

Central Asian Technology
Entrepreneurship Program

CRDF Global

TECHNOLOGY COMMERCIALIZATION ECOSYSTEM

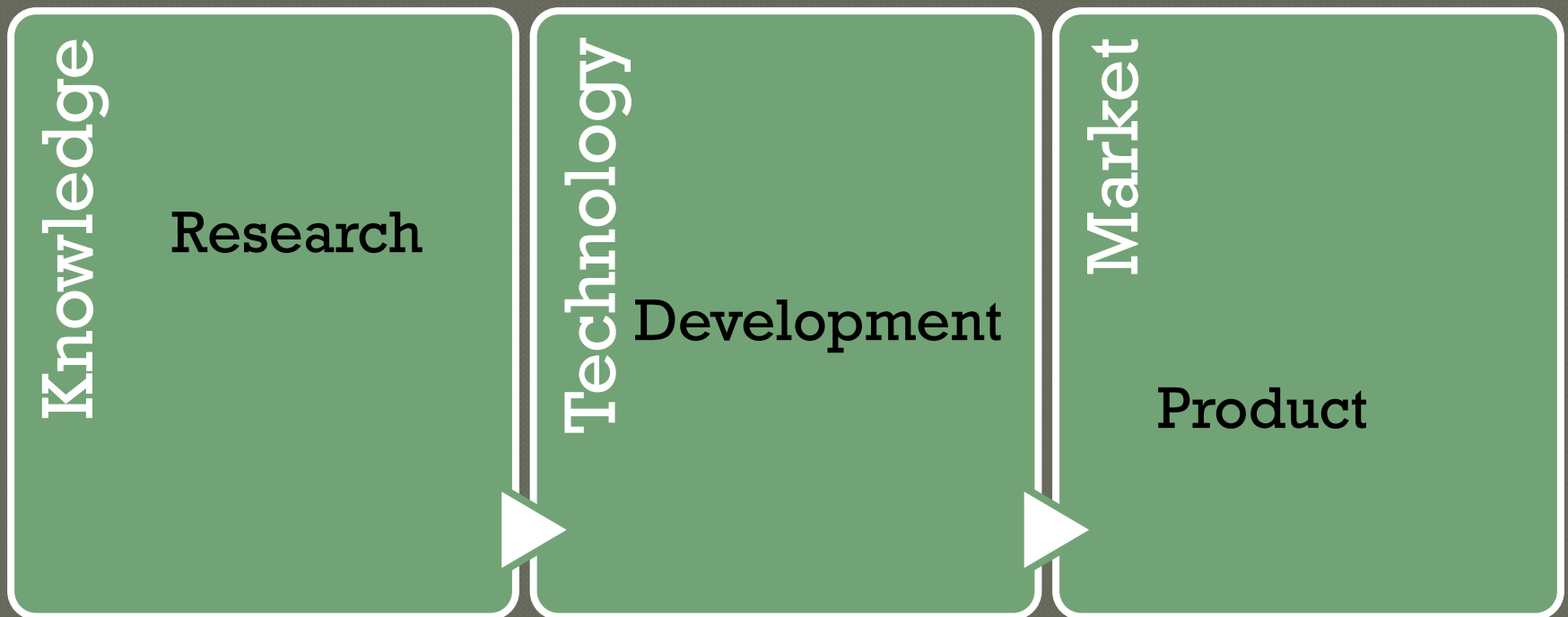
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What is Technology Commercialization?

- ◉ Tech commercialization process – inside the system
- ◉ Tech commercialization ecosystem – outside environment

Transformation of Knowledge into Market Product



Business of Tech Commercialization

- Startups rarely fail for lack of technology
- Major reason of startup failure:
LACK OF CUSTOMERS
- Entrepreneurs do NOT take basic steps to learn about their customers

Eric Reis, creator of the Lean Startup Methodology

Commercialization

- Commercialization is NOT a TECHNOLOGY discussion
- This is a BUSINESS discussion:
 - Market needs
 - Getting product into the market
 - Potential customers
 - Business model

