An Introduction to the Accounting Rules Behind Grant-Funded Research

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Overview

I've spent most of my career as IT support staff working in the grant-funded research space. Why would I care about the accounting details imposed by grant-funding? Because these accounting 'details' have substantive effects on organizational culture, not to mention the ability of the company to fund IT projects. Herein is a lay person's view of how grant-funded accounting rules function.

History

By the end of World War II, policy makers in the United States' Federal government became convinced that research could help win wars.[1] Over the ensuing decades, the government has become convinced that research contributes not only to the military success of the country but also to its economic success, over multi-decade timeframes. Federal policy for research, formulated during the late 40s and early 50s, established a dependency on academic institutions as the performers of government-sponsored research. Research is risky, and the more basic or speculative the research, the riskier it becomes – this is why typical commercial entities do not attempt it: boards & management at publically traded companies have fiscal responsibilities to shareholders, which typically preclude multi-year, yet alone multi-decade, bets. Privately-held companies may have more latitude in this regard but typically do not have sufficiently deep pockets to afford these types of risks. The Federal government, with the mission and resources to think long-term, adopts risk that commercial entities have trouble managing.

Grant-sponsoring federal agencies (NSF, NIH, DOD, DOE, NASA, etc.) recognize that research is not conducted in a vacuum; researchers need a myriad of support services – things like lighting, heating, and a roof over their heads – in order to focus on their work. To be effective, federal agencies want to pay their fair share of *infrastructure costs*, also called *indirect costs* or, more recently, *Facilities & Administration*. Thus, grant funding is divided into two chunks:

- *Direct dollars*, paying for immediate costs like investigator salaries, test tubes, reagents, and computers, and
- *Indirect dollars*, paying for institutional overhead costs like space, heat, administrative personnel, and computers.

For further reading, consult:
http://www.tgci.com/magazine/03summer/indirect1.asp
http://www.fas.org/spp/civil/crs/91-095.htm

As of this writing, world-wide, the vast majority of research-oriented grant-funding arises from the three-letter agencies housed within the United States' federal government, with various developed countries' federal governments and the independent Wellcome Trust and Gates Foundation trailing distantly. That being said, both federal and state governments world-wide see research as a major contributor to economic growth and competitiveness; plenty of governments around the world are increasing this investment.

[1] Radar, sonar, specialized munitions (including nuclear weapons), synthetic fuel ...

The National Institutes of Health (aka NIH, part of the United States' government) is the single largest grant-funding agency on the planet. Let's see what they have to say on this topic.

[excerpted from http://grants.nih.gov/grants/intro2oer.htm]

> "The NIH awarding institutes use three major instruments to provide funds to organizations outside the NIH to accomplish program goals--grants, cooperative agreements, and contracts. With grants and cooperative agreements, the applicant investigators are responsible for developing concepts, methods and approaches for their research projects. With contracts, the awarding institute is responsible for establishing plans, protocols, and detailed requirements.
>
> *"Grants* for health-related research and research training projects or activities make up the largest category of funding provided by the NIH. Research project grants are awarded to institutions on behalf of a principal investigator to facilitate the pursuit of a scientific objective when the idea for the research is initiated by the investigator and the funding institute anticipates no substantial program involvement. The NIH awards research grants for terms ranging from one to five years. Institutional sponsorship assures that the awardee organization will provide the facilities and the financial stability necessary to accomplish the research, and be accountable for the funds.
>
> *"Cooperative Agreements* are similar to grants in that they are awarded to assist and support research and related activities. However, they differ from grants in that the awarding institute or center has substantial involvement in carrying out the project's activities. Since the terms and conditions of the award are above and beyond those required for the normal stewardship of grants, the rights, responsibilities, and authorities of the prospective awardee and the NIH institute are developed in advance. The awarding institute typically issues a specific request for applications (RFA) describing the program, functions, and activities as well as the nature of the shared responsibilities.
>
> "Most applications for support are unsolicited and originate with the individual investigators who develop proposed plans for research or research training within an area of interest to the NIH. Occasionally, to hasten the development of a program or to stimulate submission of applications in an area of high priority or special concern, an institute will issue a Program Announcement (PA) to describe new, continuing, or expanded program interests, or issue an RFA inviting grant applications in a well-defined scientific area to accomplish a scientific purpose.
>
> "Research and development (R&D) *contracts* are awarded to academic institutions and other non-profit and commercial organizations to procure specific activities for scientific inquiries in particular areas of research and development needed by the NIH. Contract performance is monitored closely by the NIH staff to ensure accomplishment of the research goals.

