

*Curriculum & Course Design*

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**Course materials (video lectures, etc):  
[www.testingeducation.org/BBST](http://www.testingeducation.org/BBST)**



# Curricular Planning for Computing

- *NSF reorg / strategic plan*
  - *Biology in Engineering*
  - *New Frontiers in Nanotechnology*
  - *Critical Infrastructure Systems*
  - *Complexity in Engineered and Natural Systems*
  - *Manufacturing Frontiers*
- *I doubt that any of these will significantly enhance undergraduate student enrollment*
- *Many of the students (good students) who apply for an MS program in computing would be uninterested in some of these areas and unqualified for the others.*
- *To the extent we want to design curricula for a student market, who is that market and what do they want?*

## Curricular plans: Business computing

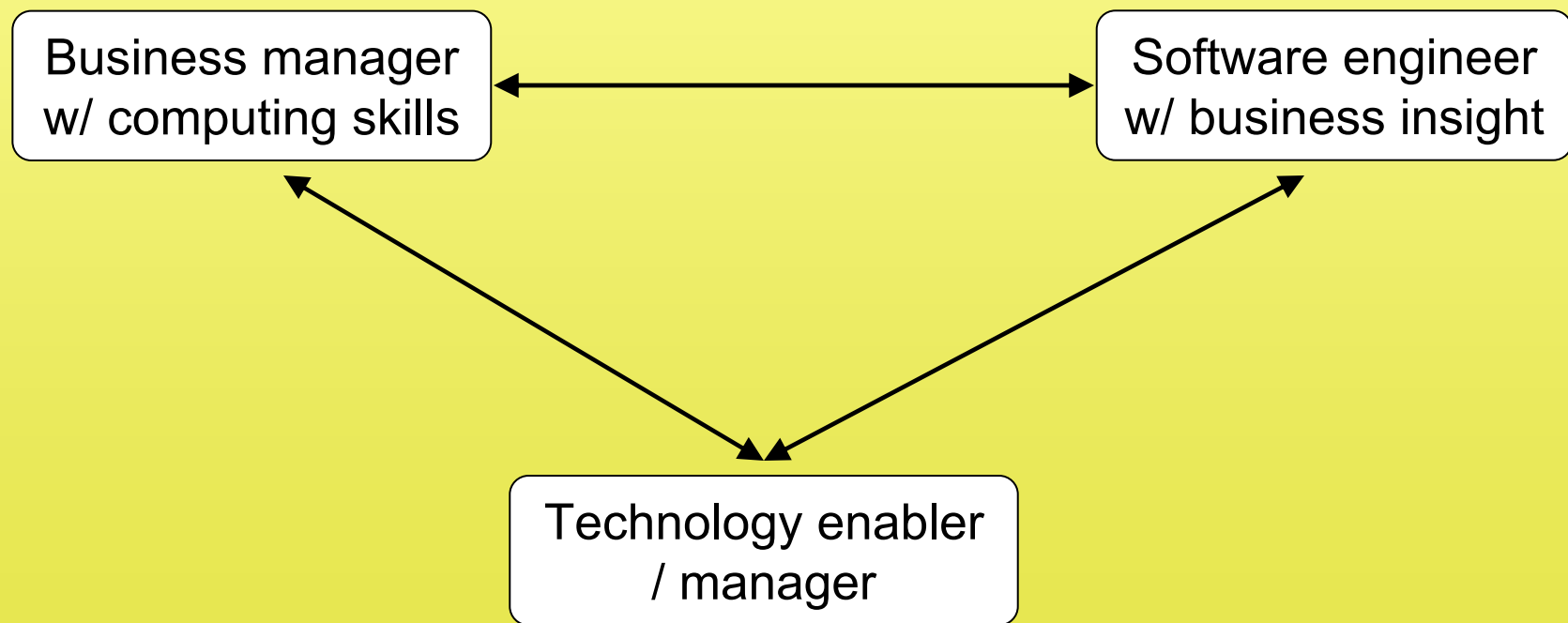
- *As I read the labor statistics, the big potentials for employment growth seem to be in . . .*
  - *Business computing*
  - *Embedded systems*
- *These might play only a modest role in the advanced research priorities, but to the extent that we're trying to serve the career paths of our students, they should play a large role in our curricula.*
- *How could we improve the support for business computing, draw in more students, and place them well after graduation?*

