

**Days of Budget Cutting, Sequestration and
Shrinking Spending: Strategies for Surviving in a
Leaner Academic Environment**

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The Situation 1

- ◆ All but one US surveying/geomatics program are at public colleges/universities
- ◆ Reductions in funding for higher education have tended to accelerate in recent years, with the economic recession and tighter government budgets
- ◆ Surveying/geomatics programs are rarely stars in a college, and so tend to be overlooked
- ◆ Most surveying/geomatics programs are underfunded at present
- ◆ Demand for graduates is increasing as the economy recovers

The Situation 2

- ◆ There is more demand for graduates than programs can meet, across the US
- ◆ There are not enough programs or capacity to meet current and future needs for graduates, i.e., programs are not in competition with each other
- ◆ We are in the most frantic years of a multi-decade geospatial revolution
- ◆ Geomatics in 2050 will bear almost no resemblance to surveying in 1950
- ◆ The mindset of practitioners in 2050 will bear almost no resemblance to that of practitioners in 1950

The Problem

- ◆ **Surveying/geomatics programs are already underfunded, in a time of funding reductions**
- ◆ **Because two-year colleges are closer to putting people in the workforce, they are less susceptible to funding reductions**
- ◆ **Four-year institutions will bear the brunt of long-term reductions**
- ◆ **Graduate programs will also suffer, making it harder to create the next generation of faculty for all programs**

The Problem

- ◆ Because the impact of funding cuts will affect the short- and long-term survival of programs, and therefore have a major impact on the geospatial profession as a whole, we need to work with this as a national group
- ◆ The requirement for 4-year qualifications for surveyor registration continues to spread, and there is a need for a comprehensive foundational education for other geospatial professionals
- ◆ Institutions are looking for 'smarter' ways to distribute resources, e.g., program prioritization

Strategies and Tactics

- ◆ Some of the following are broad-scale strategies, others are local-level tactics
- ◆ Some are done within a program, other need broad-scale collaboration
- ◆ Some are individual efforts, others are group efforts
- ◆ Not everything will work for everyone, and not everything will suit everyone
- ◆ This is a distillation of my observations of how to work through cost-cutting exercises from above, what worked and what didn't...

Competence

- ◆ Consider the Peter Principle:
 - ◆ “In a hierarchy, every employee rises to his/her level of incompetence”
- ◆ A critical issue is the definition of ‘competence’
- ◆ ‘Competence’ is what qualifies you for promotion, which may or may not include actual competence in your work
- ◆ In a larger view, ‘competence’ is what gets your program funded beyond its base

Competence

- ◆ During program prioritization efforts, there will be an effort to define 'competence' (although not in those terms)
- ◆ It will be in terms of re-allocating funding for 'successful' programs
- ◆ Determine what constitutes 'competence' and develop those capabilities, possibly as a different approach to communication what you already do, perhaps by adding capabilities
- ◆ Consider shifting to a better environment if the current one is inimical to your success, given your current and near-future potential

Competence

- ◆ Use ABET to your advantage:
 - ◆ ABET exists to ensure high-quality education
 - ◆ ABET can help change your competence perception
 - ◆ ABET can point out areas that need to be addressed and fixed
- ◆ Use ABET to your advantage — it's not an adversarial relationship!

Increase Revenue

- ◆ Student tuition and fees
 - ◆ Can counter with increased scholarships and endowments
- ◆ Deals with manufacturers and suppliers
- ◆ Donations: consider an endowment fund
- ◆ Research grants
- ◆ Consulting income
- ◆ Special-purpose funding
- ◆ Move into administration

Decrease Costs

- ◆ Focused equipment acquisitions
 - ◆ Single integrated system, suitable for academic use
- ◆ Collaborative work with courses
 - ◆ Sharing courses
 - ◆ MOOCs
- ◆ Automation of routine tasks: collaborative software
 - ◆ Attack the growth of administration
- ◆ Move into administration

Collaboration

- ◆ On-line resources:

- ◆ Shared courses between institutions

- ◆ Provide local support, labs, tutorial assistance, etc.

- ◆ Establish communities of scholarship, including professional input

- ◆ MOOCs:

- ◆ Use to reduce resources required locally, while still providing content

- ◆ Use 2-year colleges as remote campuses for 4-year programs:

- ◆ Support and strengthen 2-year courses and programs

- ◆ Increase recruitment for all programs

Collaboration

- ◆ Share lab courses by centralized equipment
 - ◆ Use a traveling equipment set that brings gear to local groups/programs, runs concentrated lab sessions, then moves on (better utilization of gear)
 - ◆ Can concentrate workshops, say week-long, at a provider institution
 - ◆ How much surveying do we need vs general geomatics?
 - ◆ How much software do we need vs hardware?
- ◆ Can provide a full range of courses at other 4-year programs, e.g., photogrammetry, hydrographic surveying, image processing, etc.
- ◆ Increase coverage of geomatics topics for ABET

Collaboration

- ◆ There is no direct education process for creating faculty for 2-year programs
- ◆ Few programs for creating 4-year faculty with a broad foundation
- ◆ Need to have a definite process to replace faculty
 - ◆ Need for future-oriented people to drive the profession forward
- ◆ Need for support for faculty development: *SaGES, SaLIS*

Recruitment

- ◆ Current recruitment has a strong surveying focus:
 - ◆ We will probably find that traditional surveying is a small niche by 2050
 - ◆ The bulk of work will be in more general geospatial areas
 - ◆ The point-cloud (including imagery) will be the basic collection unit
 - ◆ Spatial databases will be in exabytes, terabytes will be 'floppies'
- ◆ Change the focus of recruitment to future areas of need
- ◆ We will still need basic measurement understanding

Recruitment

- ◆ Recruitment needs to be very intentional and focused on individuals
- ◆ Connect with high schools and their students
- ◆ Recruit within the institution: undeclared, math and science students
- ◆ Entry-level and service courses to attract students, e.g., GIS, remote sensing, imagery, surveying (adding FTEs to revenue sources)
- ◆ Stopping recruiting leads to about 30% drop off in the first year
- ◆ Avoid centralized recruiting: it's not suited to more focused programs

Program Prioritization Processes

- ◆ Prioritization changes the 'competence' required for funding and support
- ◆ Need to be involved in this process to know what 'competence' is required
- ◆ Some prioritization processes are more 'triage' than planning oriented (e.g., Dickeson approach)
- ◆ Need to divide time and resources to meet differing 'competences' at different levels, e.g., within a College/School, as well as within the larger institution
- ◆ Can be issues with competition within a multi-campus system

Financial and Resource Management

- ◆ Leave some uncertainty in your published accounting:
 - ◆ Knowing your finances with certainty makes it easier to cut your program, unless you are seriously profitable
- ◆ But be on top of your financial and resource accounting internally!
- ◆ If your institution does not support local accounting, run your own:
 - ◆ It can help when resources are being reallocated, and makes it hard to cut your program
- ◆ The objective is survival, so work through the systems to survive!