

# Some Thoughts on Building-up World-class University/Discipline

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- Can China's Univ. Become the World's First Class Univ.?
- If yes, how? (from the perspective of education, or specifically, quality control mechanism in univ. education)
- Overview of ABET Accreditation & MIS/IS Standards: some specific thoughts on doing world-first-class teaching and research in univ.



- Yes?
- No?
  
- The matter of fact is that China has never had a modern university being commonly and widely recognized as the world-first-class univ. in China's high education history (like Oxford U. in UK or Harvard in US).



- Let's address this issue from another perspective, looking at college education history in US as compared to UK.
- Q: if your son/daughter in China is accepted by both Oxford U. of UK and Harvard U. of US, which univ. do you recommend your son/daughter to attend in the end?
- Why?



- Now, let's look at the history of the two universities:
- Oxford Univ., being the oldest univ. in English-speaking world, had its' first college (and formal univ.) in 1249 (757 years old).
- Harvard Univ., founded in 1636.
- The difference is more than 350 years! (CN's oldest famous univ. like Tsinghua and BeiDa celebrated its 100 years' birthday recently)
- This means that when Harvard U. was set up, the situation was more or less like today's situation where some China's top univ. are facing: can we catch up with Oxford U. to become world-first-class univ.?
- Obviously, the answer was "YES!" for Harvard U. even when Harvard U. was obviously not a world-first-class univ. at that time. – Harvard U. achieved its goal in the end.



- If history could provide some useful insights to the future, the answer would be clear to China's top univ. (as well as top univ. of other countries like Korea)
- Therefore, for China's univ., the question is not whether they could become world-first-class univ., but when & how?



- Similarly, history in univ. education of US provided more and more supporting facts:
  - ◆ MIT was set up in 1861, more than 200 years younger than Harvard U. (1636), and it became a world-first-class univ. after it knew “how” to do it (even more than 50 years younger than Ohio univ. that was set up in 1804).
  - ◆ Stanford was set up in 1891, a few decades after MIT, but it became a world-first-class univ. after it knew “how” to do it as well.
- Hence, “know-how” is the key for developing into a world-first-class univ.
- To become a world-first-class univ., the univ. must have world-first-class disciplines: basis
- So the question is: how to build up a world-first-class discipline?



- We can have another specific example: look at MIS discipline's historical development, which can provide additional insights as well.

# An interesting story about the creation of MIS/IS discipline:



- Created by Gordon B. Davis at Univ. of Minnesota in 1967, not by Harvard, or MIT ...
- “2<sup>nd</sup> class CS/IT & 2<sup>nd</sup> Management Science”
- “Not a long life ...” – USA
- EU: UK, ...
- Australia: UNSW was the first to have MIS program in 1980s
- Thinking question: why successful?
- So China can also creatively develop its own world-class disciplines in the future as well.

# An interesting story about the creation of MIS/IS discipline:



- The photo was taken in our AIS SIG-ISAP annual conference in Washington, D.C., Dec. 2004 (together with ICIS 2004) – Advisor of our ISAP association (IS in Asia Pacific: <http://sigs.aisnet.org/SIGISAP/>)



- McKinsey Consulting did research on engineering graduates of China's univ. in late 2005 (including both undergraduate and post-graduate programs), and reported that a large percentage of engineering major graduates from China's univ. are NOT ready (or qualified) for the employment in international MNCs.
- It was not news that some MNCs, such as IBM, planned to set up R&D and/or design center in China by investing a lot of money here, but it had to cancel the plan later because they couldn't hire qualified talents in China, and had to implement this plan in other countries.
- When China univ. have put so much attention to world-class research by rewarding research publications, teaching, as the fundamental mission of a univ., should not be ignored by univ.; otherwise, it will not help China univ. achieve the goal of becoming world-class univ.



### How to build up world-first-class MIS discipline in univ.?

- In MIS/IS or other technology-related disciplines, one proved successful quality control method is to adopt and use ABET standards – MIT, Stanford, Berkeley, etc. all adopt and use ABET standards in univ. education (in technology and engineering disciplines).

