

STEP Technology Entrepreneurship Workshop

Technology Assessment Kyiv, Ukraine October 13-14, 2011

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- What is Technology Assessment (TA)?
- Aim of TA and the stepwise approach
- Technology Commercialization Evaluation
- Practical Steps

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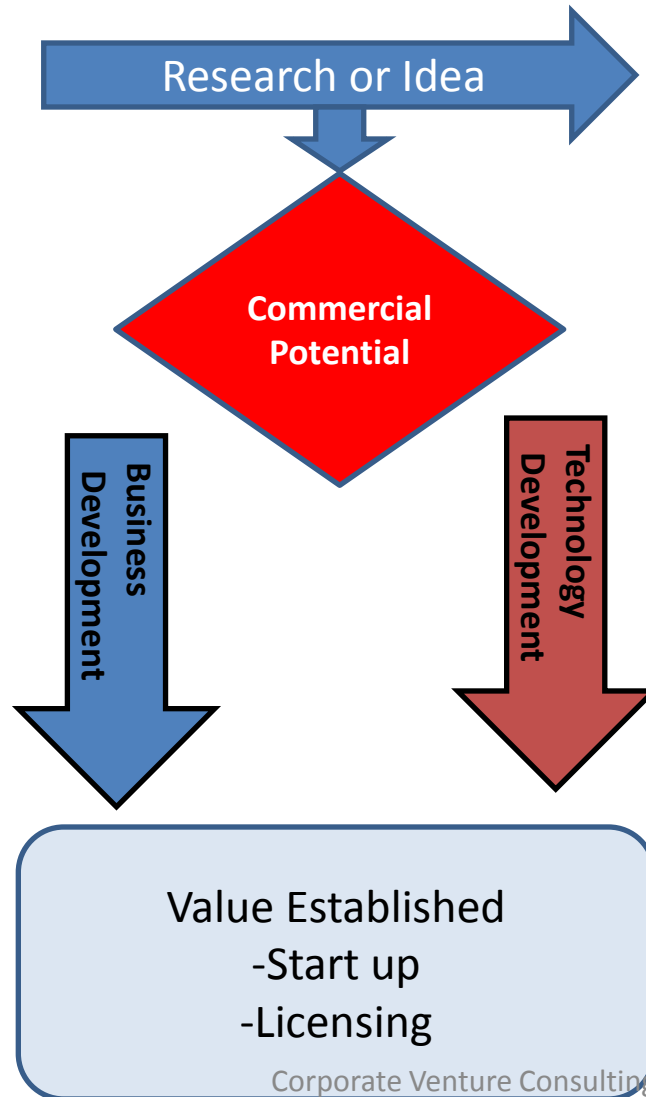
What is Technology Assessment?

Technology Assessment means a methodical, systematic, organized process in

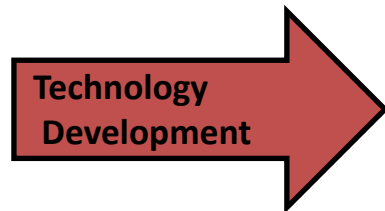
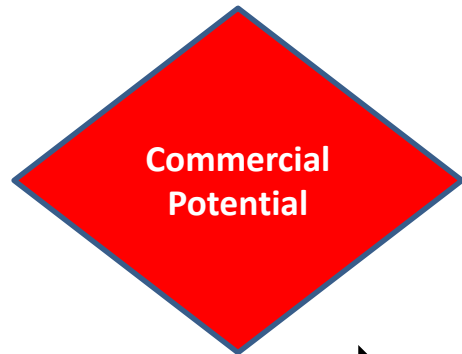
- analyzing the state of the art and possibilities of development
- assessing the direct and indirect technical, economic, health, human, social, and other impacts of this technology and possible systems (i.e. a technology and its alternatives).
- Working out actions which should be taken

This definition allows a broad view on the overall impact of a technology.

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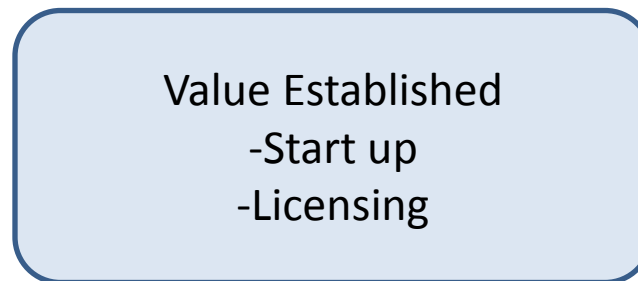
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- Assessment
- Commercialization Hurdles
- Market Addressability

- IP Protection
- Business Plan
- Funding
- Customer Contact/Marketing

- Proof of Concept
- Product



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Factors Influencing Technology Valuation

- What type of technology is it? Material, device, software, process, therapeutic, Bio-Fuels,.....
- Is the technology an incremental or disruptive improvement?
- How mature is the technology? Lab-bench proof only, prototype, ready for market?
- Are there alternatives?
- How does your technology compare to the technical alternatives in terms of IP, ease-of-implementation, cost, etc.?