# Curricular plans: Business computing

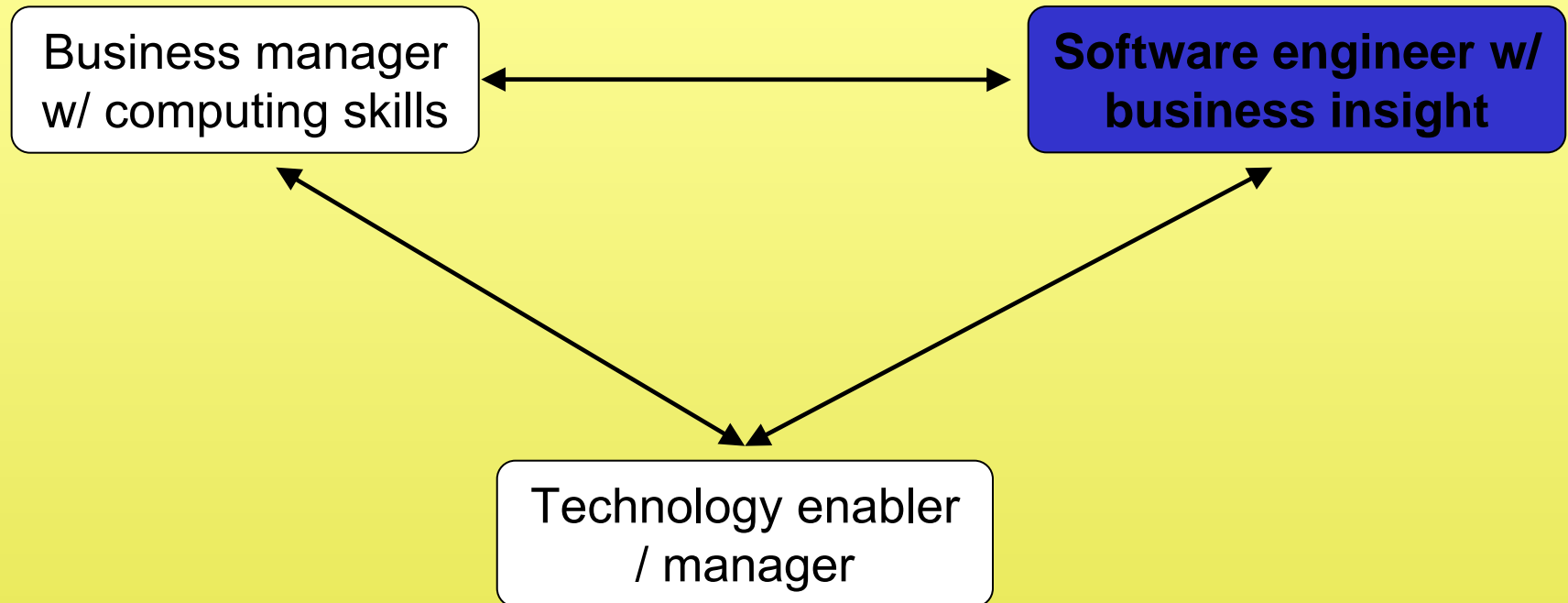
- *Common trends:*
  - *Many CS departments serve business computing market poorly*
    - *Severely declining enrollments*
  - *Many Business departments create competing programs that offer better business skills but weak CS training*
    - *Some programs significantly increasing, others facing declining enrollments*
    - *The weaker programs generate buzzworders who know a little about everything but not enough to do or manage anything.*

# Curricular plans: Business computing

- *Rather than think of business computing as homogeneous area, think of three collaborators:*