# Overview – Accreditation Board of Engineering and Technology



- Recognized accreditor for college and university programs in applied science, computing, engineering, MIS/IS, and technology
- A federation of 30 professional and technical societies representing these fields
- Provided leadership and quality assurance in higher education for more than 70 years (AACSB: similar)
- Currently accredits more than 2,500 programs at over 550 colleges and universities, including Harvard, MIT, Stanford, UC Berkeley, etc.
- Also provide leadership internationally through agreements such as the Washington Accord: UK, Australia, Canada, New Zealand, Ireland, Hong Kong, Taiwan, etc.

- **AAEE** - *American Academy of Environmental Engineers*
- **ACSM** - *American Congress on Surveying and Mapping*
- **AIAA** - *American Institute of Aeronautics and Astronautics*
- **AIChE** - *American Institute of Chemical Engineers*
- **AIHA** - *American Industrial Hygiene Association*
- **ANS** - *American Nuclear Society*
- **ASAE** - *American Society of Agricultural Engineers*
- **ASCE** - *American Society of Civil Engineers*
- **ASEE** - *American Society for Engineering Education*
- **ASHRAE** - *American Society of Heating, Refrigerating and Air-Conditioning Engineers*
- **ASME** - *American Society of Mechanical Engineers*
- **ASSE** - *American Society of Safety Engineers*
- **BMES** - *Biomedical Engineering Society*
- **CSAB** – *CSAB (Computer Science Accreditation Board), Inc.*
- **HPS** - *Health Physics Society*

- **IEEE** - *Institute of Electrical and Electronics Engineers*
- **IIE** - *Institute of Industrial Engineers*
- **ISA** - *The Instrumentation, Systems, and Automation Society*
- **NCEES** - *National Council of Examiners for Engineering and Surveying*
- **NICE** - *National Institute of Ceramic Engineers*
- **NSPE** - *National Society of Professional Engineers*
- **SAE** - *Society of Automotive Engineers*
- **SME** - *Society of Manufacturing Engineers*
- **SME-AIME** - *Society for Mining, Metallurgy and Exploration, Inc.*
- **SNAME** - *Society of Naval Architects and Marine Engineers*
- **SPE** - *Society of Petroleum Engineers*
- **TMS** - *The Minerals, Metals and Materials Society*
- **AIST** - *Association for Iron and Steel Technology*
- **ASQ** - *American Society for Quality*
- **MRS** - *Materials Research Society*
- **AIS** – *Association of Information Systems (for MIS/IS)*

# General Representation in the ABET Commission

- 40% Industry and Other Non-Academic
- 60% Academic
- Almost all invited evaluating experts are “volunteers” (tenured professor at U.: not easy to “buy their votes”)
- Not a government agency, but a private and professional federation, which is considered to be better ...

- It is the quality assurance that education is meeting minimum standards (for both education program and education management system)
- It is a non-governmental, peer review process that ensures educational quality (US education ministry: not trusted/competent in doing accreditation; but following up ABET standards to allocate funding to univ.)
- It stimulates continuous improvement of quality of education
- It forces formalization and documentation of good practices already in place in the program

# What ABET Criteria Are for MIS/IS Discipline?

Standards by which programs are evaluated for  
accreditation

- Criteria for Accreditation Information Systems (IS/MIS) Programs in the United States
  - ◆ Eight Categories
  - ◆ A Category is divided into
    - Intent statement
    - Standards
- Guidance for Interpreting the Criteria for Accrediting Programs in Information Systems in the United States
  - ◆ Each statement is mapped to a specific Standard

- I. Objectives and Assessments
- II. Students
- III. Faculty
- IV. Curriculum
- V. Technology Infrastructure
- VI. Institutional Support and Financial Resources
- VII. Program Delivery
- VIII. Institutional Facilities