The Details

In this section, I describe conceptually how money works at grant-funded institutions, with a focus on non-profit entities. The actual process is more complex than what I describe here and also differs somewhat from the rules imposed on commercial recipients of *grants*. I also focus on *grants* awarded to individual researchers (aka investigators); the rules covering *contracts* made with institutions vary somewhat (although the overall distinction between *indirect* and *direct* costs remains).

Fair Share of Infrastructure Costs

Federal grant-funding agencies want to pay their fair share of infrastructure costs, but they recognize that calculating the portion of the infrastructure a particular project will consume can be onerous (do you really want to track how many pencils, or how many terrabytes of storage, each person uses on each project?) Therefore, grant-funding agencies ask the research institution to total the money it is spending on infrastructure (the *indirect cost* N_i) and the money it is spending directly on research (the *direct cost* N_d), as part of a process[2] to calculate the institution's *indirect rate* N_i/N_d. The funding agencies will reimburse the institution at its *indirect rate*, as their way of paying for infrastructure costs. By definition, the *indirect rate* reflects the institution's infrastructure costs distributed evenly across the total cost of the research being performed.

Direct Cost

Once the funding agency has awarded a *grant*, *cooperative agreement*, or *contract* to an investigator, s/he has a budget – the amount awarded in the grant – possibly the same number specified in his or her proposal, possibly different, sometimes depending on negotiations between the investigator and the funding agency and sometimes via unilateral decision on the part of the funding agency.[3] The institution housing the grant (the institution where the investigator works) fronts the money to the investigator, typically by borrowing that money from the commercial lending sector. The investigator can now spend money, hiring postdocs and buying test tubes, filtering this activity through the institution's bureaucrats, who keep receipts for whatever the investigator buys. Conceptually, at the end of the month, the institution submits a pile of receipts to the funding agency; the funding agency writes a reimbursement check, and the whole machine trundles forward.

[2] This process involves an iterative methodology which allocates cost between the two buckets (indirect / direct) based on various metrics (square footage used for research vs administration, invoices paid for research functions vs invoices paid for admin functions, head count per function, and so on). The process also includes negotiating what costs are allocated to which bucket (test tubes belong to the direct side, pencils to the indirect side, but what about telephones?) The methodology itself becomes part of the negotiation process. The resulting document measures an inch or so thick for large institutions.

[3] In addition, sometimes the funding agency, facing its own budget issues, will unilaterally shrink a grant, typically without permitting the grantee to reduce the amount of work being done – welcome to life in the grant-funded world.

Indirect Cost

OK, so that's how the investigator pays him or herself and buys whatever s/he sees as directly needed for pursuing the proposed research. But who pays for the paper and ink which the bureaucrats shuffle around, tracking this activity? Who pays for the electric bill for the laboratory? Who pays for telephones and e-mail servers and toilets? And who pays for the bureaucrats themselves who write on the paper, change light bulbs, clean toilets, and fix telephones? Answer: the funding agency does. The funding agency pays the hosting institution to *house* the grant, using a rate which the hosting institution has negotiated with the funding agency, calculated as N_i/N_d, where N_i is the institution's *indirect cost* and N_d is the *direct cost* of the grant. The resulting fraction, N_i/N_d, forms the basis of the institution's *indirect rate*.[4] Once this rate is set, other funding agencies tend to copy it, and the current ethical climate encourages the institution to *allocate* this rate from other sources of grants, too. University *indirect rates* tend to hover around 60%, with outliers (high-end institutions like Harvard and Stanford have rates in the 90-100% range); state-subsidized institutions may have rates in the 20-30% range. [5] In the non-profit sector, the cost of facilities – buying land, constructing buildings, and maintaining them – drives the institution's *indirect rate*.