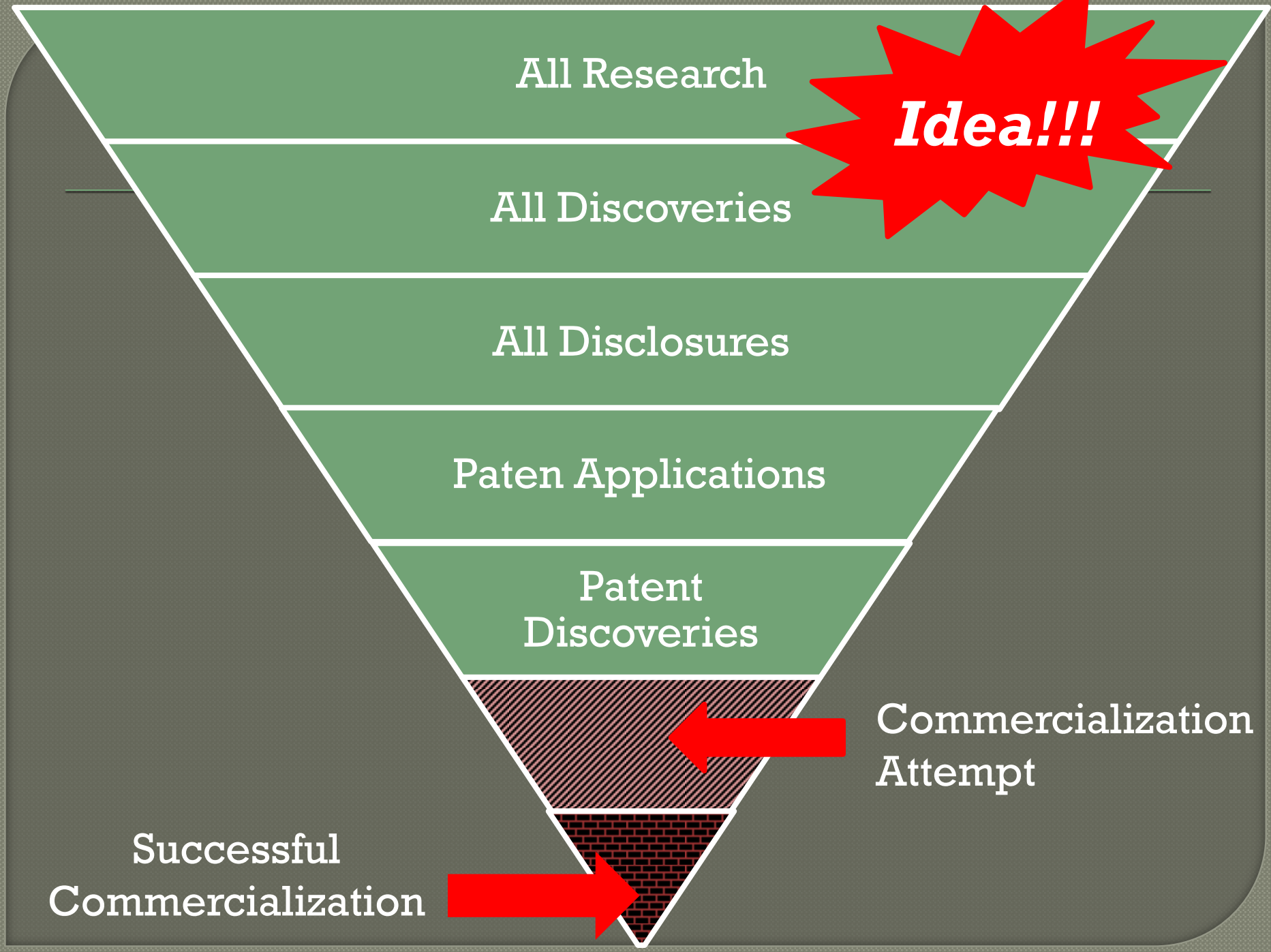
Why Commercialization is Important?

- Bulk of economic growth is based on technology advancements
- Technology improves life: quality, social conditions, convenience
- Leads to increase of productivity and wealth
- Does not resolve unemployment, but creates highly-skilled, highly-rewarded jobs

I have an
idea!!!!



It is not
enough...



Tech Commercialization Process

- Commercial Potential
 - Assess
 - Protect (patent)
- Business Development
 - SWAT Analysis
 - Business Plan
 - Business Model
- Value Established
 - License/Start-up

Tech Commercialization Process

◉ Commercial Potential

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Commercial Potential

- ◉ Technology Valuation
- ◉ IP protection

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Business Development

SWAT Analysis: **S**

○ Strength

- Advantages
- Capabilities
- Unique selling points
- Price
- Management

COMPETITIVE ADVANTAGE

Business Development

SWAT Analysis: **W**

◉ Weaknesses

- Disadvantages
- Gaps in capabilities
- Lack of competitive strength
- Time scale

YOU HAVE CONTROL OVER:

YOU CAN CHANGE IT

Business Development

SWAT Analysis: ○

○ Opportunities

- New markets
- Technology innovation
- New partnerships
- Collaborations
- New business