# Curricular plans: Business computing



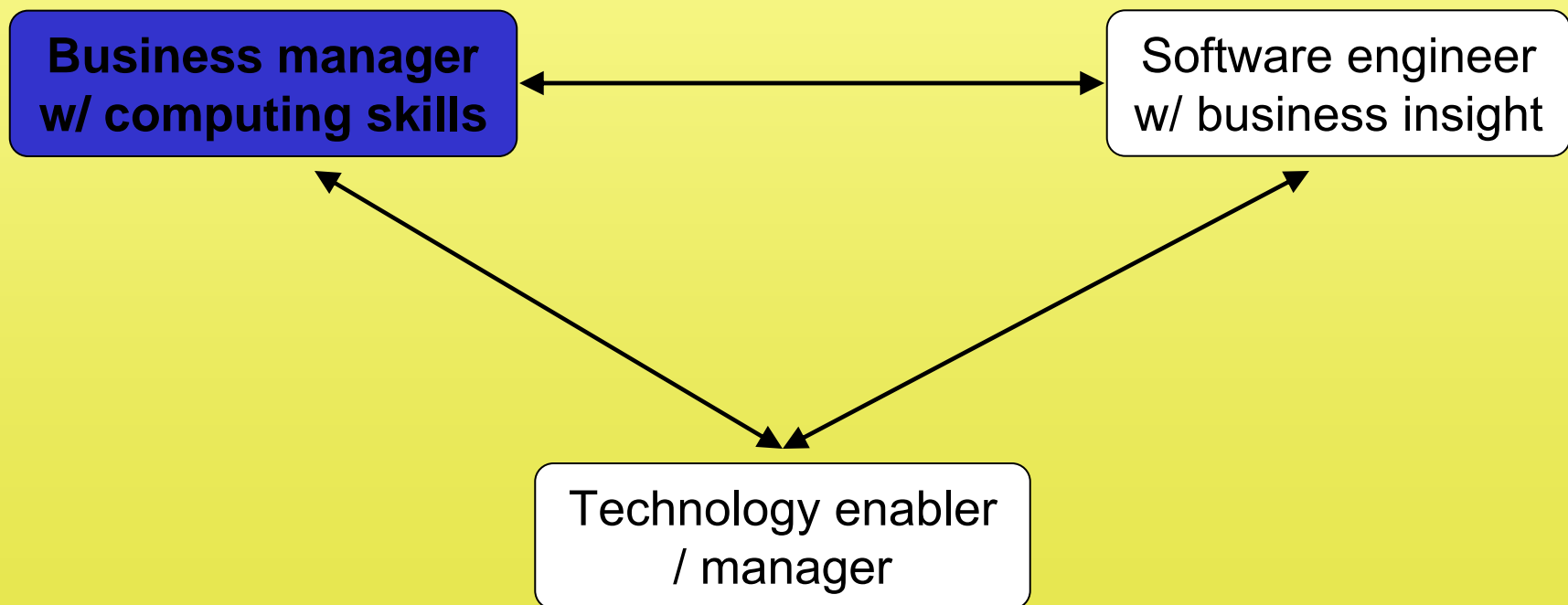
# Curricular plans: Business computing

Software engineer w/  
business insight

- *Software engineering is about building significant products that work*
  - *Commercial products*
  - *Life-critical products*
  - *Device-control products*
  - *Military products*
- *The commercial software engineer:*
  - *Has strong development skills*
  - *Works well with business stakeholders*

