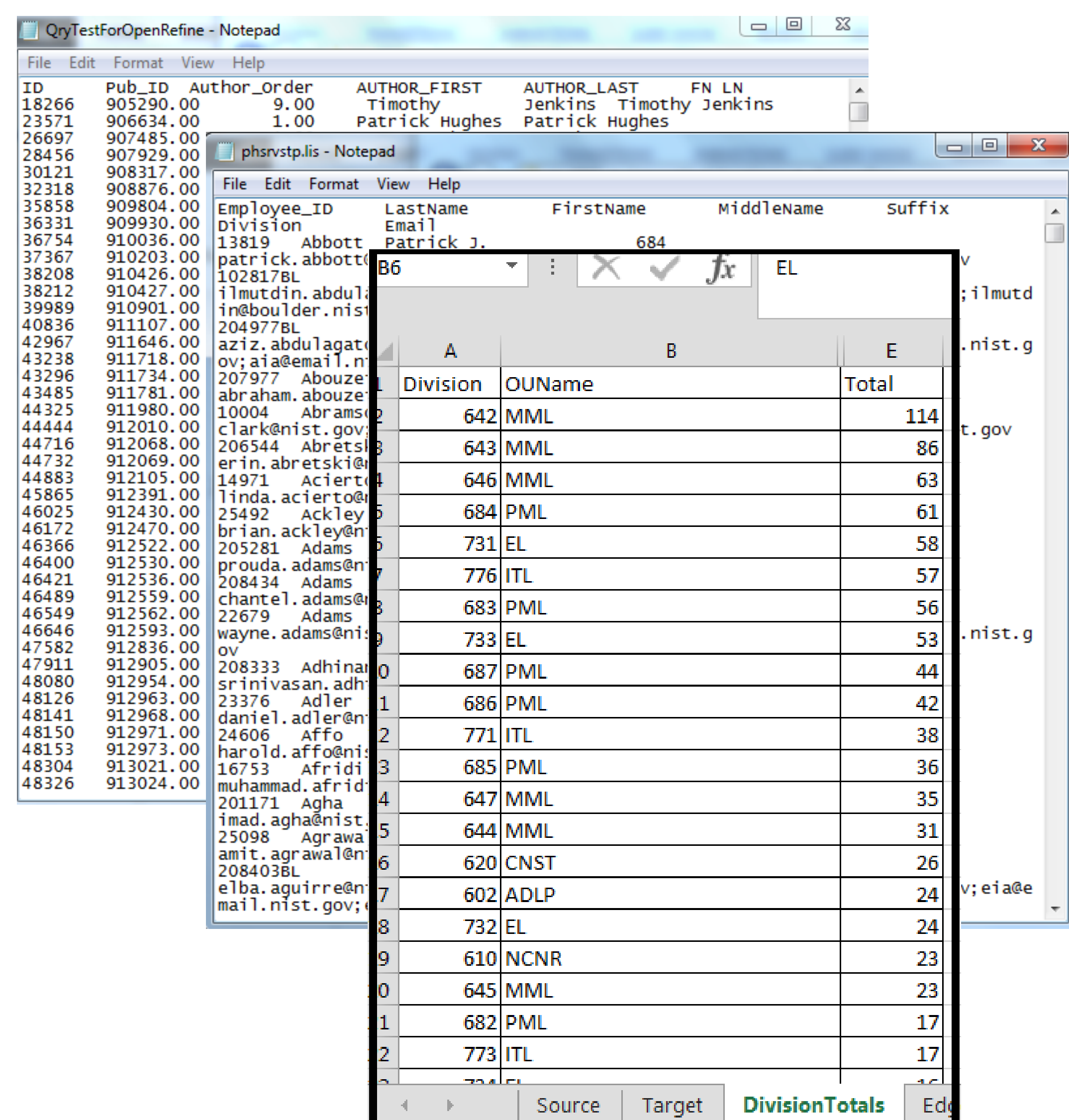
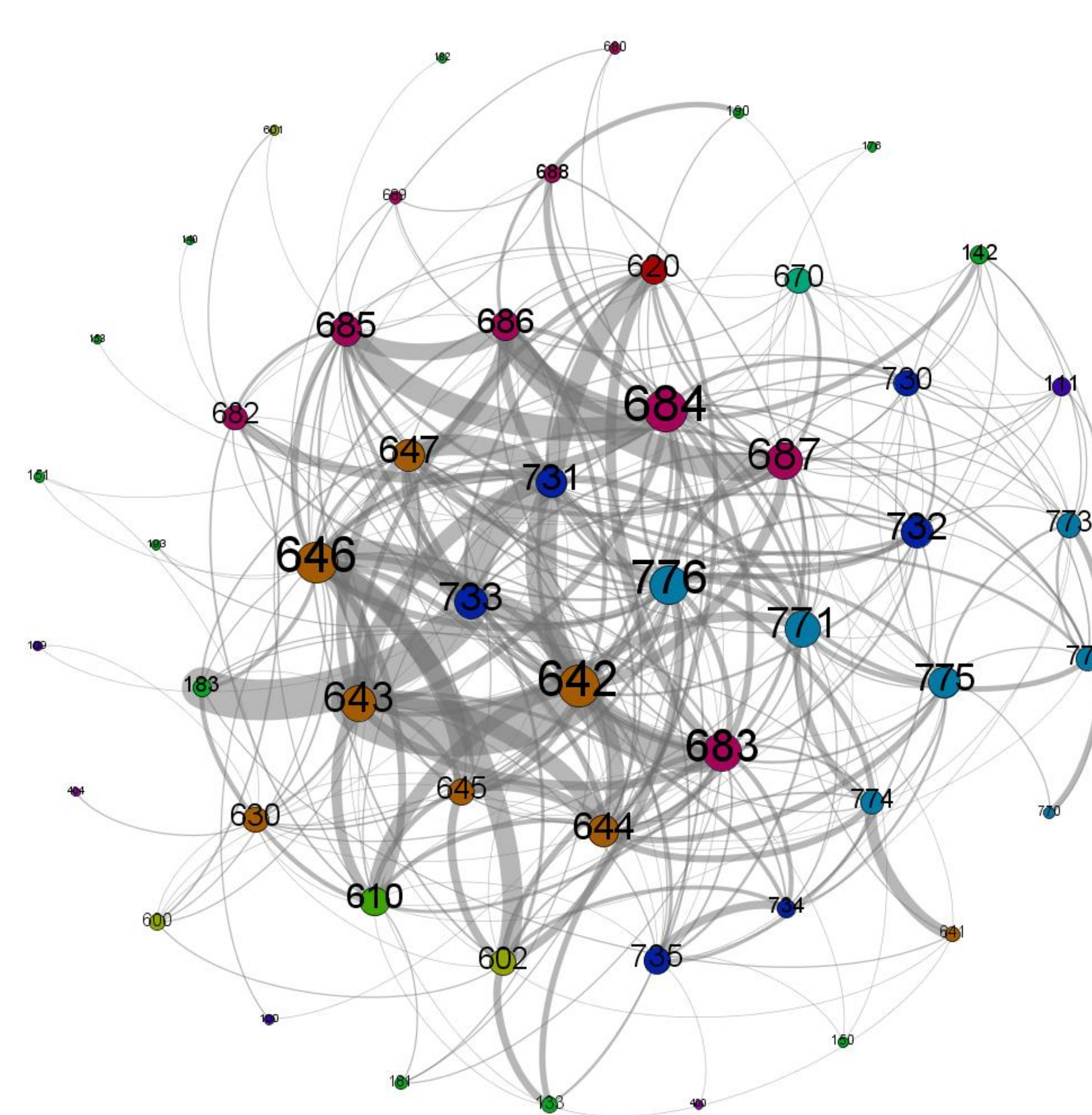
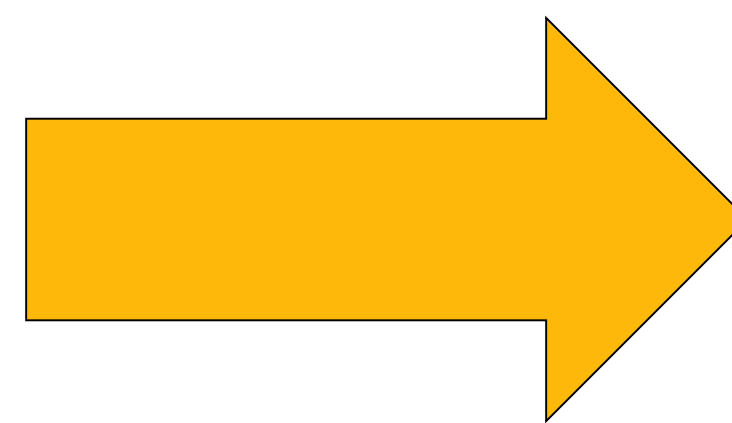