Example of Direct and Indirect Cost on a Grant

For example, assuming an indirect rate of 60%, if an investigator proposes to pursue a particular approach to analyzing why normal cells turn cancerous and asks for a million dollars to do this, and if the funding agency decides to support this proposal, the funding agency would allocate one million dollars to the investigator … and $600,000 to the hosting institution. The investigator buys things like test tubes, distilled water, and postdoctoral students: these are *direct* costs. The institution pays for light, heat, and people to scrub the toilets: these are *indirect* costs. Different institutions negotiate different choices. For example, at some institutions, the data and phone network are considered *indirect* costs, meaning that every employee can acquire a telephone, a desktop computer, and network connectivity just by asking. By contrast, at some institutions, investigators buy their own computers (using *direct* dollars) and pay a monthly fee for network connectivity and a separate monthly fee for a telephone, also from their *direct* dollars. The federal government publishes guidelines on how to make these determinations and perform audits on hosting institutions to create uniformity between institutions; however, this uniformity exists at a high level; when one digs around in the details, institutions vary – there is room for interpretation. Inside a single institution, however, federal regulation requires consistency: federal agencies want to pay their fair share of infrastructure

[4] Throughout this discussion, I ignore various subtleties, e.g for this calculation, the cost of capital purchased from direct funds is not included in N_d.

[5] These numbers vary widely between institutions partly because institutions vary on how they classify costs, partly because local conditions vary (for example, states subsidize their research institutions to varying degrees, and costs like energy and construction vary geographically). For example, institutions which purchase their own land and build their own buildings have higher indirect rates than, say, universities in Texas: Texas uses taxes the oil industry partly to fund land acquisition, building construction, and building maintenance for its higher-education system, so Texan universities receive an unusually low indirect rate. Corporate indirect rates tend to exceed 100%, partly because for-profit companies classify costs differently than do academic institutions and partly because funding agencies recognize that for-profit companies have stock holders to pay.

costs, but no more than their fair share, and thus want assurance that the institution allocates its aggregate costs evenly across its projects.

Accounting Controls

Doing business in the grant-funded world requires accounting for where one spends both *direct* and *indirect* dollars, to provide assurance that *direct* dollars allocated to a project are being spent on that project and to provide assurance that *indirect* dollars spent at the institution are being apportioned fairly across projects. Notice that neither *direct* dollars nor *indirect* dollars can be called discretionary; rather, these are monies to be spent in specified ways. A grant-funded institution can acquire discretionary or *unrestricted* funds through donations or an endowment, for example, but not through the grant-funding process. Grant-hosting institutions and companies invest substantial effort[6] ensuring that they spend money according to federal guidelines; if they did not, then, when they submitted requests for reimbursement, the funding agency could deny the request, leaving them with a bill to pay, a bill which would consume typically scarce *unrestricted* funds.[7] The institution also invests effort in keeping its *indirect rate* stable across time (rather than jumping up and down each year); this helps everyone involved with budgeting.

For the most part, on the expense side, institutions incur expenses which are categorized as either *direct* or *indirect*. On the revenue side, funds are flagged as either *restricted* or *unrestricted*. All grant and contract revenue are *restricted*, in that they must be spent on expenses *directly* associated with a specific project or on expenses which are defined as allowable *indirect* purchases. Most investment income and donations are categorized as *unrestricted*[8], and they can be spent on either *direct* or *indirect* expenses.

Funding Agencies Vary

Not all funding agencies agree to pay for all *indirect* costs – the American Cancer Society, for example, pays an *indirect rate* of 25%, regardless of the institution's actual expenses. Such agencies do not want to pay the *full cost of research*; rather, they want to form partnerships, typically with private donors or commercial entities, in order to stretch their dollars. The institution must make up the difference using discretionary funds, because federal funding agencies want to be treated equally – they don't want to use tax payer dollars to subsidize the American Cancer Society's grant activity. If the institution has exhausted its *unrestricted funds*, then it will turn down the grant (disappointment!) For sanity's sake, United States federal agencies coordinate their *indirect rate* to a given institution.

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[6] Historically, commercial accounting systems like Oracle, SAP, and PeopleSoft did not support grant-funding reporting requirements, pushing universities and other grant-funded institutions to build their own systems in-house -- this was the origin of the *Kuali Coeus* constellation, originally written at MIT.

[7] More subtleties: at the end of the year, an institution will never hit its *indirect rate* precisely – it will have overcharged or undercharged the government by a percent or two. This surplus or deficit gets rolled into the next year.

[8] Although sometimes donors give money with restrictions ("You must spend this on breast cancer research") and some investment income arises from investments which were donated with restrictions.

Negative Cash Flow

Notice that a heavily grant-funded entity operates as a negative cash flow business. Upon the awarding of a grant, the funding agency sends the institution a letter authorizing it to spend up to the amount of the grant – to continue the example above: a million dollars in *direct* costs and up to 600K in *indirect* costs. Conceptually, as the investigator spends money on the grant, purchasing test tubes perhaps, the institution sends the receipts to the funding agency, requesting reimbursement. Again conceptually, the funding agency writes the institution two checks: one for the amount specified in the receipts (*direct reimbursement*), and the other for 60% (to continue the above example) of that amount (*indirect reimbursement*). In the gap between spending and reimbursement, the institution must borrow money.

