MINTEK

Scientists, Engineers, Techno-entrepreneurs? Some perspectives on business – academic partnerships

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Overview

1. Features of business – academic partnerships
2. Research business venture example
3. Coaching entrepreneurs example
4. Business - academic example
5. Possible implications of AU ambitions for increased innovation efforts in Africa
6. Summing up

View of an interested observer

- Perspective based on working with South African mining engineering industry
- Not representative of full spectrum of South African academic – business partnerships
- Doubly caveated with respect to other African countries

Rationale for academic/business partnerships

- Apply research skills to problems beyond scope of firms own R&D efforts
- Harness very scarce academic skills
- Narrow gap between exit skills of graduates and market demanded skills
- Generate network economies from wider interaction with firms and other institutions
- Fund academic work from revenues
- Stimulate spin-outs to commercialise research

Dissonance in partnerships

Business imperatives
- Applied, targeted, product focused
- Aiming for quick resultsin a competitive environment
- Appropriate proprietary results

Academic imperatives
- Teaching towards academic qualifications
- Publication and dissemination

Key issues

Ownership and treatment of intellectual property generated

Cost (esp. small firms) expectations of subsidised services

Diversion of faculty to pursue business for own account

Resolvable through effective contracting practices that manage specific role of each party

Research business venture

Mintek: SA Gov mineral processing research laboratory

Mid 1990s set up a holding company to house Joint Ventures and equity in spin-out businesses

- Thinking was to capture the upside of JVs and intellectual property developed through equity in business and use revenues so earned to fund further research and core academic functions
- Practice was a failure
  - Cash demands of start up businesses underestimated
  - Management resources diverted from core functions
  - Disputed mandate for Mintek as a research council
- End result: Mintek reverted to approach of licencing technology to focusing on research role in JVs

Coaching techno-entrepreneurs

Innovation Hub, comprehensive science park at University of Pretoria funded by Gauteng provincial government. Successful take up by high-tech businesses. Provides extensive business incubation services -model science park

- Ran ICT entrepreneur coaching programme to turn job seekers in job creators in sector with low barriers to entry within supportive environment
- Results obtained
  - 20 graduates pa. i.e. fraction of industry intake
  - Raised profile of start ups and job creator efforts
  - Costly and ultimately unsustainable programme

Coaching programme cannot churn out entrepreneurs

Academic centre for mining machinery

Univ. Pretoria setting up a center for mining machinery development in mechanical engineering department with government funding for training students in applied research and using academic rigor to improve competitiveness of commercial products and services.

- Industry partners characteristics variously:
  - Small and medium domestic firms with export orientation and proven competitiveness
  - Success in niche applied engieering fields
  - Collaboration with market leading multi-national Original Equipment Manufactures

Academic centre for mining machinery 2

- Phased objectives
  - I increase graduate numbers
  - II apply post-graduates to industry nominated projects
  - III apply faculty and post-graduates to commercial projects
- Modeled as center of excellence in engineering focused on a sector (minerals)
  - Primary output highly skilled engineering graduates with experience of applied design problem solving
  - Secondary output business exposure of graduates

African Union efforts to boost innovation

- Policy declarations on promoting science and technology and accelerating industrial development
  - Frustrations with mis-match in skills produced by universities and skills needed by economies
  - Instrumentalist approach seeking to bind academic science and engineering to industry needs, arguably poorly understanding academic – business interface
- Opportunity for RISE et. al in current policy milieu
  - Engage with and direct commitments to strengthen university chairs in innovation
  - Refine thinking on productive roles of parties in academic – business interface

Summing up

- Improving effectiveness Academic – business interface is critical
- Huge pressure on academic institutions to strengthen business linkages
- Directing effort to the “end result” in direct training of entrepreneurs or business start-ups of questionable value
- Complexity of research and academic process to train people suggests best practice is primacy of training scientists and engineers