

Effective Funding Strategies for Systemic Change: Advice for Corporations and Others Wanting to Make a Difference

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Now, 3 1/2 years into my job as a grant maker, giving advice about systemic change is becoming a little easier. Delivering on that advice is far more elusive. Let me share a quick snapshot of what we in Alcoa Foundation are trying to do to advance change in the systems that can and must move more women into engineering.

But then, as Carol Muller suggested, I'll switch to the advice mode, and invite your reaction to some underdeveloped funding ideas about grant structures, grant purposes and grant principles that may fuel systemic change.

Alcoa Foundation Experience

But first, a word about Alcoa Foundation. We are the largest, asset-based corporate foundation in America. Which means we make grants irrespective of Alcoa's earnings. But while we are extremely fortunate to have these resources, they are highly coveted and heavily committed.

Alcoa Foundation funds higher education primarily at the request of Alcoa locations. Today, we make grants to roughly 130 colleges and universities, which includes pre-college programs for women in engineering.

Developing Our Educational Factors - Forces for Systemic Change

Four years ago our foundation wanted to be more explicit about what we valued in our relationships with higher education. We worked to set a context for both our Foundation and the institutions we funded. We sought some factors that would help us evaluate proposals, to calibrate how well an institution demonstrates the factors that mattered to us.

Working with our board, we looked prospectively to determine what forces we wanted to be central to these relationships. And then, almost quixotically at the time, we worked to measure these factors with data and to prioritize them. A list of these is attached.



In our statement of these factors and in their measurement came a far more valuable tool for systemic change than we had envisioned initially. For in them we ratified two elements essential to the enhancement of this nation, and this nation's technical talent pool. Ranked in descending order, the top two factors are:

academic excellence in targeted disciplines
potential source of females and minorities in these targeted disciplines

In our second most important factor, ***potential source of females and minorities***, we ask universities for the number of underrepresented persons - women and persons of color -- that they graduated in these technical disciplines in a given year. Thus, our emphasis is on yield, or completion of degrees. It's tangible. It's measurable, and therefore, we hope, makes an institution accountable for better results.

The factor measures actual graduates, not percentages. This may be a problem for smaller institutions, and we can debate that.

However, what is less debatable is the message we send by asking for numbers and using them, together with other data, to help make grant decisions. That message is clear: getting more women into and successfully through the engineering pipeline matters to us, and matters in the final determination of who gets our. Grants can range from curriculum development, to faculty or student support.

Naturally, we have not ignored the supply side of the pipeline. We continue to seek and fund earlier interventions for girls at campuses and in the community to engage them in science and hopefully to launch them into engineering. Our funding in this area has remained constant, and we are working with our increasingly busy plant contacts within Alcoa to recommend more of these pre-college programs for girls.

But after three years using these factors, and visiting with many of you from many campuses, I've come to appreciate that there is more to the supply and demand side of this important equation. And here, and now, I'll turn to the advice mode.

Advice for Corporations and Others

Be explicit and seek results

In looking for systemic change, we need to determine what it is we want, and what we can and can't do, and who must do it. In short, we must continue to look for results - that is, growth in the actual number and quality of engineering graduates.

Structure in Accountability

To this end, grant makers -- and grant seekers -- must structure in accountability for these results. We should seek to know ahead where the journey of a grant, or a program, should lead. Just as Sherita Cesar said on Sunday - clarity of expectations brings comfort and, most importantly, brings results.

But sometimes, accountability in a grant can be amorphous, unruly or unfair. This is particularly so in universities where the best intentioned administrators of programs lack the resources and clout necessary to support change. Thus, we should expand our notion of accountability.

Particularly, we should look to those with the "moral" and political authority to sustain change. In most campuses, that means the leadership - whether key faculty, department chairs, deans or college presidents.

Just as each campus has a unique culture, funders need to accept that accountability for the results we all desire may need to be structured differently, depending on the culture on campus and the maturity of the program being considered. You who know local circumstances best can help us place this accountability most effectively when we structure a grant.

Some of you have suggested in private that we need to tell deans and college presidents that we require specific and measurable progress, or else our funding will decline. That is unmistakable leverage for some funders. But it is not a strategy for all funders, nor for all universities. I mention it because we have heard a lot about the age of scarcity. And in this age of scarce resources funders will make choices based upon the accountability and the results structured into these relationships. Some will look to the top of an institution to gauge commitment. Help us to place that accountability where it will count -- for the long haul.

Let me mention just a few other options that can engender systemic change. I categorize a few of them as grant structures, grant purposes and then can quickly recap some grant principles that undergird them.

Grant Structures that Institutionalize Change

The Search for Hard or "Harder" Money

Grant structures that seed women-friendly initiatives for a given period, and then, with notice, diminish in favor of university-provided funds, are an option to fuel change. Thus, the university assumes responsibility for devoting hard or "harder than soft" dollars. The program becomes an institutionalized commitment of the university's mission. There is a downside to this strategy, particularly for programs in a start-up mode, but I welcome your reaction to this type of funding mechanism.

Funding that Leverages Other Initiatives

We're all looking for vehicles that treat the student - and her achievement in engineering -- holistically. That is, initiatives that build upon one another: summer bridge programs linked to smaller, cluster courses, undergraduate research, financial support, cooperative learning and a window on the world of work. This isn't novel. It's just harder to do than running stand alone programs. However, integrated approaches like this will be sought by more funders, who not only want to see holistic student services, but may want to partner with other grant makers to increase their funding capacity.