Unrestricted Funds

Unrestricted funds are a precious commodity – typically populated from donations and investment income, the institution can choose to spend these as it pleases, perhaps on *direct* costs (e.g. research), perhaps on *indirect* costs (e.g. infrastructure). Institutions may allocate discretionary funds in various ways. Examples:

- *Indirect* support for a grant whose funding agency caps its *indirect reimbursement* at something below the institution's rate (see the American Cancer Society example above).
- Salary support for investigators (to give them time to apply for grants).
- *Interim funding* to support a researcher who faces a gap between one grant ending and the next one beginning.
- Pay a researcher to pursue a speculative line of work, gambling that the results will translate into future grants.
- Paying for accounting fumbles, in which the institution incorrectly spent dollars in ways which are not reimbursable either via the *direct* or the *indirect* paths.

To employ another metaphor, grant-funded institutions operate like a venture capital firm. Predicting which lines of research will produce results (contributions to public knowledge, benefits to human welfare, and from there additional funding) is hard. Therefore, institutional leadership invests a portion of their typically scarce discretionary funds in a range of endeavors, diversifying their portfolio in order to increase the odds of success. Many lines of inquiry will not yield results – successful institutions are ones which sustain a sufficiently high rate of successes to continue operating.

Forgone Indirects

Notice that in all but the first example above, the institution must cover not only the *direct* cost of the activity but also the *indirect* cost – i.e. according to the accounting rules governing federally grant-funded activity, the institution must allocate *indirect* costs for all research activities, including the ones it funds itself.[9] So, for example, if an institution wants to invest 100K in a particular research project, it must then dump another 60K into the institution's *indirect* pool. We refer to these gaps as *foregone indirects* or *Unfunded Facilities & Administration*.

[9] Again, government agencies do not want to subsidize non-federally funded grant activity.

Misconceptions

Indirect dollars subtract from *direct* dollars: every dollar that the funding agency spends on paying the hosting institution to pay its bureaucrats (and its electric bill) is a dollar that researchers are not spending on test tubes.

That being said, if an institution reduces its *indirect rate*, the funding agency wins, not the individual investigator. Or, if an investigator moves from institution X, where the *indirect rate* is 60%, to institution Y, where the *indirect rate* is 30%, the investigator's million dollars doesn't change -- the funding agency will pocket the difference. rather than hand the extra to the investigator. (Similarly, if the investigator moves from an institution with a lower *indirect rate* to one with a higher *indirect rate*, the funding agency will make up the difference, without impacting the investigator's million dollar *direct allocation*.)

Implications

Independence

Investigators have significant latitude in how they pursue their research – they are responsible for their funding, they negotiate the details of what they will accomplish with the funding agency, and they are responsible for their science. By design, this approach gives the investigator flexibility in how s/he approaches research: this is one of the goals of federally funded research -- to put control in the hands of the brain(s) they are hiring to perform the work.

Profit Margin

Because of the nature of grant-funded activity -- negative cash flow-- the institution, by definition, has zero profit margin on grant-funded research. To put it another way, the prices an institution charges can never exceed its costs. In fact, sometimes they fall short of costs, given the issue of *forgone indirects* aka *unrecovered indirects*. To a traditional commercial mindset, this sounds like business done wrong, and in fact there is a certain merit to such an accusation! Nevertheless, this is how the Feds want to fund research, so entities which want to play in this space must adapt.

Return on Investment

ROI models can be a powerful tool for guiding business choices. They are less useful in a grant-funded environment because they can be difficult to develop with any precision, given the difficulty in correlating (much less demonstrating causation) between choices made today and the success or failure of grant awards next year or the year after. Siloized funding also interferes with the application of ROI models.

Siloization

Grant-funded institutions operate more like a shopping mall than a traditionally hierarchical company … there is a limit to how far they can develop cost efficiencies across each of the revenue-generating investigators, just as there is no easy way for, say, Sears, Radio Shack, and Nordstroms at the local mall to collaborate to reduce their costs collectively. Per funding agency regulation, investigators must spend their *direct* dollars on costs associated with a particular grant -- the institution cannot 'pool' those dollars in any functional way. So while a large university may funnel hundreds of millions of dollars per year through its checking account; there is no way to aggregate all those dollars and point them in any one direction. By design, that river of dollars is divided into rivulets, each of which is walled off from the other via investigator independence and government regulation.

