

Industry-University Interactions

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◆ Speed

◆ Relevance

- Communication
- Industry Needs matched to University Research

◆ Cost

◆ Logistics

Speed

- ◆ Perception that university programs take too long to result in deliverables
 - Usually due to misunderstanding of deliverables up-front
 - Lack of a defined process to identify stages
 - Over expectations by industry
 - Over promising by University

Recommendation:

- Clearly spell-out deliverables
 - » PRC has a good example of agreed-upon deliverables and time-frame
 - » Enforce a phase-based process with gate reviews
 - » Allow for cancellation/modification/redirection of project at gate reviews

Relevance

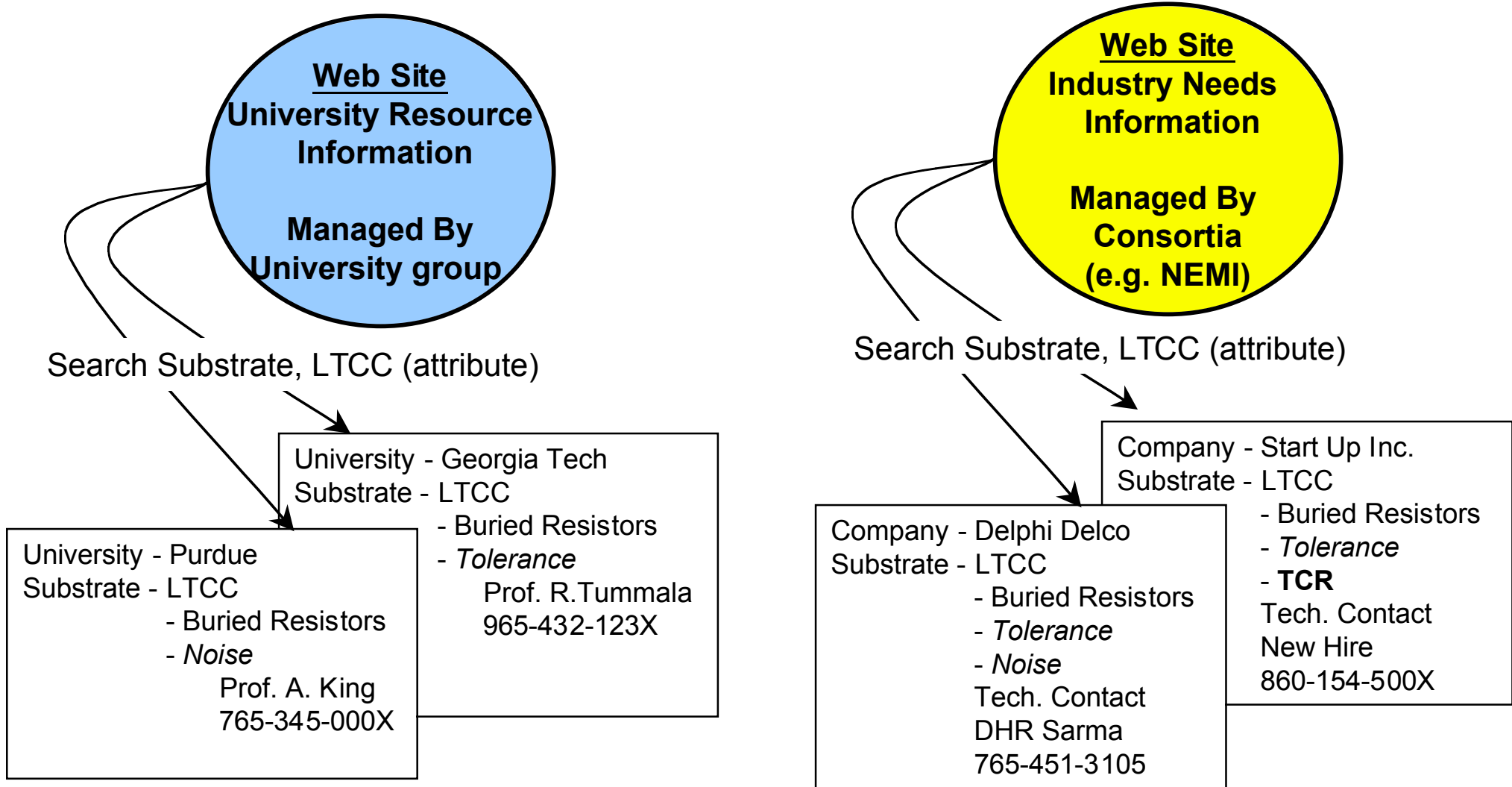
- ◆ How useful are the university projects to a given company?
 - Requires communication and some education on both parties
 - Sometimes there is no perceptible benefit (I.e. no match)
 - **Consortia Projects vs. Customized Projects**
 - Pre-competitive projects vs. differentiators
- ◆ How do we match University Research to Industry Needs?
 - Difficult to fine-tune projects for every company
 - Industry Needs understanding by universities
 - University skill-set and facilities constraints understanding by Industry

Recommendations:

- Information database on Industry Needs /University Programs...with finer detail (See next chart)
- Periodic assessment of industry needs through roadmaps
- University sabbaticals in industry and vice versa
- Focused short courses by industry technical experts to faculty and students

Information Database

Industry Needs <--> University Programs



Cost

- ◆ The Dichotomy
 - Industries want to leverage universities to cope with cost-pressures; at the same time cost-pressures tend to restrict funding of out-side agencies
- ◆ Industry assumes a price penalty since success probability factor is less for leveraged projects
 - » tend to have more stretch than internal
 - » no meaningful cost models to compare internal development vs. for leveraged development
- ◆ Industry sometimes unprepared for hidden cost factors
 - internal manpower
 - travel
 - lack of engagement by one or both parties
- ◆ Recommendations:
 - Cost Models for Leveraged Development
 - Methodology for university.industry engagement on a specific project

Logistics

- ◆ Selection of University
 - Geographic proximity
 - Proven track record
 - Faculty level of comfort with industry interaction
 - Cost of project
- ◆ Project Selection
 - Weighing success probability vs. stretch
 - Matching faculty skill-set to industry need
 - Gaining support from management
- ◆ Technology Transfer
 - industry/university savvy in accomplishing this spells reputations and future success in adding to projects
- ◆ Intellectual Property
 - Balance between leveraging and making it a unique advantage

Some Additional Thoughts

- ◆ Balancing Industry projects with academic requirements for the student
 - if universities compromise, it will be detrimental to the nation in the long run
- ◆ Industries should lobby government to fund basic research useful to the future
 - most research proposals tend to have to convince govt. of industry relevance, mostly short-term; this limits advancement of fundamental knowledge (pet-peeve)
- ◆ Industries should not use universities as extension of their own work force doing more of just what industries
 - rather, they should fund work that can not meaningfully be done in the industry
- ◆ Industry feels that univ. / industry co-op programs produce better students
- ◆ The best out put of universities has been students
 - Students from universities with industry ties better prepared for industry jobs