utilize what type of methodology such as directly engaging with users vs observing, collecting self-reported data https://www.nngroup.com/articles/which-ux-research-methods/.

One popular method is that of customer journey mapping which as we noted before is the external-facing version of the service blueprint https://blog.practicalservicedesign.com/the-difference-between-a-journey-map-and-a-service-blueprint-31a6e24c4a6c. Journey maps allow users to tell you what they are experiencing and feeling during each step of a particular service or activity. Customer journey maps are a great way to put yourself in your users' shoes so that you are seeing their challenges and successes with fresh eyes which will help you make improvements or test out a new offering. Here too, creating a flowchart of each stop along the journey will help you analyze the action with the corresponding experience. Customer journey maps typically involve the following steps https://www.ngdata.com/how-to-create-a-customer-journey-map/:

- Understanding your "typical" user persona so that you can extrapolate from a few to the overall population
- Timeline (is it a one-time event or does it occur across a longer time span?)
- Touchpoints are all of the things and people where the user is

interacting with a particular element or in this case, their data processes

- Asking open ended questions will help users fill in their own thoughts and feedback

This is the first step in the design thinking process where you are trying to understand your stakeholder's perspective. This is a much more direct method of collecting the actual experiences of researchers rather than hearing about them and it allows us to be able to structure future questions more meaningfully as opposed to asking something like what their challenges are. You will see that the design thinking document contains very specific questions which we were able to derive from the templates and which we might not have uncovered had we simply started with a focus-group like scenario first.

Broad questions to consider to assist with this section:

- How long does your data need to be preserved?
- What kind of descriptors are necessary for later retrieval of the data?
- How will you provide context for the stored data?
- Who will need to be able to access the data?
- How will you make the data accessible?
- Will your data be embargoed?

	Types of data files	Description of the data (naming convention, README, etc.)	Accessible backups	Preservation and/or archiving	Contacted library (Y/N) If yes, please explain
Activities-actual steps taken					
Tools-software, hardware, processes					
Challenges and problems encountered					
Goals/ Expectations for this phase					

12. BMU: Proper Planning

Despite some missteps early on in her role as RDS Librarian, Dr. Carol Quinlan soon found herself settling in to her new position and gaining some familiarity with her team, her office, and the university in general. One of the most important things for her to understand was that these things take time. Even though she was eager to jump right in with both feet, she learned that she could get more done in the long run by taking things slow and steady, and setting reasonable and purposeful goals for herself and her team. As such, she decided to hold off on planning a host of new workshops and training sessions until she had a solid plan in place that was created through consultation with many key people involved.
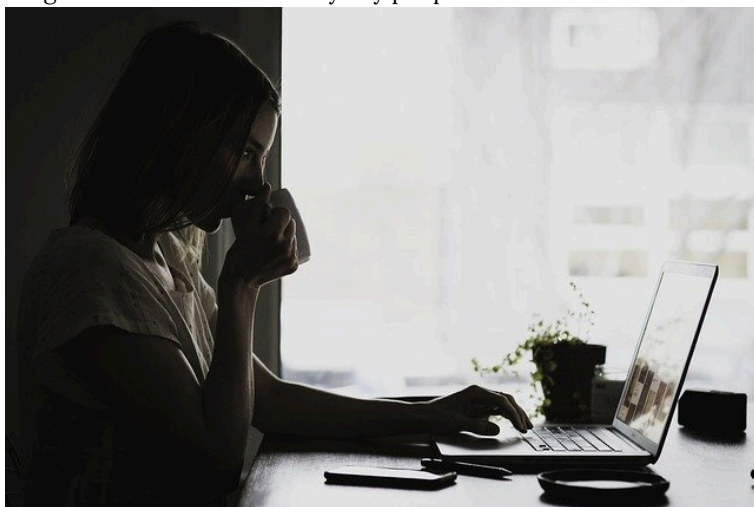
As Dr. Quinlan looked at the calendar and thought about what she wanted to work towards, she started to feel a bit foggy and lightheaded at the prospect of all that was ahead of her. In addition to taking things slow, she also decided to start from the top and work her way down rather than beginning with workshops and building up from there. She wrote down some big-picture goals that she had in mind for her RDS program:

- Raise the level of data stewardship throughout the Library
- Reach out to every college on campus to build relationships and find areas of need
- Plan workshops and trainings that would benefit BMU faculty

In order to avoid some of the issues that she previously encountered regarding the Data Carpentry workshops, she scheduled a meeting with her department head to discuss these goals and see if they would be adequate and achievable for the fledgling RDS program.

