Applying Academic Knowledge in the Software Industry

Caveats and Comparisons of Brazil, USA and India

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Summary

- The software industry around the world
  - Software industry and the BRICs
- Good experiences and reality-check
  - Academic knowledge value to business
  - Research inside software companies
- Current scenario and expectations
  - United States, India and Brazil
- Questions and answers

Acknowledgments + Disclaimer

- Office Business Applications Team
- Microsoft Brasil
- Disclaimer
  - Opinions and statements in this presentation do not necessarily represent the position of Microsoft Corporation

Assumptions and Expectations

- Audience: mainly academic background
- Presentation will not play with Statistics
  - Numbers are important, but may not represent something that would change you daily life
- Several factors are out of scope, but influence the software industry
  - Laws, diversity acceptance (religion, race, etc.), government practices, etc.
- Time available in the end to hear from you
  - Part of a good conversation is hearing…

Software Industry: USA

- S.I. very related to the overall economy
  - Gov processes automation: little success
    - Tax filling, HIPPA, Sarbanes-Oxley, …
    - Market implications.
      - Ex: “Tax Software” companies
- Market: not a boom, but not a burst
  - Currently, there are more open CS positions than candidates in major markets
  - Graduate school: few people applying for Computer Science degrees

Software Industry: India

- Focus mainly on services
  - Goes beyond software industry
    - Example: call centers, insurance, etc.
- Huge grown in the last decade
  - Large number of engineers
  - Government support
  - Connections in USA, Europe, etc.
  - Halfway across the world from USA
    - Disadvantages: communication
    - Advantage: 24 hours production

Outsourcing, Offshoring, …

- India is an example, but there are others
  - Outsourcing: contract with another company
  - Offshoring: having a subsidiary abroad
- Attention to software industry is not proportional to impact (wages, jobs, etc.)
  - Affected industry is more vocal
- India getting rewarded now: prepared to deal with the opportunity
  - Bangalore, Hyderabad, … Silicon Valley effect

Software Industry: Brazil

- Volume not proportional to economy
- There are a lot of “IT professionals”
  - Frequent complaint from software companies
    - Easy to find some to do “network setup”
    - Hard to find “programmers”
      - Experience in large projects
- Tradition in quality certification processes
  - Example: ISO 9000, CMMI
    - Good: well-defined processes
    - Not good: no decision power to employees

First Slide With “Statistics”

- BRICs: Brazil, Russia, India and China
  - “In less than 40 years, the BRICs economies combined could be larger than the G6 (US, Japan, UK, Germany, France and Italy).”
    - Goldman Sachs Economic Research Group
- Will software market grow proportionally?
  - Would the need of software professionals in BRICs be larger than in G6?

From University to Business

- USA
  - Internship, college recruiting, partnerships, joint-projects, etc.
  - Life-time relationship with “Alma Matter”
    - Major source of donations
  - Patents, stock grants and options are major source of resources
- India
  - Quickly moving to USA model
  - Excellent reputation of major institutions
    - IIT – Indian Institute of Technology

Research Inside Companies

- Almost all over the world: tax breaks
- Intellectual property
- Short and long term results
  - DotCom results: infrastructure
  - Mouse, Object-Oriented Languages, etc.
- Several protection mechanisms
  - Trade secrets, copyright, trademark, patents
  - Major debate regarding some recent patents
  - Software is hard to protect by “trade secrets”
    - Example: 1-click ordering

Looking to Brazil

- Internship
  - Typically not viewed as potential employee
- Junior companies
  - Not the real life experience: risk
- Venture Capital
  - Not existent
- Research inside software companies
  - Still making initial steps
- University-business partnership
  - Most promising option in the short term

Call to Action

- Partnership with Universities
- Real Opportunities for Technology Transfer
- High Technology fostering the expansion of the knowledge frontier
- Intellectual Property Value

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Local Industry Success

- Not developed or undiscovered markets
  - Recent examples: Internet as media (search, information publishing), music, VOIP, …
  - Undelivered promises: speech recognition, natural language processing, …
- Look also to internal market
  - Not only exporting goods and services

Second Slide With “Statistics”

	Internet Users (million)	Hosts (million)	CD sales (millions)	E-Learning (index: 10)
USA	159	157	746	8.37
Brazil	14.3	3.1	58	5.63
India	18.5	0.09	15	4.56

Source: E-Commerce and Development Report 2004 - United Nations
http://www.unctad.org/en/docs/ecdr2004_en.pdf

Conclusions

- Software industry will grow around the world in the next decades
  - Professionals are needed, mainly for BRICs
- Academic knowledge is important
  - Business success needs innovation
  - External factors had great influence: teamwork, management skills
  - Product of the University is the most important resource for the software industry: people
- Questions and answers


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