WORKING TOWARDS BENEFITS AND ECONOMIES OF SCALE IN US SURVEYING/GEOMATICS PROGRAMS

Bill Hazelton
Coolgardie LLC

PROBLEMS WE FACE

- Too few programs

- Too few students

- Programs are too small

- Programs distributed by state, rather than by population

- Financial and resource pressures

- Overloaded with administrivia

PROGRAM NUMBERS

- USA could have three times as many programs, if we could recruit students and faculty

- Programs could be much bigger, as many overseas programs are, in terms of both faculty and student numbers

- Limited resources and lack of economies of scale limit growth

Country	Programs	Population	Million People per Program
Canada	5	34	6.8
USA	23	312	13.6
Netherlands	3	17	5.7
Slovenia	1	2	2.0
Sweden	3	9	3.0
Uruguay	1	3	3.0
Switzerland	4	8	2.0
Botswana	1	2	2.0
Greece	3	11	3.7
Hungary	2	10	5.0
Czech Republic	6	11	1.8
Finland	3	5	1.7
Germany	19	81	4.3
Turkey	8	72	9.0
Israel	1	8	8.0
Uganda	2	33	16.5
Sri Lanka	4	21	5.3
Singapore	1	5	5.0
Hong Kong	2	7	3.5
Ghana	4	24	6.0
Slovakia	1	5	5.0
Lithuania	1	3	3.0
Moldovia	2	4	2.0
Poland	4	38	7.6
Denmark	1	6	6.0
New Zealand	1	4	4.0
Australia	8	22	2.8

PROGRAM TURN-OVER

- In the last 15-20 years, there have been at least eight 4-year programs close, one every 2-3 years

- In this time, about seven 4-year programs have started

  - These use or are part of the same model

  - Nothing changes in terms of turn-over

  - Doing the same thing again and expecting different results....?

  - Does mere survival serve the discipline or the profession well?

RESOURCE LIMITATIONS

- Reductions in faculty lines, shifting faculty to part-time and untenured

- Increase in administration and the work they generate:

  - Less time for student engagement

- Faculty are seen as a zero-additional-cost resource

- Reduction in support resources for equipment in times of rapid change

- Reduction in support for recruitment for small and specialty programs

COURSE OFFERINGS

- Small or reduced faculty numbers means fewer courses can be taught:

  - Out-source some courses, e.g., GIS

  - Don't cover some areas in any depth, e.g., photogrammetry and remote sensing

  - Narrow or reduce elective options, because too few students to run many courses

- This doesn't allow us to broaden our students' understranding of the discipline

- Is this serving the discipline or profession for the long term?

ON-LINE COURSES

- **From an administrator's perspective, on-line courses are great:**

  - **Multiply the courses one faculty can teach**

  - **Gets students off campus**

  - **Reduces costs for facilities and support, but can charge more sometimes**

  - **Access to a larger pool of students**

  - **Increase income, lower costs**

COURSE COMPONENTS

- Factual

- External

- Interconnection

- Support and Reference

- Assessment

- Collaborative

- Interactional

- Practical / Work Experience

- Professional connection

ECONOMIC CHANGES

- Movement to an 'intangible' economy:

  - Data, images, experiences, transformations

- 75% of the US economy is **NOT** in farming, fishing, mining and manufacturing

- Real education transforms people; giving them knowledge is a by-product

- With a changing economy comes changes in every part of society

MOVING TO BROAD SOLUTIONS

- Small programs mean no economies of scale

- Competition seems to trump collaboration

- On-line courses aren't a stand-alone solution

- Administration increases exponentially, with a major impact on faculty

- Recruitment is very low by world standards

MOVING TO BROAD SOLUTIONS

- Can an external body provide economies of scale and collaboration?

- Can an external body provide support for recruitment?

- Can an external body provide efficiencies in education, freeing faculty time?

- Can an external body provide elective courses and support for specialist courses?

- If so, there is the potential to provide a lot of benefits to many programs

COOLGARDIE

- Coolgardie was created to address a number of these problems

  - It doesn't solve all problems, but it can help with some of them

- Coolgardie can provide the link for collaboration that overcomes many administrative problems

COOLGARDIE SERVICES

- Creation and delivery of innovative, current and varied courses, including core, elective and support courses

- Lab support from creation and development to delivery

- Grading and provision of course analytics and feedback to faculty, allowing them to tailor support for their students

- Allow faculty to shift attention from course development and delivery to broader program and student support

COOLGARDIE SERVICES

- Provision of support materials for instructors and students

- Textbooks

- Lab materials

- Lab support

- Support tailored to the program's needs

Coolgardie Consulting

- Support for student recruitment

- Support for accreditation efforts

- Support for prioritization efforts

- Support for restructuring and program expansion

- Support for faculty locus

- Program review services