MAKE IT HAPPEN

13. Project Management Overview

Strategic project management is the process of thinking about your organizational projects in light of their connection to your strategic plan. In other words, strategic project management is about forming clear links between your projects and strategic objectives.The premise of strategic project management is that 'projects' should actually work to achieve the goals and objectives outlined in your strategy. Strategic project management isn't just about the process of project-managing big and important projects, it's about designing and managing your entire suite of projects to so that it supports your strategy, by ensuring that:

- The mix of projects is appropriate and sufficient to deliver your strategic goals and objectives
- Your projects are appropriately resourced
- If timelines and resourcing have to be changed, projects are prioritized accordingly based on the strategic plan

We will examine the broad project management elements here, and as part of the weekly exercise, we will explore a specific project charter template you can use for projects as needed.

Getting started:

- Every active objective/goal/outcome needs at least one project – You may have future objectives that haven't "started" yet, which is fine, but any "active" objective must have projects that will work towards completing the objective- otherwise

you're not actually working on it. Depending on how big your initiatives are, you may find you need to have sub-projects under projects to best represent how you intend to deliver the work

- The projects must deliver on the objectives – For each objective, you need to be able to indicate how you will know you have achieved the project's goals and to what extent
- The projects shouldn't "overlap" or be redundant – Look carefully at your project mix under each objective and across your strategy. Generally you should not be able to fully deliver on an objective without any one of its projects. You have to be prepared to remove or reduce scope on projects. Equally, make sure that you don't have projects within or between objectives that "overlap" in scope, essentially duplicating work
- Every project must have a clear link to one or more objectives – Even if it isn't directly linked to an objective, it has to clearly support what you're trying to achieve. If you can draw a clear line from your projects to the areas it will improve, that's an excellent indicator of alignment. Note that once in a while you might find that you have a project that clearly demonstrates strategic value, but doesn't align to a specific objective – that can be a sign that you need to revisit your objectives

Making sure your projects actually happen:

- Every project must be realistically resourced – Time, money, staffing: there are never enough to go around, and they are probably the most important element of actually delivering on a project. This means you must have:
  - Accurately estimated the project needs – Make sure every project that you're proposing has at least a high level time, cost, and staffing estimate
  - Budgeted for the project – Are there ongoing costs or one time costs or both?

- Every project must have an owner – Someone needs to coordinate the delivery of the project, they need to be responsible for getting it off the ground, and they need to have the authority to make all this work
- Stop operational projects getting into your strategic plan, and vice-versa – You want to keep your strategic plan focused. This means you need to avoid letting operational projects and activities creep in to the plan, as it will dilute your focus and impact the delivery of your strategic projects. Equally, you need to prevent [projects](#) that should be on the strategic plan, mapped to objectives, sliding into the operational plan and becoming invisible when you're tracking your progress

Keeping things moving forward:

- Govern your projects strategically – Every objective will have its own mix of projects, and then there is the mix of projects across the whole strategic plan (in bigger plans you will even be thinking in terms of the mix within different divisions, departments, etc.). Don't lose sight of the bigger picture – in the same way that the overall strategic management process emphasizes a governance process across the whole of strategy execution, the same applies to strategically managing your project mix
- Prioritize projects strategically across the whole organization – When the internal or external environment, available resources, strategic needs etc. change, you should to prioritize projects strategically across the whole plan, based on the objectives
- Allow the projects and objectives to inform each other – You must allow room for the realities of project implementation, and what you learn from doing the work, to be reflected in the higher level plan – even if it is just by keeping the objective timelines current and accurate. The more isolated your projects become from the rest of the plan, the less real your

plan becomes

14. Creating A Memorandum Of Understanding

15. Project Logistics: Goals, Roles, And Resources

Communication strategies will change over time as the project evolves. Conflict will most likely arise earlier in the project as workflows, roles, etc. are being defined and negotiated so you will need to set time aside for frank conversations about how the team is functioning overall as much as about the work itself. Consider doing some teambuilding activities alongside the development in order to strengthen relationships and build trust. Consider each team member's ideas as valuable; establish team values and goals; determine what you want to achieve and how decisions will be made. This article outlines how teams can communicate effectively: https://cdn.csu.edu.au/__data/assets/pdf_file/0008/917018/Eight-Behaviors-for-Smarter-Teams-2.pdf:

1. State views and ask genuine questions
2. Share all relevant information
3. Explain reasoning and intent
4. Use specific examples and agree on what important words mean
5. Focus on interests-identifying needs that can help solve a problem
6. Test assumptions and inferences
7. Jointly discuss next steps
8. Discuss the undiscussable issues