Strategic Investment

Grant-funded institutions have difficulty investing strategically -- leadership may believe that a certain line of inquiry is likely to generate revenue (either by attracting grants or through royalty opportunities) -- but they typically don't have much in the way of seed dollars to fund such efforts -- the bulk of its revenue is allocated to existing grants.[10]

When an institution receives *unrestricted* gifts, it can spend that money as it sees fit … within limits. For example, if the institution wants to pay an investigator's salary for a year to allow him or her to pursue a speculative line of research (i.e. no grant has funded this activity), and let's say that this investigator costs 100K/year … then the institution not only must spend 100K … but must also contribute 60K to the *indirect* pool, in order to conform to the regulations surrounding *indirect/direct cost apportionment*.

Third Party Payee Effects

Recall that the investigator has the *direct* portion of the grant to spend on research costs (test tubes, distilled water, postdocs), and the institution has the *indirect* portion of the grant to spend on facilities and administrative costs (light, heat, toilet scrubbers). Wherever possible, the investigator would like to declare a cost *indirect*, thereby conserving the *direct* dollars in the grant. For its part, the Center has a more complex choice: it wants to provide as many services as possible from *indirect* dollars, in order to attract the best investigators and to contribute to their success; on the other hand, it has to stay solvent. This can result in complex choices. For example, many institutions charge-back for long-distance telephone calls, in an effort to dampen demand; but do not charge for Internet access, because the *indirect* costs of such a billing system would be substantial and because monitoring Internet usage would be a burden for researchers. Implementing a charge-back scheme to dampen demand for Internet bandwidth would reduce the institutions costs but would also make the institution a less desirable place for researchers to house their operations. Dilemmas and trade-offs.

[10] That being said, institutions with non-grant revenue streams -- substantial donations, student tuition fees, insurance reimbursement for patient treatment, interest from an endowment -- may have more flexibility in this arena.

Restricted and Unrestricted Gifts

Because our example institution charges the government an *indirect* rate of 60%, it is legally bound to charge other people who give it money the same amount. If someone wants to give the institution a gift with a restriction that the money be spent on research only (*direct* costs), the institution must find a source from which to fund the *indirect* charge on the gift. Similarly, if a donor wants to give the institution hardware, it must look for a source from which to pay depreciation on that hardware.[11] If it cannot find a source for indirect dollars, it must say "no thanks, we can't afford to accept your gift"; this response can confuse donors who aren't familiar with the regulations surrounding grant-funded research.

Pulling It All Together

To illustrate how this all ties together, let's work through a thought experiment in which grant-funded drivers apply not to the grant-funded research environment but rather to the business of selling database managers.

The Story of Dan

Let us imagine that an investigator, we'll call him Dan, developed new concepts for introducing features and performance into database managers and produced a product which we'll call "Extreme SQL". The database community considers Dan to be one of the top handful of minds in the world focused on this subject. Dan works at a company which we'll call "IBM", which has sold many copies of Extreme SQL. Using this revenue, Dan has purchased a million dollars worth of servers and hired a dozen staff to help further the development of Extreme SQL. Dan regularly collaborates on database manager design not only with people on his staff and at IBM but also with leading researchers at companies which we'll call "Microsoft" and "Oracle". As a result, the firewalls of all three companies contain numerous holes in them, permitting staff at all three institutions to log into each other's servers to share data – the servers of the three companies support trust relationships which allow for cross-authentication and cross-authorization. Dan publishes all his key discoveries in trade journals; he posts the data he has gathered plus descriptions of how to copy the techniques he uses to his Web site; and staff from Microsoft and Oracle regularly spend months at a time living and working in Rochester, working side-by-side with Dan's staff. Some of Dan's staff, after working with Dan for years, have left and now work at Microsoft and Oracle, though they continue to collaborate regularly with Dan. Dan employs a range of software in working with his colleagues, both at IBM and at Microsoft and Oracle: most of this software is open-source and relies on open protocols, first, because of cost, and second, because these were the only packages which were sufficiently vendor-neutral to be installed at all three companies.

