Defining the problem

- Computers and networks are now used to store, transmit and manage proposals and grants (duh!).
- The total number of problems involved in using computers for the above purpose has increased, not decreased.
- Computer applications and hardware require increasingly educated specialists to create, install and maintain them.

Where are we headed?

- Pre Award
  - Proposal Clearance – Electronic Routing
  - Grants.gov
  - Adirondack System
  - Adobe Acrobat
  - Other funding sources
- Post Award
  - Increased frequency and severity of audits
  - Both Sides
  - Management and reporting

The future is becoming more electronic every day, and electronic problems are becoming more and more common.

More and more funding sources are processing their proposal applications and grants electronically via their web sites. Applying for, managing and auditing grants is becoming more and more dependent on electronic management, either by institutional, departmental, or personal based computer systems (or a combination of all three)

Let's build a system!

We're considering a system
We are studying existing systems

Task forces are formed. Meetings are held. Pleas for assistance are posted on the Research Admin listserv.

What is your institution doing? Has anybody used this particular product?

We are going to examine four decision trees that may be of assistance in helping you find your way.

Understanding where your mandate for action is coming from can help you understand where you should focus.

Buy in from all of these entities will be necessary for your changes to succeed.

If one or more of the entities is piloting the project and the others aren’t buying in, it is time to step back and ask them why.
**Build or Buy Session**

**Slide 7**

1st: Analysis

- How are we handling things now?
- What is our institutional culture?
- What do we do?
- Roles we play?
- Proposal Preparation?
- Reporting?
- Auditing?
- Where do we need technical support?

- Pre-Award, Post-Award, Both?

What is our institutional culture? How does our institution, as a whole, react to change? What buy in will be necessary for the PI's and staff to go along with our changes?

What does our office do? Are we handling proposals, awards or both? Are we integrated with the IRB?

What role do we play in the process? For example, do we participate in proposal preparation, helping the PI compose the proposal? Do we maintain CV's of faculty?

If we are managing awards, are we responsible for submitting technical or financial reports, or is the PI. If it's the PI, do we have oversight responsibilities?

By understanding the roles we play, we can get a better handle on what type of information management system will best benefit us.

**Slide 8**

2nd: Options & Constraints

- How am I handling it now?
- What's my volume?
  - How many proposals, how many awards, what else?
- Start over or enhance an existing system
  - Who should help me answer this question?

The second analysis helps us get a handle on what type of solution we'll be looking at.

Who should help us answer these questions?

Current IT staff at your institution, other SRO professionals. Getting together with the person(s) responsible for your office budget to establish a framework on possible costs and designing a budget.

Some pitfalls:
- Don't assume you'll save money by building your own.
- Be prepared to construct 5-10 year expense estimates
- Don't assume the software you buy will be perfect, regardless of vendor promises
- The answer will change over time

**Slide 9**

3rd: Technical Support

Support
- Home Grown
- Dept IT Professional
- External IT Professional
- Contractor
- Training
- Application Support
- Network Support
- Computer Help Desk
- Vendor

Support for the machines, network, application, training.

Regardless of the system you develop or purchase, you will need training for your SRO staff, faculty, and administration.

**Home grown**: an accountant, SPA or other person in your office who has risen to the task, perhaps creating some spreadsheets or a database for grants management.

**Dept IT Professional**: Position created to assist, create and maintain computers and computer applications for your department.

**External IT Professional**: Person contracted to your office to assist with hardware installation and maintenance; and to design and maintain software.
Depending on the scope of the project and the type of information to be managed, data storage can take place on:

- a networked – end – user – workstation that shares folders with other workstations on the network (and possibly the web)
- department based servers
- central organizational servers
- servers located at the vendor location and accessed via the WWW.

Integrity: for hardware, we look at how often the system will fail due to human error or devious intention, mechanical breakdown, power problems, network accessibility problems. If the system is accessible over the web, then we should also take into account vulnerability to software attack.

Analysis step #1 is best done with your own staff at your own institution. Attempting to work through it here at the conference would be pointless.

We could spend several hours going through all of the possibilities of trees 2-4.

I'm going to select a path where I have some experience. You are going to be getting my opinions. Keeping in mind that I am a legend only in my own mind, feel free to disregard and/or debate anything and everything I assert.

First we'll look at support, then hardware. After that, we'll have a better feel to know if we will buy or build.

Intermixed with this is the level of person you position for.

A poorly skilled, recent graduate may be inexpensive, but they also may be in-effectual – unless they can grow into the position.

