Basic Research in Corporate Labs

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Basic Research in Corporate labs?

- This talk focuses on corporate research Labs
  - Labs where one corporation pays the bills and expects the results
  - (In contrast to contract research labs with many funders)
- Can corporate labs do basic research?
  - Yes, but it requires the right circumstances
    - The right people and facilities
    - The right corporate attitudes
    - The right funding models
    - The right research management models
- Should corporate labs do basic research?
  - Yes! It is in the long term interest of the corporate parent
People and Facilities

– To do world class basic research you need
  • World class people
    – (Neither harder nor easier to get in corporate labs)
  • World class facilities
    – (Gratifyingly inexpensive in computer science)

– Corporate labs have some key advantages
  • Highly skilled intermediate technical staff
  • Highly collaborative atmosphere
  • The ability to push projects forward rapidly with large teams
Corporate Relationship

• To do world class basic research you need
  – A parent that wishes the lab to create significant new ideas
    • A corporation needs short term benefit
      – But this is better if it is based on truly new ideas, not merely incremental developments

• MERL’s rule of thirds (each third is essential)
  – 1/3 effort on short term
  – 1/3 effort on mid-term projects,
  – 1/3 effort on the long term
Funding Models

To do world class basic research you need
- Significant “umbrella funding”
  - Micro-managed funding stifles creative new ideas
  - The best new ideas must be hidden while they germinate
    - Later they need to be exposed strongly to the light of day

MERL’s Funding
- 1/3 for specific deliverables from business units
- 1/6 for agreed mid-range projects from CR&D
- 1/2 unrestricted umbrella funding from CR&D
Research Management

• To do world class basic research you need
  – For innovative ideas, let many flowers bloom
  – For quality, expose ideas to open external criticism
  – For company relevance, make everybody responsible
  – To make space for good projects, sick projects must die

• MERL’s project assessment
  – “Activities” not assessed
  – “Projects” assessed by
    • Scientific, Market & Parent company merit
Conclusion

- At corporate labs a minority of activity is basic research
  - The majority is more closely related to products
- At universities a minority of activity is basic research
  - The majority is more closely related to education
- However at both kinds of institution, significant numbers of people can direct a majority of their time to basic research
- It is important for a corporation to have its own basic research, so the research can be more closely in tune with the long term needs of the corporation