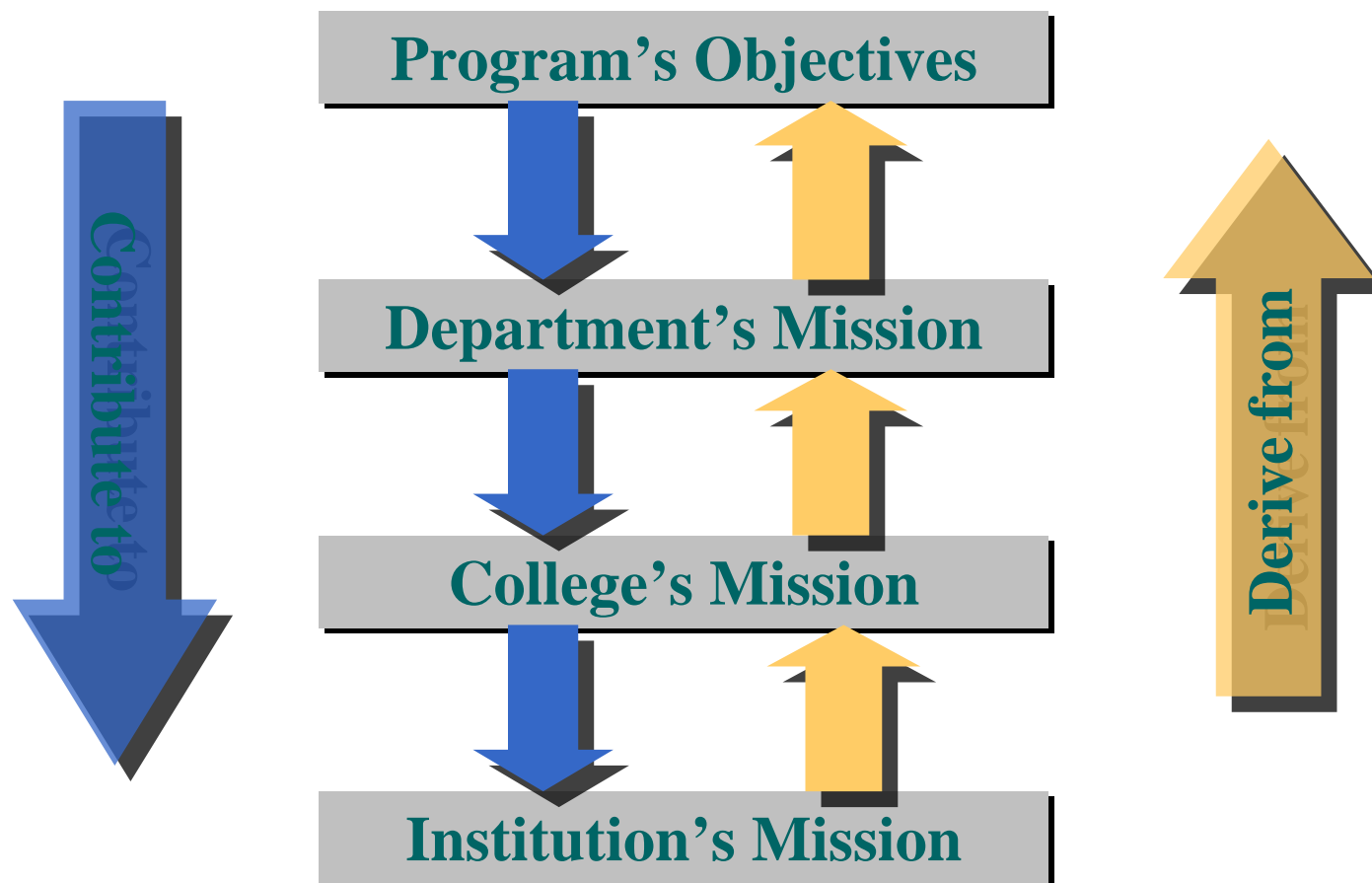
# Example: MIT's Program Objectives Are Matched to ABET Standards



- Foundations ABET Criteria 3a , 3b, 3e, and 3k
- Breadth ABET Criterion 3a
- Depth ABET Criterion 3a
- Leadership ABET Criteria 3f and 3h
- Design ABET Criteria 3c and 3e
- Curiosity ABET Criterion 3i
- Communication skills ABET Criterion 3g
- Social skills ABET Criterion 3d
- Global view ABET Criteria 3h and 3j
- Professional ethics ABET Criterion 3f

