Universities and Industry

Branislav Rovan

Slovak Society for Computer Science

&

Department of Computer Science
Faculty of Mathematics, Physics and Informatics
Comenius University
Bratislava, Slovakia

rovan@dcs.fmph.uniba.sk

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UNIVERSITIES

- **Strive to bring understanding**
- **Provide learning environment**

- **Requirement on the Environment**

  Open and Free Exchange of Ideas

INDUSTRY

- **Increase profit**
- **Beat the competition**
- **Be first on the market**

- **Requirement on the Environment**

  New ideas to be kept **Secret and Protected**

Two Worlds

UNIVERSITIES

To bring understanding takes time

INDUSTRY

Bringing new product to market must be fast

RESEARCH

INDUSTRY – fewer research departments

UNIVERSITIES – changing the character of research

Before: **Frontier research + Consolidation**

Now: **No time to consolidate, research – apply fast**

Was there any "Before" for Informatics ?

Benefits and Losses

- Short time benefit for industry

- Long time losses
  for the whole informatics community, including industry, and society

$\Rightarrow$ Need to replenish the knowledge pool of informatics

Two Worlds – Research

Rejecting theory as useless in order to work only on everyday things is like proposing to cut the roots of a tree because they do not carry fruit.
(*Marquis de Condorcet, 1775*)

Maybe rediscovered in 7th FP

Two Major Roles of Informatics

- **Providing Service**

  Overemphasized, Most appreciated,
  Quick-fix solutions acceptable

- **Providing Understanding**

  Not considered important or useful
  Lagging behind the needs

  Consequence for Education –
  Quick Application Training Preferred to Long Term Education

EDUCATION

UNIVERSITIES (Past)

- **Provide understanding**
- **Have students master fundamentals**
- **Have students adapt *after* graduation**

INDUSTRY (preferred graduate)

- **Productive from Day One**
- **Detailed knowledge of current technology**
- **Flexible**

Influencing Education

- **"Disposable economy" influence**
  Hire fresh graduates or students having fresh knowledge
  (saving on retraining, salaries, . . .)
- **"Cheap goods" influence**
  Producing 'Fast and Cheap' is a survival scenario in industry. At universities 'Fast' is difficult 'Cheap' is doable.
  ('unnecessary' subjects, replacing education by training, 'IT chance for everyone')
- **The More the Better**
  Governmental policies stimulate increase in the number of universities and students
  (both doubled in 20 years in Slovakia, quality?)

SOME QUESTIONS

Do the universities serve the student or the industry?

Who cares about quality? What is it?

What 'wisdom' expects the general public of a graduate?

Bridging the Gap – Comenius University Example

Curriculum in 1973 – Through Abstraction to Flexibility

- Mathematics
- Theoretical Computer Science
- Practical computer Science

Bridge to industry

- Starting from the university side problematic
- Good graduates provoked industry initiative in the eighties
- Research still a problem

Building a Two-Way Bridge

INDUSTRY interests

- Get access to graduating students
- Get access to cheap (and well trained) labour
- Push product or technology via students
- PR use of the cooperation with the university

UNIVERSITY interests

- Provide practical experience to students
- Use industry experts for practical lab sessions or lectures
- Use industry experts to co-supervise theses.

Research Bridge Still Weak

INDUSTRY interests

- Research (if needed) performed in home countries
- Development work needed instead of research
- Individual contracts more frequent than contracts with the University

UNIVERSITY interests

- Sometimes access to better equipment
- Practical problems inspiration for research work

Technology Park Experience

- Companies 'uneasy' in more open environment
- Unification in technologies helps
- Easier for Engineering schools

Are they substituting for research departments in industry?

Universities (SK) Lack Experience

- IPR handling
- Dealing with Industry
- Shifting (profitably) 'repeatable' work to spin-offs

Moving Towards the Knowledge Society

- People will be 'wiser' and live more sensibly
- Improved functioning of (current) industry
- Knowledge becoming a commodity – *new* industry

Two possible scenarios

Industry vs. University Scenario

- "Pieces of knowledge" to be sold

  (secretive environment, perhaps 'knowledge patents', . . .)

- "Pieces of knowledge" free, ability to find the proper ones to be sold

  (open environment, stimulates need for new understanding of the information and knowledge space)

Which Scenario ?

- Industry will become more like a university
- Presently universities are becoming more like an industry

Consequences in Education

- **Succumbing to short term 'current technology' requirement**
- **Not teaching important things**
  (not understanding them well enough)
- **Not emphasizing power of ICT and responsibility**
- **Failing e-learning**
  Still underperforming after more than 30 years

Consequences in Science

- **Lagging behind practice**
- **No time to consolidate knowledge**
- **Failing to enhance the core**
  The source of new ideas and stimuli may dry out.

More Questions

- Can we do better when the whole society evaluates everything in terms of money only?
- Does 'well functioning' individual (institution) mean it is 'improving' himself (itself)?
- Do we need so many universities and university graduates?

What can we do?

Universities and Industry may live on different planets

but they ride the same boat

Need for more communication and understanding

Accept common responsibility

Conclusion and Open Problems

WE CANNOT AFFORD

TO DO NOTHING

THANK YOU !