[11] For example, if an equipment manufacturer were to hand our example institution a million dollars in scientific or computational gear, generally accepted accounting practices would require that we depreciate that gear, perhaps over the typical ten year period, assigning a hundred thousand dollars per year, which means that we would be required by grant-funded regulations to acquire via our independent sources of revenue 60% of a hundred thousand dollars, i.e. $60,000 dollars per year, in order to be able to afford this gift. Conceptually, a particularly generous donor could bankrupt our institution by giving us a sufficiently large *restricted* donation!

Earlier this year, Dan gets into an argument with the security officer at IBM, we'll call him Bob. Bob is not an investigator; rather, he is an administrative employee of IBM. Dan explains that the new security policies, which will require closing many holes in the firewalls and eliminating trust relationships, will effectively shut down his research. Bob responds by saying "I don't care, this is the way it's going to be and don't go telling me how to run IT; you're just an end-user".

What happens?

Well, Dan gets to thinking. The red tape at IBM has gotten in his way on a number of occasions over the last few years. He has been collaborating more and more with a particular trio of researchers in San Jose, whose work complements his own rather tightly. Finally, Gina, the director of Sybase, the company which houses those researchers, has been calling him intermittently over the last few years, trying to interest him in a position at her company. Dan calls Gina, negotiates a deal, and arranges to move to San Jose.

Before Dan moves to San Jose, a truck pulls up to his Rochester-based laboratory and loads racks of servers onto their beds, for transportation to Dan's new labs in San Jose. All future purchases of Extreme SQL will now go through Sybase, with the bulk of the proceeds going to Dan and the rest going to the hosting company, i.e. to Sybase. Dan's research staff also move to San Jose, taking all the Extreme SQL expertise with them.

A More Typical Story

Usually, of course, events don't follow such an extreme course. What happens more generally is a process of negotiation.

Bob, concerned about the range and volume of firewall holes pointing to Dan's boxes, spends time with Dan's sys admin, Susan, figuring out precisely what holes are needed for what purposes. Susan realizes that half the holes aren't needed any more, and, for example, that all the SSH holes could be shut down, so long as the lab's users (located at IBM, Microsoft, and Oracle) were given accounts on IBM's centrally-managed SSH portal. Dan gets involved at this point, having talked with Jill recently and heard how satisfied she was with Bob's efforts on her behalf, during the hacker incident earlier that year. (Jill is another investigator located in the same building as Dan; her servers were down for a week after hackers got in. Her group had no sys admin and no documentation on how to rebuild their boxes, so Bob's group spent that week figuring out how to glue things together again.) Dan decides that he doesn't want to deal with sys admin work, that he wants Susan to focus on managing the testing process for the next release of Extreme SQL, so he hands the root password to Bob's group and asks them to handle the day-to-day operation of his gear. Bob's group rebuilds each server in turn, instituting their standard security practices, and Bob closes a range of holes in the firewalls once this is done. Bob proposes to Dan that he use IBM's centralized authentication servers to authenticate users against his servers, but Dan doesn't like that idea -- central IT hasn't figured out how to add users who aren't on IBM's payroll (i.e. users from Microsoft and Oracle). So, Dan "opts out" of centralized authentication. Bob feels disappointed on that score, but he's patient: he figures he'll come back next year and try again; hopefully, his federated authentication efforts will have made enough progress to meet Dan's needs.

Is the result perfect? Not at all: there are still significant firewall holes allowing for substantial traffic to pass between Bob's servers and other organizations, and no one has even started to tackle the authorization issue: who is allowed access to what on these servers. And now Bob and Dan have a sticky problem: who is going to pay for the sys admin support? Dan wants *indirects* to pay for it. Bob is happy to do it; but if he doesn't get additional staff, then he wants to know what he's going to quit doing in order to handle Dan's needs. To date, no one has an answer for this.

However, the situation has been improved. Now, Bob walks down the hall to the next lab and starts the whole process over again …

Pros and Cons

Before you remark on how weird this all seems, consider looking at the conventional business world through the eyes of a denizen of the grant-funded research environment. Notice, for example, that publicly traded companies tend to hoard their discoveries, making it difficult for people at other companies to build on their work: in a world in which a company's mission statement talks about reducing human suffering (typical in the non-profit space), this seems counterproductive. Or, consider Oracle's recent acquisition of PeopleSoft -- from a grant-funded research point of view, this incident is incomprehensible: killing off an unproductive line of research makes sense, but why kill off a line of research which has resulted in substantial and growing success?

Each environment carries its own pressures and stresses, and as a result, organizations and the people operating in these environments evolve differing strategies for succeeding.

Summary

Grant-funded accounting divides monies into pools which must be spent according to federally-defined rules.