# Curricular plans: Business computing

- *Rather than think of business computing as homogeneous area:*





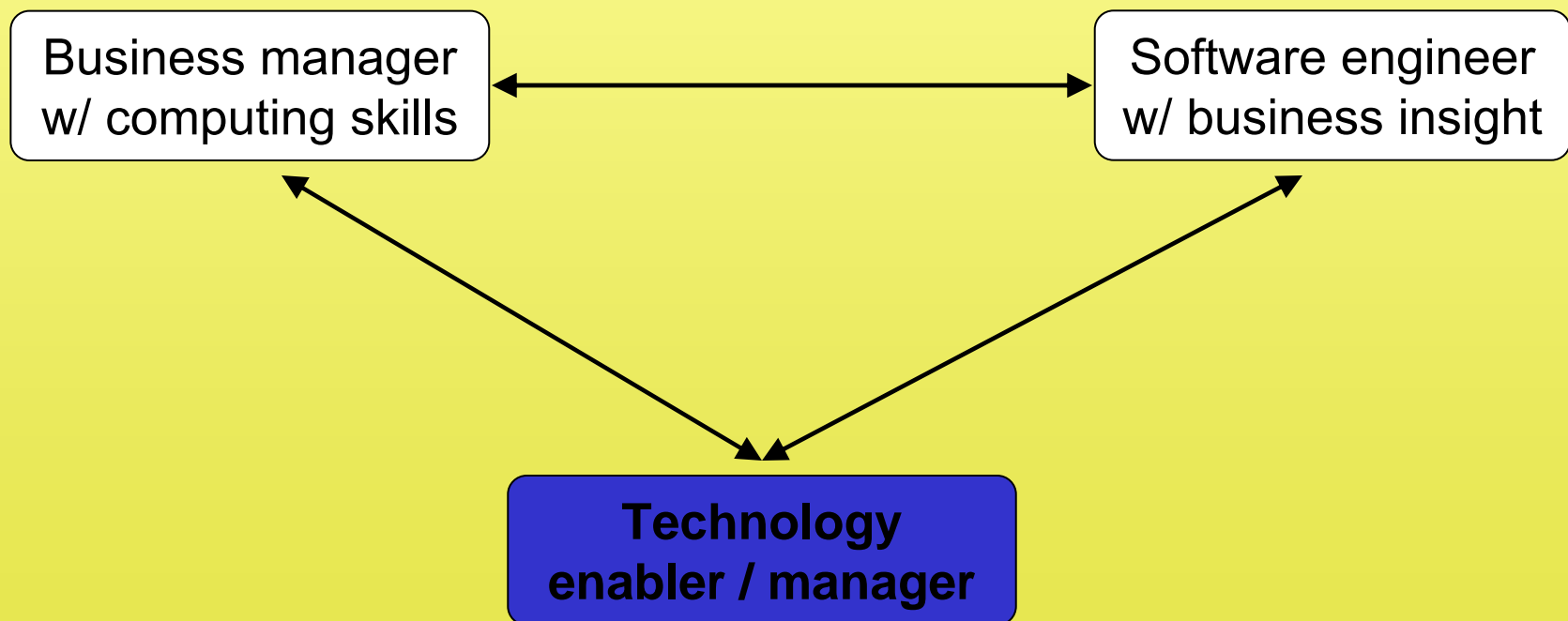
# Curricular plans: Business computing

**Business manager  
w/ computing skills**

- *Many business stakeholder groups have specific computing support needs*
- *The business computing graduate whose emphasis is on the business side understands the needs, how to communicate them to the software engineer, and how to tell whether they are being met*

# Curricular plans: Business computing

- *Rather than think of business computing as homogeneous area:*



# Curricular plans: Business computing

**Technology  
enabler / manager**

- *Provides the computing infrastructure and support services*
  - *Platform, instruction, operational support, user support*
    - *For business applications*
    - *For development of the business applications*
- *The business computing graduate with this emphasis understands how to relate network (etc.) operations to business and software engineering needs and is sympathetic to them.*

# Curricular plans: Business computing

*Imagine a program with a small set of core courses that all three groups take:*

- *Programming intro*
- *Business intro*
- *Business application programming (e.g. SAP)*
- *Computer / network / systems architecture*
- *Databases*
- *Metrics (especially status assessment)*
- *Project accounting*
- *Requirements analysis*
- *Statistics*

*Each group translates into a stream, with a few additional required courses specific to that stream. (For example, programmers take more programming and design.)*

*Several options could be offered that attract members of at least two streams, with the goal of fostering ongoing communication across streams and a feeling of an integrated program.*

## Curricular plans: Business computing

- *How well would this*
  - *Sell to employers?*
  - *Attract students?*
  - *Prepare students for real positions?*
  - *Prepare students with a background for ongoing education and career development?*
  - *Give students an adequate foundation for graduate school?*
  - *Meet accreditors' standards in the fields relevant to the streams?*