National Workshop on Increasing the Capacity and Pace for Technology Scouting, Absorption, Adaptation through a "Hub and Spoke" Structure (IP Hub)

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The Hub Context: The Innovation Value Chain and Global Technology Marketplace

Dr. Richard S. Cahoon

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The Hub Context : The Innovation Value Chain and Global Marketplace

- The innovation value chain defined
- The global marketplace for proprietary (IP) technology
- Expected take-home messages for seminar participants

The Innovation Value Chain: turning innovation into economic development

Research and creative enterprise →
breakthroughs → invention →
economically valuable invention →
valuable invention + IP →
valuable invention + IP + "validation" →
validated invention + partnerships →
validated IP + partnerships + investment →
New products & services, new companies

The Innovation Value Chain:

R&D enterprise and technical innovation: the foundation

- The non-commercial research enterprise

  universities, government agencies, NGOs
- The commercial R&D Enterprise

  small, med, large, & multinational companies
- Individual inventors

Many smart, educated, and creative people …..

….. with resources

…..working to solve theoretical and practical problems …..

Creates the foundation for breakthrough solutions

The Innovation Value Chain:

Breakthrough solutions → inventions

- Many breakthrough solutions solve important and/or economically valuable problems……

  …… but most do not
- Most such solutions are not commercially viable due to technical, economic, or business factors
- Example: At Cornell, 50% of all inventions, have no economic future

The Innovation Value Chain:

converting Inventions into valuable IP (patents)

- Of the 50% of inventions that meet criteria of commercial viability, only a subset are protectable with patents or other meaningful intellectual property (IP)
- IP is important for control:

  Incentivize investment, protect interests, have something to "sell"
- Of all inventions produced, maybe 25% meet criteria of commercial viability AND IP protectibility

The Innovation Value Chain:

Inventions →valuable inventions with IP

Invention triage for

economic importance,

commercial viability,

scalability,

meaningful IP

What is Invention "Triage"? Why is it important?

- *Triage* = the process of evaluating, categorizing, and selecting newly disclosed inventions in order to:
    1) invest time and money….or
    2) abandon……or
    3) hold (defer decision)
- Most inventions will never generate commercial revenue
- IP commercialization is expensive/time-consuming
- Effective triage is essential for success of any tech transfer/ invention commercialization effort

Characterizing technical viability/market relevance

- Precisely what is the invention?
- Does it solve an economically important problem?
- What are its market applications?
- What are the market characteristics?
  - Size
  - # of companies
  - Typical profit margins
  - What is the innovation landscape? Are there any dominant companies?
- Are there significant regulatory hurdles?
- How does it compare with current alternatives

  Different is usually not sufficient… you need superiority
- Quantify performance superiority, if possible

The Innovation Value Chain:

valuable inventions with IP face development hurdles

- Each patentable invention faces the same equation:

  stage of development vs. cost

  to take to next stage,

  potential pay-off value

  (i.e. Risk vs. “ROI”)

Stage of Development vs. Risk and ROI

Initial invention = highest risk

Proof of principle = high risk

Patent application = high risk

Prototype, = medium risk

alpha-test (lowers risk)

beta-test (further lowers risk)

Patent issued = medium risk (maybe)

1st product sale = low-medium risk

Sales = low risk

Repeat sales = even lower risk

Etc……

Stage of Development vs. Risk and ROI

Each stage of development reduces risk and increases value. These add value:

- Patent application
- Issued patent (high quality patent)
- Other IP
- Well-managed tangible property
- Working models and prototypes
- Customer testimonials
- Partnerships

The Innovation Value Chain:

Commercializing valuable inventions with IP

- Companies
  - in-house R&D and commercialization
  - joint venture
  - sale of IP and other technology assets
  - licensing
- Universities, Govts, NGOs
  - licensing to: existing firms,
    - start-up ventures
- Individual Inventors
  - licensing, sale, start-up

The Innovation Value Chain:

Research enterprise → breakthroughs

Breakthroughs → valuable & IP-protectable technology

Valuable & IP protectable technology →

A Commercialization platform

(license, sale, venture creation)

The Global Innovation Marketplace

Have a Global Vision!

IP (particularly patents) can be a powerful global asset

Technology creators in a country can realize commercialization value through their IP (sale or licensing) in other countries

Consider global applications for each invention

The Global Innovation Marketplace

A case study

Patentable shrimp disease diagnostic invented at a Philippine university

Solves serious economic problem in shrimp farming operations

Philippines ranked 7th in farmed-shrimp production

So, the patentable diagnostic has potential value in at least 6 other countries, besides Philippines

but……

Patent applied for only in Philippines

= lost opportunity ☹

The Take-Home Message

Creating economic value from invention requires certain key elements:

- Inventors
- Technology development partners
- Commercialization partners
- Professional service providers
- Effective IP and IP infrastructure
- Innovators and Entrepreneurs
- Investors
- Markets and customers

The Take-Home Message

Creating economic value from invention requires:

- Linkages between the essential elements
- Effective and proactive communication
- Facilitation of transactions

The Take-Home Message

The IP Hub provides a platform that:

- connects the essential elements,
- provides an IP infrastructure,
- enables linkages between partners,
- and facilitates transactions

Result: conversion of innovation into real economic development