Support Initiatives That Reach Beyond Women

Perhaps the most enduring strategies for systemic change are those that are piloted for women, and then move beyond them to serve the entire student population. Thus, women in engineering programs can be viewed as creative, innovative incubators to improve the retention and preparation of all engineering students.

In our foundation, we have one grant that creates smaller clusters in calculus that were pioneered with students of color and women. Today, this effort has altered the teaching of most introductory calculus at this university. In addition, the process is moving, slowly, into the teaching of physics, and chemistry, with special study sections and cooperative learning groups being spearheaded by underrepresented students, who are held up as experts to their peers. This is just one example of an initiative that has improved outcomes for all students.

Grant Purposes

Restructuring Educational Experiences

Sometimes the line between a grant structure and a grant purpose blurs. In line with my last point, above, comes the sense that we should work to restructure the educational experiences of our women engineering students. You know the mechanisms that work - smaller cluster classes, undergraduate research, mentoring of younger high school women by college women, work experiences, cooperative learning.

Link Student and Faculty Retention

But I wouldn't start, or stop with undergraduates, Research stipends for undergraduates can connect them with faculty, and may keep both - the struggling instructor and the undergraduate - in the field. We need to see how faculty grants can enhance retention, too. We should look to these faculty as role models, first, without always expecting them to serve as mentors. Perhaps through faculty incentive grants,



or equipment grants from industry, women faculty and their female students can be affirmed and retained in the field.

These are not structures that seem to be widely used or popular today. Support for graduate student women and junior faculty may gain credibility if viewed as part of the holistic, or continuum approach to retention. This becomes a matter of funders - and colleges -- seeing the interplay between pre-college interventions and the nurturing required to support the budding engineer right on through to her Ph.D.

Guiding Grant Principles

These ideas suggest that we should pursue funding strategies for the long run. Funders are increasingly turning to earlier interventions, grants that work on the attitudinal, and experiential side of the equation. These grants need to reach not just girls - but importantly - their parents, their teachers and their counselors. Most of us don't yet know how to do that.

This longer term focus requires some guiding principles for funders and grant seekers. Namely, that we not abandon the needs of the present, but find ways to make them specifically accountable, structural, enduring and meaningful.

In addition to accountability, structure and leverage, we need to factor in partnership and candor. Funders can't always presume that we know the score. We don't. We need your insight. We also need your best effort. When your, or our, effort doesn't produce the results we anticipated, we need to hear that. And we need to have the discipline not to be punitive.

As I said at the outset, these things are easier said than done. They rest on collaboration. They rest on insight and resolve. They require the overcoming of many barriers, barriers as chronic as time and focus, and others more difficult to define.

As challenging as it is rewarding, we must approach systemic change realistically, but optimistically. We must have focus and endurance. We must work together in that elusive place where our interests, our best information, our resources and our conviction converge -- through the structures, the programs and the ideals that bring the joy of engineering to more women.

1. ***Academic Excellence in Targeted Disciplines:*** This factor is intended to recognize academic excellence in the disciplines that will provide the technical and managerial needs of the light metals industry in the U.S. for the next century. These include: aerospace, ceramic, chemical, electrical, industrial, manufacturing, materials/metallurgical, mechanical, process, and systems engineering; applied math/ statistics/ operations research; computer engineering/computer science; management information systems. This list will vary as the perceived needs of the U. S. light metals industry change. We refer to this as a "pool" factor because the nation as a whole benefits from excellence in these disciplines, not just individual companies.
2. ***Potential Source of Females and Minorities:*** This is another "pool" factor that seeks to recognize institutions that graduate large numbers of women and minorities, particularly in the disciplines important to the U.S. light metals industry. This factor supports diversity, and the schools that are preparing the workforce of the 21st century. This factor is the number of Native Americans, African Americans, Hispanics or females who graduated from a particular college in 1992 in those disciplines relevant to the light metals industry listed in Factor I.
3. ***Recent Trends in Hiring in the Light Metals Industry-- 1988-92:*** Alcoa Foundation takes into account as a factor graduates from numerous colleges and universities who have chosen careers in the U.S. light metals industry.
4. ***Training Ground for Current Alcoans:*** This factor values institutions that provide continuing education for the current employees in the U. S. light metals industry. This might include night school courses or graduate work toward a degree.
5. ***Proximity to an Alcoa Location:*** Many of Alcoa Foundation's grants to higher education are recommended by Alcoa facilities or Alcoans who have developed community relationships with the institutions. This criterion recognizes the role that corporate citizenship plays in local education. This factor does not apply to Pittsburgh-area colleges or universities.
6. ***Historic and Current Linkages to Alcoans:*** This factor recognizes the long-term linkages with colleges or universities whose graduates have been part of the Alcoa family at one time or another. It accounts for college alumni who are either active employees, retirees, employees who have left Alcoa, or employees who have requested gift matching for the institution in 1992.
7. ***ATC Support in Research and Development:*** This factor recognizes technology transfer by acknowledging university research and relationships sponsored by Alcoa Technical Center (ATC) during 1991 and 1992.
8. ***Past Alcoa Foundation Support:*** Over time, Alcoa Foundation has fostered academic opportunity through its funding of a wide range of colleges and universities. This factor assesses the average, annualized support for an institution from 1987-1992.