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Factors Influencing Technology Valuation

- What is the product?
 - How long will it take to develop the product and at what cost?
 - How complete is the technology?
 - Are all the pieces available to commercialize it?
 - Can it scale to the size necessary for economic success?
- Experimental results
 - Are there any?
 - How convincing are they?
 - What do non-biased experts say?
 - Can the technology be validated and replicated, and in what context?

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Technology Commercialization Valuation

- Intellectual Property Factors
- Technology Factors
- Market Factors
- Team Factors
- Competitive Factors

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Intellectual Property Factors

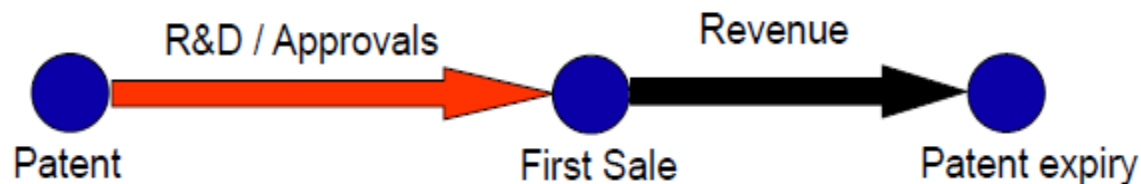
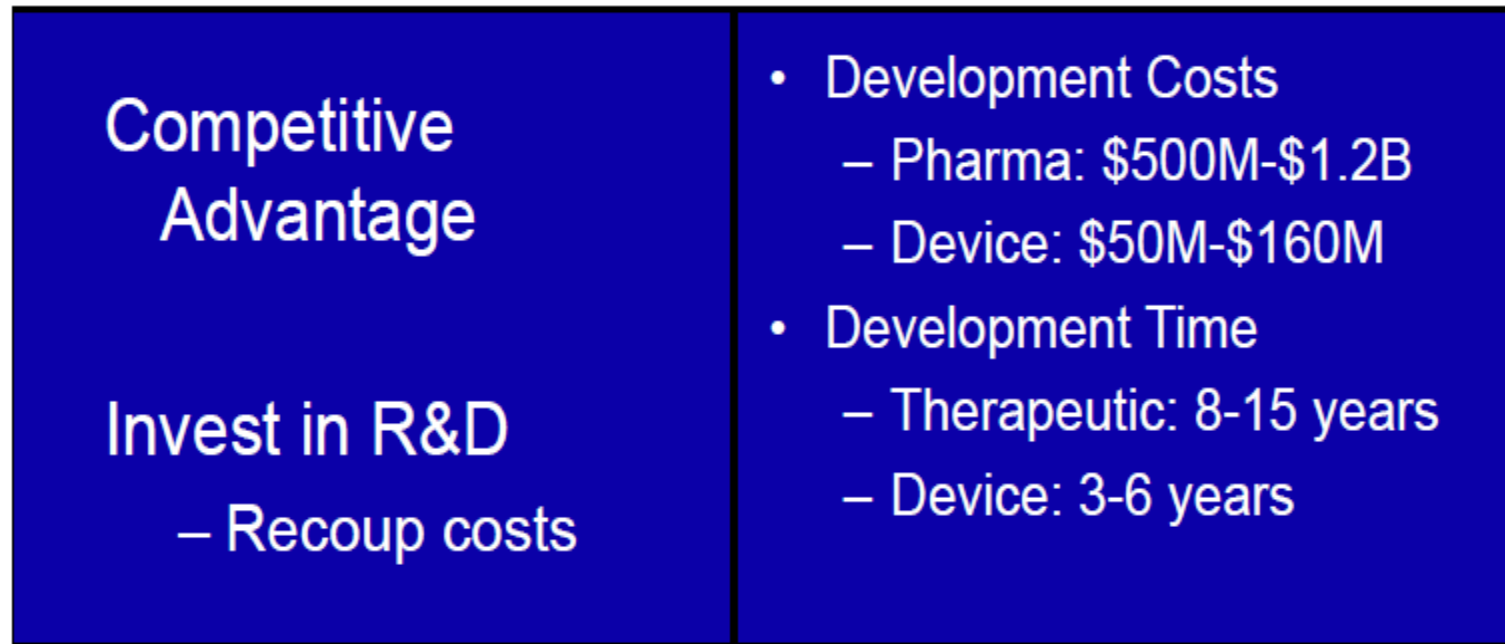
- Patents, Copyrights, Trademarks, Trade Secrets, Business Models
- Continuous vigil to protect and enhance patents
- Global

Principle

- Right to Disclose—10-20 Year Monopoly

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Why Patent



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Intellectual Property Evaluations

- Invention has protectable IP
 - Novelty----- (Not Disclosed)
 - Utility
 - Used by IPO (Intellectual Property Office) for Rejection of other IP applications
- Freedom to practice the IP
- IP is Defensible and Infringement Detectable
- Patent Cost and Timeline

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Technology Factors

- Scientific basis is well understood
- Scientific data is sound and proven
- Proof of concept is demonstrate able
- Team has product development capabilities

Is it Real? Will it Work? Value is in Developed Product?

