

Corporate T&IP

## The Role of Intermediaries in Industry

Christos J. Georgiou

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## Outline

- 1. Overview of IBM Research and Technology
- 2. The three phases of innovation
- 3. The role of intermediaries in IBM Universities joint research activities
- 4. Examples
- 5. Summary





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## **IBM Research Organization**

- Worldwide labs organized under their own lab directors and management chain
  - They report to the Director of Research
- Lab research direction established by strategists
  - Strategy areas: Systems, Software, Services, Technology and Exploratory Science, etc.
  - Each lab has it own research focus areas
- GTO: Global Technology Outlook key to setting strategic direction
  - Examines trends that are likely to affect future technologies



### **IBM History of Innovations**

#### 60+ Years of World Class Research







RAMAC

1980:

RISC

Typical mathematical formula: D=B2-4AC constent FORTRAN summent: D=B\*\*2-4\*A\*C

1957: FORTRAN



1964: System/360







1994:

SiGe



1971: Relational Speech



1973: Winchester Disk



1979: Thin Film Recording Heads

SSEC



1986: Scanning Tunneling Microscope



**Nobel Prizes:** 1987: High Temperature Superconductivity



1990: Chemically Amplified **Photoresists** 





1993: RS/6000 SP 1996,97: Deep Blue





Silicon-on-Insulator Copper

Interconnect Wiring



1998: 1998: Microdrive



2002: Millipede



2004: Blue Gene/L The fastest supercomputer in the world



2006: **5-stage Carbon** Nanotube **Ring Oscillator** 



2008: World's First Petaflop Supercomputer

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# 19 Consecutive Years of Patent Leadership

### 2011 US Patent Leaders



Top 5 Patent Leaders

Other notables



### **Research as the Innovation Engine**





# **Evolution of IBM Research**





### **Typical Model: Enabling an Ecosystem for a Sustainable Business**





### The 3 Phases of Innovation

#### Idea generation / Project formulation

- Come up with ideas, evaluate them, decide what to pursue further

#### Implementation / Project execution

- Carry out research, do the work needed to implement the idea

#### Exploitation

- What do to with results
  - Publication of a paper is okay but not enough



### **Discipline to Select R&D Programs**

#### **Idea Flow**



### The Role of Intermediaries

During Idea generation / project formulation phase

- Business Development Executive
  - Brings parties from Research and Universities together, negotiates agreement
- Attorneys / contracts professionals
  - Write up the agreements
- Review board

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Examines agreement and gives final approval





### **The Role of Intermediaries**

During the project execution phase

- Project manager
  - Coordinates smooth execution of project between Research and University
- Steering committee
  - Ensures progress of project is maintained and direction is followed
  - Resolves disputes
- Relationship VP

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Client Care executive

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### The Role of Intermediaries

During the results exploitation phase

- Business Development Executives
  - Commercialization decisions
    - Startups, joint ventures, technology licensing
- IP Attorneys
  - IP management and licensing

Need for setting up Business Office at University during project execution

- Be ready when results are available



### **Typical Phases of Joint Research Project Collaborations**





### **Areas of Collaboration**

#### The World is Getting Smarter: Because We All Want it To





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Smart Traffic Systems

Intelligent Oil Field Technologies S

Smart Food Systems

Smart Healthcare

Smart Energy Grids

Smart Retail





### Example: IBM – Saudi Arabia Research Partnership





### **Summary**

- Research collaboration between IBM and Universities
  - Beneficial for both parties
- Intermediaries play a key role in all phases of collaboration
  - Project establishment
  - Project execution
  - Results exploitation
- Opportunities for collaboration in creating solutions for a Smarter Planet

IBM Corporate Technology & Intellectual Property





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