Technology Transfer and the Commercialization of Emerging Security Software

Dereck Tatman, Jorge Salazar, Ron Steuterman, and Marie Thursby
Krannert Graduate School of Management, Purdue University
Innovation Realization Lab

Goals

✓ Graduate Ph.D.’s in science and engineering who are technically proficient and understand economic and management principles critical to R&D

✓ Produce science and engineering thesis research of scientific merit and market relevance

✓ Train management graduate students in R&D project management
Traditional Study Cycle

Engineering / Science

Classes ➔ Lab ➔ Thesis Research ➔ Ph.D. / Publications

Management

Classes ➔ Cases ➔ Internship ➔ M.S. in Management
Innovation Realization Lab

Integrated Team Research: Engineering / Science, Economics, Management Science

Ph.D. / Publications

Market Awareness

Intellectual Property

Startups

Licensed Technology

Lab Experience

M.S. in Management

Classes

Lab

Thesis Research

Workshops & Internships

Cases

Internship

Classes

Management

Technical Transfer Initiative
# Traditional Research

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<th>Traditional Research</th>
<th>Science Issues</th>
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<td>✓ Hypothesis formation</td>
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Technical Transfer Initiative
INTEGRATED RESEARCH
✓ Hypothesis formation
✓ Proof of concept
✓ Prototype

Market forecast
Competitive analysis
Commercialization strategy

SCIENCE/BUSINESS ISSUES
✓ Scientific merit; technical feasibility
✓ Testing and validation
✓ Refinement and scale-up

Economic and social impact
Risk, product and platform definition
Patent or copyright
Business creation or license
Full market analysis (e.g. pricing, cost)

Technical Transfer Initiative
Benefits

✔ Ph.D.s and MBAs with experience & skills to create economic value from technology
✔ Thesis research of scientific merit & market relevance
✔ Recruit and graduate the best & enable them to start companies
✔ Potential for high tech start-ups
Market ≈ battlefield

✔ Characteristics:
  ✔ Imperfect information
  ✔ Chaotic
  ✔ Fluid

✔ Leads us to ask:
  ✔ What portion of the Battlefield can you securely hold?
  ✔ Where is the balance between knowing and acting?
The Six Big Marketing Questions

1. What is the Product?
2. How will the product be used, i.e. for what applications?
3. Why will the product be used, in terms of features, functions, and benefits?
4. Who will buy the product?
5. Where will the product be sold and through what distribution channels?
6. When will orders be received and filled, i.e. how long will that process take?
The Six Big Marketing Questions

Product Focused (PUSH)

Market Focused (PULL)
Strategic Management

✔ Know the Customer

✔ SWOT Analysis
   (Strengths, Weaknesses, Opportunities, Threats)

✔ Gap Analysis
   Where are we? Where do we want to go? How do we get there?

✔ Action plan
Strategic Management

Porter's Five Forces

- The Industry:
  - Firms jockeying for position

- Threat of New Entrants
- Bargaining Power of Suppliers
- Bargaining Power of Customers
- Threat of Substitute Products

Technical Transfer Initiative
Strategic Management
Resource-based Strategy

Can a resource be the strategic basis for the firm?

- Inimitability
- Durability
- Appropriability
- Substitutability
- Competitive Superiority

Scarcity
Demand
Appropriability

Value Creation Zone
Software Tamperproofing

Software Publishers Market

✓ Prevents unauthorized change to software
✓ Allows the resilient watermarking of software
✓ Prevents reverse engineering of the software
✓ Prevents the extraction of any module from a software product
✓ Protects limited versions of a software product from modification

Information Providers Market

✓ Bind the data to the program that mediates access to it

Technical Transfer Initiative

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