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Market Factors

- Market need is well defined
- Product or service addresses the need
- Market is large, growing and accessible
- Barriers to Entry are low
- Time to Revenue is Short
- Profit margin is reasonable
- Early adopters and market receptors are identifiable
- Business is scalable
- Funding can be obtained

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Team Factors

- Core technology team is intact
- Team has product development capabilities
- Team has realistic expectations
- Team has leadership capability
- Team has commercialization experience
- **Team can work well together and deliver**

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Competitive Factors

- Competition and potential competition is well understood
- There is no or limited competition
- Competitor's products and technologies have vulnerability
- Our product will be higher in performance, lower in cost
consume less power?
- Address a market that the competitors has ignored
- A firm belief that competition can be challenged and defeated

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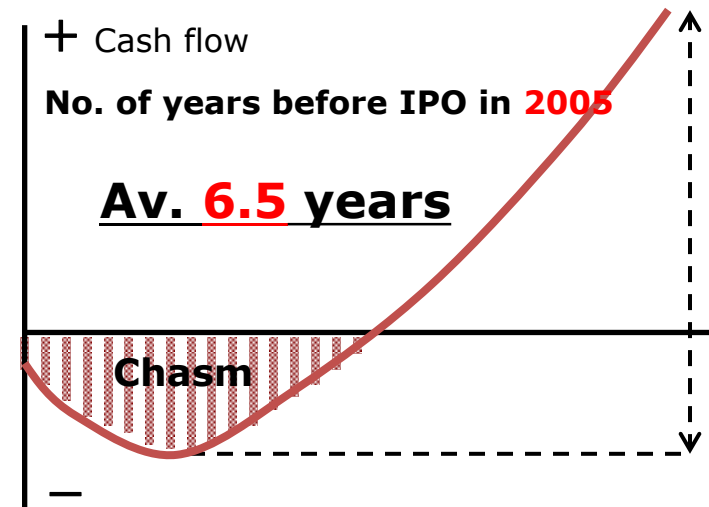
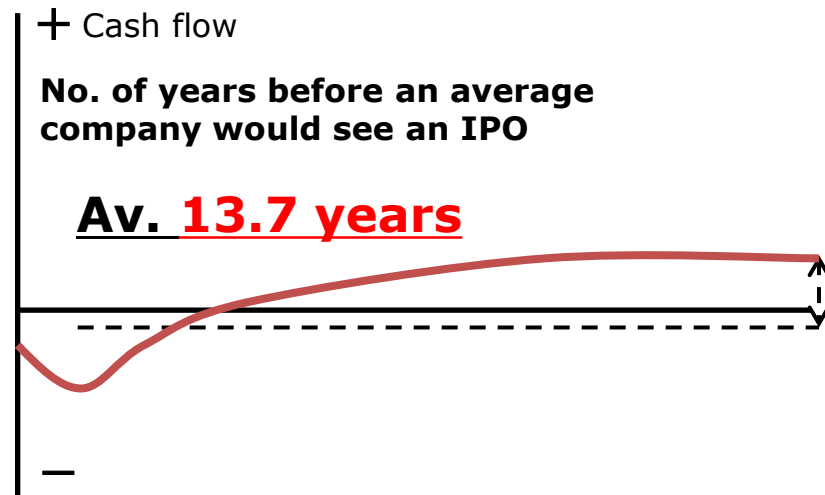
Impact of Equity Investments in Technology Companies

Prior to 1950

- Limited Equity Financing
- Mostly Loans or Corporate Financing

After to 1950

- IP based Equity Financing
- Enhanced Government Support
- Corporate Equity Financing
- Debt financing



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Technology Assessment and Evaluation



Understand your Strengths, Understand Your Limitations,
Understand your Customer and Plan Accordingly

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Value Established

-Start up

-Licensing

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Start-Up

- Build
 - Team
 - Product
 - Sales
 - Financing
 - Customers



- Return
 - IPO
 - Mergers
 - Acquisition

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Start-Up Considerations

- Funding and capable management can be attracted
- IP has potential for a multi-million dollar global public company
- Platform Technology for solid IP potential to develop other IP
- Committed team with long term perspective
- Strong belief that you can advance the technology
- Start-up's are time consuming, risky and requires commitment

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License

- Sell or License Technology to an established company or companies

Return

- One time fee
- Royalty based on revenue from sales of IP based product
- Technology upgrade and maintenance fee

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Licensing Considerations

- Willing to pass control and responsibility of your technology
- Lower risk and lower return
- Good license fit
- Tricky and tedious negotiations on
 - IP Ownership
 - Pricing

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Role of University and Research Labs TTO

- Most Major USA Universities have an operational Technology Transfer Office (TTO)
- Pay to protect IP---Patents, Copyrights, Trademarks.
- Assist in Business Plan and Commercialization Strategy development
- Assist in obtaining **grant money** from foundations, government labs research institutions and government departments
- Negotiate license agreements
- Help create Start-Up companies
- Liaise with outside **Equity Investors** (VC) and Corporate Venture Capital (CVC)

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