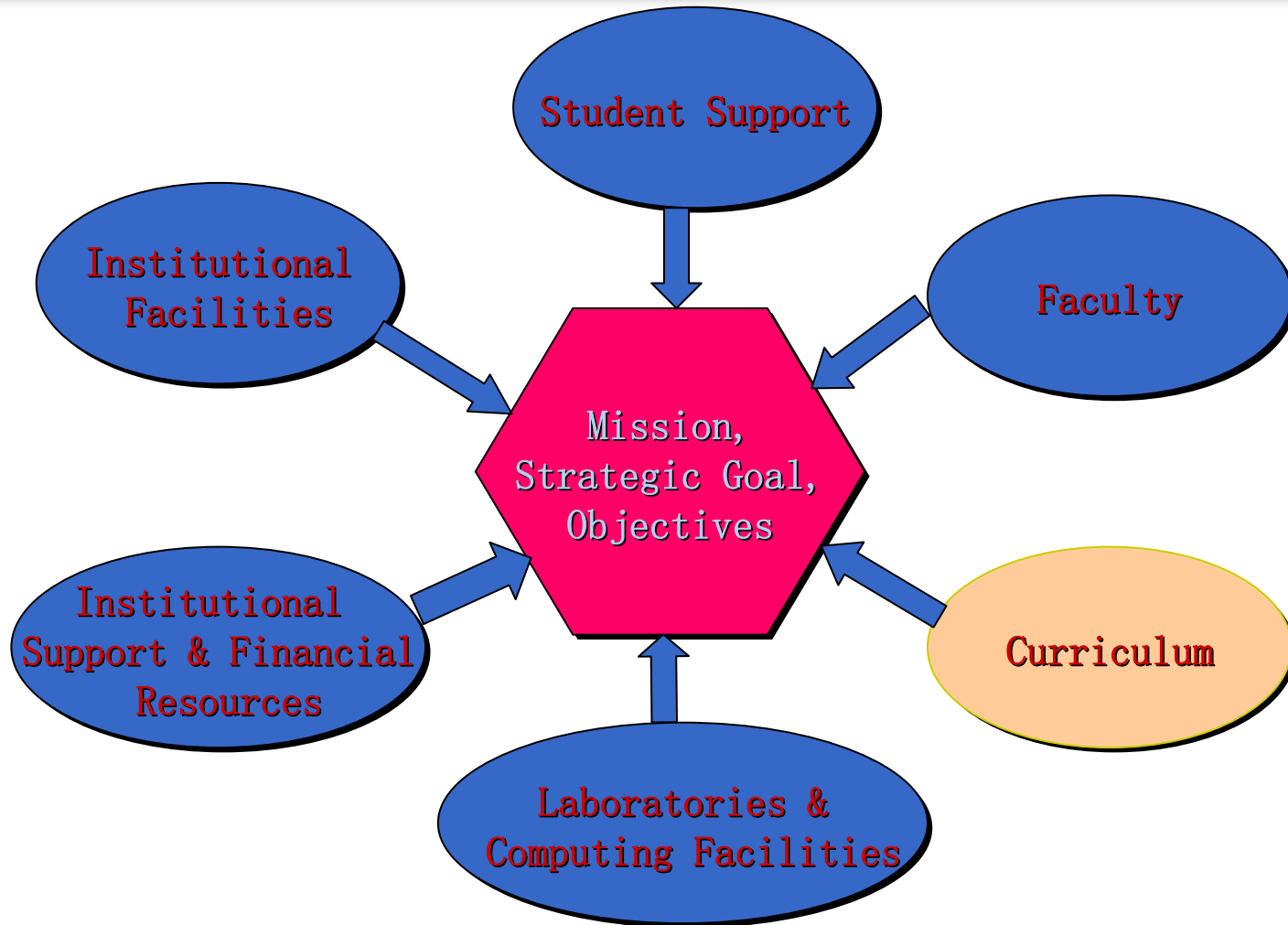


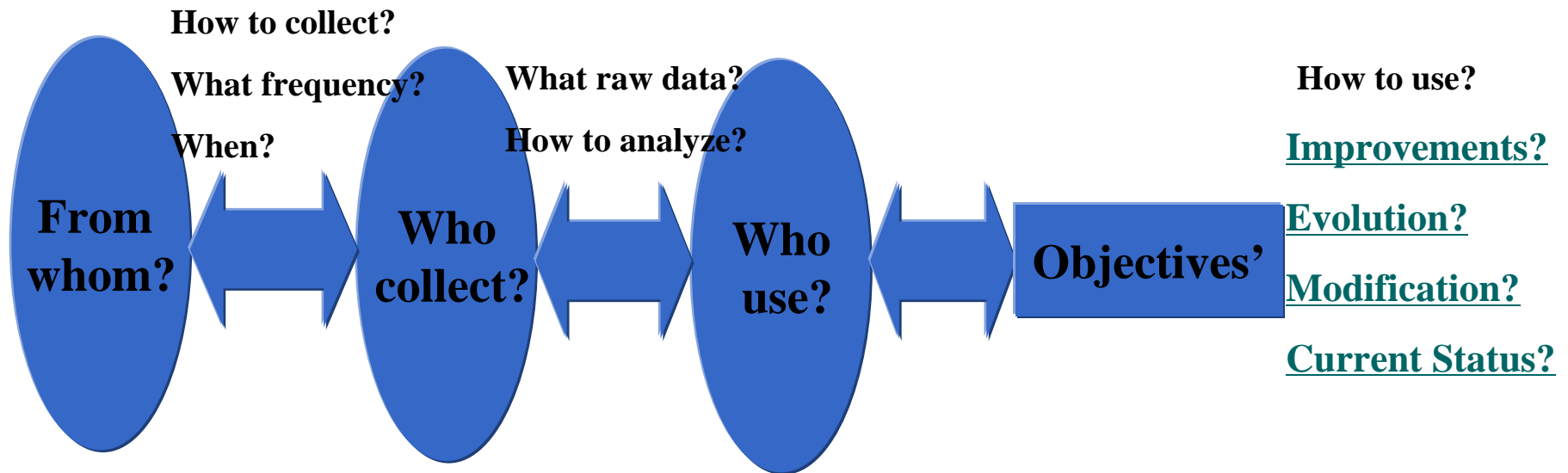
- Practice of continuous improvement
  - ◆ Input of constituencies
  - ◆ Process focus
  - ◆ Outcomes and assessment linked to objectives



**Note: Having strong evidences to show the link points.**

# The seven categories for CS Programs





**Note: Must answer a series of questions clearly aim at each objective.**

One key difference as compared to previous ABET accreditation standards (before 2000):

- Outcome-oriented: not on “what teachers teach”, but on “what students learn” (student-centered perspective)

# Some best practices in ABET accreditation ....

# UC Berkeley SIMS (Program Objectives)



Information is the DNA of modern economic and social life. The School of Information Management and Systems (SIMS) prepares leaders to understand, organize, and manage information. Social scientists and technologists work together at SIMS to address the challenges posed for organizations and society by information ubiquity and abundance.

We are committed to enhancing information access and quality. Our goal is to design and develop systems and policies that meet the needs and protect the rights of different information users--including individuals and groups, organizations and communities, and society as a whole.

# Example of COB/OU (Program Objectives)



Our graduates are able to:

- a) apply a holistic, integrated approach to business problems;
- b) apply the communication, leadership, team and technological skills needed to succeed in their business careers;
- c) understand how to work with people from other cultures and to operate effectively in other countries;
- d) understand the social responsibilities of individuals and organizations and evaluate the ethical dimensions of decisions in a business context.

For Bachelor of Science EECS major or option, the requirements are a minimum of 120 semester units:

1. At least 30 units of natural science, mathematics, and statistics
2. A total of 45 units of engineering courses, including at least 20 units of upper-division EECS courses