If your office is dependent on computer hardware and software systems that were developed and are maintained by a single departmental IT person, what will you do if the system fails while the person is unavailable?
Experts from your computing support department may be able to assist with network management and application development. Be sure that both sides understand the time frame for development and the need for ongoing support & modifications. Consider their fees and availability in your budget and time estimates.

Independent contractors are like the wind. Be prepared to change your relationship with an independent vendor frequently.

Vendors are sometimes offering onsite hardware and network support to house and run their product.

Some vendors will host your version of their application on their servers.

The skill sets required for network management are very different from those required for Application Development. Typically an IT professional will have skills in both, with one area being stronger than the other.

Business and database programming skills are very different from scientific and network management skills.

In general, it good to avoid churn, wherein you hire a short-term or temporary person to create a system or network, release them, and then find somebody else to continue on.

Communication skills are vital for a successful long term relationship.

Integrity is an encompassing look at your information that covers issues such as:
- Prevention of data entry errors
- Prevention unauthorized access to your information
- Backup of your information
- Verification that the backup is usable

If secure access is required, how will it be implemented, and who will be responsible for ensuring that it stays secure?

If web access is desired, there is no realistic way to serve it up from department based workstations. They are useful if you have 1-2 simultaneous users, and you should pretty much abandon all hope of using a workstation based solution if it is possible that 2 or more people would like simultaneous access to the information. You will need a server, and all of the support that goes with it.
Build or Buy Session

**Slide 18**

**Hardware - Where will your information be hosted?**

- What methods of access to your information are required?
  - Web
  - Desktop
  - Paper Reports
  - Do you need secure access?
- Who will be responsible for the integrity of the data?
  - And yes, you do have to anticipate having computer problems

**Vendor Based Solution:** What happens if the vendor goes out of business? Can you get access to your own data?

* Some vendors are offering applications that feature a modifiable user application layer; wherein you can add your own fields and customize some aspects of the application. If they update the application, the user’s customizations are expected to be retained.

**Slide 19**

**Hardware Options**

<table>
<thead>
<tr>
<th>Low cost ($$$ - $1, $$)</th>
<th>Low volume access</th>
<th>Uploading to sponsor web servers easily</th>
<th>Easy to access to raw data in different formats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low cost ($$$ - $1, $$)</td>
<td>Low volume access</td>
<td>Uploading to sponsor web servers easily</td>
<td>Easy to access to raw data in different formats</td>
</tr>
<tr>
<td>Moderate Cost ($3-4, $$)</td>
<td>IT Personnel STRONGLY recommended</td>
<td>Moderate traffic, web is a reality</td>
<td>Moderately easy access to (read only) raw data</td>
</tr>
<tr>
<td>High cost, but it may be funny money ($$, $$)</td>
<td>High volume access</td>
<td>Modifications may be worse than tooth extraction without anesthesia</td>
<td>Can you get access to the raw data so you can run your own reports or use spreadsheets to analyze?</td>
</tr>
<tr>
<td>High cost, but it may be funny money ($$, $$)</td>
<td>High volume access</td>
<td>Modifications may be worse than tooth extraction without anesthesia</td>
<td>Can you get access to the raw data so you can run your own reports or use spreadsheets to analyze?</td>
</tr>
</tbody>
</table>

**Slide 20**

**Build, Buy or Both?**

- NCURA has been presenting a build or buy experience session at conferences for more than the last decade
- The sessions feature either an institution that built, or one that bought. Some featured vendors, others developers
- Boxing gloves were optional
IT Professionals, software and hardware require regular care and maintenance. For example, hardware and software both like to take occasional vacations (in Hawaii :-). If buying, do a site visit with a compatible institution if possible. Try not to rely on web based comments, since their culture and use of the application may be very different from yours.

- Regardless of the solution you choose, user buy-in is essential.
- Start selling and negotiating with users early.
- Emphasize what is in it for them.

PureEdge was the original application data-entry package for use in producing Grant Application Packages. Even though it is now depreciated, you probably have some GAP's that were prepared in it.

That means maintaining a copy of the PureEdge Viewer, ensuring that it is functional as your operating systems are upgraded.

When using Acrobat, be wary of Acrobat Updates. Check grants.gov website for supported versions.

Evaluate if you want to go System-to-System (S2S) or continue submitting via PDF

Steve Shapiro
Computer Services Manager
Office of Research Services and Administration
University of Oregon
sshapiro@uoregon.edu
541-346-0720