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Division	OUName	Total
642	MML	114
643	MML	86
646	MML	63
684	PML	61
731	EL	58
776	ITL	57
683	PML	56
733	EL	53
687	PML	44
686	PML	42
771	ITL	38
685	PML	36
647	MML	35
644	MML	31
620	CNST	26
602	ADLP	24
732	EL	24
610	NCNR	23
645	MML	23
682	PML	17
773	ITL	17



From Text to Network Diagram

Introduction

The Information Services Office (ISO) of the National Institute of Standards and Technology (NIST) conducted a study to assess the cross-divisional collaborations within NIST. Accomplishing this complex study required the reskilling of two ISO staff members – a metadata librarian and a program analyst, with a mathematics background. This poster describes the steps we used to learn new data analytics skills and tools, and provides tips for others looking to do the same.

The two broad steps taken in the reskilling process were articulating our learning goal and finding the appropriate project to meet that goal. After the learning goal and project were identified, several strategies were tested before deciding upon the most appropriate methods of data manipulation and visualization.

Identify Learning Goals

Our learning goal was to better understand data science and visualization, and the tools used in this work. This included learning how to:

- Clean imperfect data
- Convert raw data into readable data for visualizations
- Visualize data effectively
- Discover the pros and cons of various data visualization tools

Four tools were identified for use: Open Refine, Oxygen, Science of Science tool (Sci²), and Gephi.

Find the Right Project

Around the time this project was initiated, another group of librarians in ISO had produced a report of collaborations with external organizations. This set our wheels spinning on how we could research and report on the collaborations occurring between internal NIST divisions. Understanding how NIST divisions work together is valuable information for NIST leadership and for ISO. Our analysis of author affiliation will enable ISO to inform the laboratory programs where cross-organization collaboration is occurring.

Try, Test, Fail, and Start Again

An important part of the reskilling process was the ability to start, stop, reassess, and try again. Because the project was self-identified, there was no set deadline for completion and we could work at our own pace. Without the pressure of meeting a customer deadline we had the flexibility and the freedom to test a variety of options and had no fear of failing.

Reskilling Tips and Recommendations

- **Learning projects ARE professional development**
Allowing librarians to reskill using work-time on self-identified learning projects is just as important a professional development activity as going to conferences or taking courses.
- **Use whatever resources are available to you**
If you learn well by taking classes, try those. Online listserv archives have a wealth of information, and don't forget your colleagues and peers are also fonts of knowledge.
- **Asking for help is ok**
Even the professionals use Google all the time. Reaching out to specific networks when you are stuck on a task or skill is a sign of a great mind.
- **Write up the documentation as you work**
You won't remember the process in six months! Keep detailed notes on your process and any problems you encountered.
- **Include others in the process**
Don't go it alone. Team up with someone who has a different skill set.
- **Experimenting and failing is ok**
To quote Thomas Edison, "I've not failed. I've just found 10,000 ways that don't work." In our project we had to try many ways of parsing the data through Excel, Access, Oxygen, Open Refine, and Sci² until we found a process that worked.
- **Start with a complementary skill set**
Start with a skill set that complements the ones you already have. We moved from analyzing data in Excel to visualizing data as networks with Gephi.