3. EECS lower-division core courses
4. A course in discrete mathematics and/or probability and statistics
5. Engineering 190
6. An upper-division engineering course providing a major design experience based on the knowledge and skills acquired in earlier coursework and incorporating engineering standards and realistic constraints
7. Courses that satisfy the Subject A, Humanities and Social Studies, American Cultures, and American History and Institutions requirements in effect at the time of admission

# Example of UC Berkeley EECS (Assessment in teaching)



The following aspects of teaching are evaluated:

- Design and redesign of courses
- Presentation of material
- Command of the subject
  
- Contributions to curriculum and instruction
- Directing student research
- Advising
- Supervising and guiding Graduate Student Instructors

# UC Berkeley Example (program assessment)



Multiple sources and methods are used at UC Berkeley for evaluating EECS faculty:

- **Current Students** - comment on an instructor's ability to communicate clearly, the extent and level of the instructor's course preparation, whether the instructor makes effective use of class time, how sensitive and responsive the instructor is to difficulties students may be having in the course, the workload, and so on.
- **Former Students** - comment on the long-term effectiveness of the candidate's teaching: for example, the role of the instructor's courses in preparing the student for advanced study or work in the discipline
- **Self-evaluation** - can be both descriptive and evaluative and may address such issues as teaching goals and philosophy, involvement in curriculum projects, efforts to improve teaching, and so on

# ABET Accreditation Process



**Prepare Self-  
Study Report  
& Display  
Materials**



**Team Review of Self-Study Report**

**On-Campus Visit**

**Draft Statement**

**Due Process**

**Full TAC Review**

**Final Statement**

- ABET can provide specific guidance and quality control for univ. education and research.
- A few points to share on doing world-first-class research in univ.

- What is “Research” for a world-class research university?
- What can a researcher do to increase the accepting chance of a submitted paper?



- What is “research” in your own words based on your own understanding, using your own words?
- What is the key difference between “research” and “study”?

- “Research” = “Re” + “Search”
- “Research” = “Search again”
- Why need to “search again”?

- “Research” = “Re” + “Search”
- “Research” = “Search again”
- Why need to “search again”?
  - ◆ Need to search again for “NEW” meanings for existing knowledge
  - ◆ Need to search again for “NEW” meanings for total new knowledge

- “Study” is mainly to learn something that you don’t know before, not necessarily “NEW” to the world but only NEW to yourself or your context (your dept., or your univ., or your country, or your region, etc.)

- Hence, the Number 1 rule for doing world-class research is to convince yourself that you are doing a real research, not a study;
- Being very clear yourself, as well as in your paper, about “what’s new here?”
- One myth regarding research: replicate research being published in top journals, such as Management Science, or MIS Quarter, etc. – I’m doing the first-class research in the world.

# A typical editing process in an international quality journal (3 steps) ...



1. Screen: quickly decide on whether the paper falls to the journal's research scope/theme, or quality (obvious flaws)
  - Not descriptive research paper: Dalian U. of Science & Tech.
  - JIT: 75% of published papers are empirical studies (similar to other major MIS journals in US)
2. Formal double-blind review: at least 3 knowledgeable reviewers being assigned to review the paper (3-10 months)
  - Research Methodology: 90% rejected papers
3. Decision: based on the 3 reviewers' review reports (accept, reject, or revise & resubmit ...)
4. In sum, two main key factors for quality research paper that need to pay more attentions to by China's MIS researchers: (1) What's new here; and (2) research methodology

- If China univ. now pay more attention to “systematicc education/research quality control methods” by using approved education quality assurance standards such as ABET, world-first-class disciplines can be gradually built up in the future...
- With more and more world-first-class disciplines being built up, a univ. will be commonly regarded and/or accepted as a world-first-class univ.
- This is one approved successful way on “how to become world-first-class discipline.”, which I would like to share with you today – thank you.



Question?

- The Association for Information Systems (AIS) founded in 1994, is a professional organization whose purpose is to serve as the premier global organization for academics specializing in Information Systems. The need for such an organization was first spelled out in an editorial authored by five past Editor's-in-Chief of the Management Information Systems Quarterly in March of 1993. Bill King, of the University of Pittsburgh, was first among many to play key leadership roles in bringing the association into existence. He served as the first president.
- AIS recognizes in its governance structure three international regions, representing the Americas (1), Europe and Africa (2), and Asia and the Pacific (3). Each region has two regional representatives on the council and a President of the Association is chosen from a particular region on a rotating basis.
- AIS has been strengthened by mergers in 1998 with ISWorld and in 2001 with The International Conference on Information Systems. We also provide financial support for the Pacific Area Conference on Information Systems (PACIS) and the European Conference on Information Systems. In April of 2002, a strategic alliance was announced that provides free online access to current and past issues of the MIS Quarterly. We also offer discounted rates on several information systems scholarly journals.

# About Ohio University ...

## •History

美国俄亥俄大学建校于200年之前的1804年, 是美国俄亥俄州最早, 也是美国整个西北地区最老的一所研究型公立大学.

## •Recognition

俄亥俄大学以其独特学校文化, 优美的校园建筑及景色, 以及良好的学术水平在美国众多的1000多所大学中名列前茅. 该大学每年均被全美知名的大学排名机构及专著所推崇, 如在专著“美国100所最佳大学”和“普林斯顿最佳大学评论”等上都年年榜上有名. 最近的美国大学排名报告(US News & World Report) 将俄亥俄大学排名为全美45名, 而美国知名的John Templeton基金会则将俄亥俄大学评为全美大学中最具其独特特色的大学之一

(Source: <http://www.ohiou.edu/chooseohio/facts.html>)