RESULT OF YOUR STRATEGIC THINKING

Business Development

SWAT Analysis: **T**

⦿ Threats

- Political instability
- Corruption
- Legal
- Environmental
- Legislative

YOU DO NOT HAVE CONTROLE OVER:

YOU CANNOT CHANGE IT

TAKE IT INTO ACCOUNT AND MOVE ON

Business Development: Business Plan

- The market
- Competitive environment
- Business model
- Customers
- Financial model
- The team
- Funding
- The marketing
- Implementation strategy

Tech Commercialization Ecology

- Geography
- Factors
- Infrastructure
- Regulations
- Technology
- Sectors
- Networks

Commercialization Ecosystem

Geography: **Regions**

- Comparative analysis of success stories
- Sectoral clusters
- Innovation and manufacturing
- Collaboration with industry
- Universities as drivers of regional innovation
- Role of local capital
- State and local government policies

Inspiration: Regional and Global

- Evolutionary economics – proximity paradox (Brokel and Boschma, 2011; Boschma, 2005):
 - Geographical proximity
 - Cognitive proximity
 - Organizational proximity
 - Social proximity
 - Institutional proximity
- Lester (2005), Hill & Lendel (2005, 2007), Lendel (2010):
 - Product-centered approach
 - University products' alignment with regional needs
 - Regional innovation portfolio (Hill and Gammons, in process)

Local Innovation Systems: Multiple Roles of Higher Education

- Creating
- Attracting
- Unlocking
- Adapting
- Combining
- Problem solving
 - Analytical
- Keeping current
 - Innovative

Educating
People

Add codified
knowledge

Problem solve
For industry

Provide public
space

Form / access networks
Focus on industry development

Influence development of
industry

- Meetings/conferences
- Standard setting
- Mentoring/entrepreneur
- Internships/alumni networks
- Industrial liaison programs
- Curriculum development

What is missing is control, or doing, the research

Universities should play a catalytic role and be willing to partner

Ideal Collaboration

- Direct Response to Industry's needs
 - R&D Agreement
 - IP Clause
 - Technology Development
 - In University by Faculty
 - In company by Company Scientists
 - Either Place by Collaboration
 - Joint Ownership
 - First Right to Negotiate

Commercialization Ecosystem

Factors: **Capital**

- ◉ Early state/seed: angels, VC, government, other
- ◉ Research and development: VC, government, other firms, collaboration, international
- ◉ Growth phase: banks, capital markets
- ◉ Factors affecting capital: tax rates, tax credits, bankruptcy laws, cultural factors

Commercialization Ecosystem

Factors: **Labor**

- Scientists and engineers
- Technicians
- Science and math education
- “Thick” labor market in “thin” innovation niche
- Access to knowledge
- Tacit knowledge

Commercialization Ecosystem

Factors: **Entrepreneurs**

- A separate classification?
- Training for entrepreneurs
- Support for entrepreneurs
- The second chance culture
- Networking
- Social connections

Commercialization Ecosystem

Factors: **Technology**

- How to identify “critical” technologies
- Generating sufficient scale
- Maintaining competition within sectors while supporting key technologies
- Support for basic research
- Support for applied research and tech transfer



- Intensive assistance to Northeast Ohio entrepreneurs leading high potential companies
- Services are delivered by successful entrepreneurs who work one-on-one with entrepreneurs
- Help raising capital, generating revenues, testing the commercial viability of a product or service, and moving a product or service into the market



- Selectively invest in the highest potential companies positioned to excel in high opportunity markets, focusing on entrepreneurs with breakthrough, market-driven technologies



President Barack Obama visited Cleveland State University with several of his Cabinet members on Feb. 22, 2011 to convene a "Winning the Future" forum on small business in conjunction with the local business innovation groups [JumpStart](#) and [NorTech](#).

"In his State of the Union address, the president spoke about needing to out-innovate, out-educate and out-build our competitors in order to sustain our leadership and secure prosperity for all Americans," a White House official said.



"The forum will be an opportunity for the president and his economic team to hear directly from small business owners and leaders about their ideas for how America can continue to grow the economy, put Americans back to work, and win the future."



- NorTech is a regional nonprofit technology-based economic development organization serving 21 counties in Northeast Ohio
- As a catalyst for growing Northeast Ohio's emerging technology industries, NorTech is leading efforts to develop regional innovation clusters that create jobs, attract capital and have a long term, positive economic impact

<http://www.nortech.org/>

NorTech: development of regional innovation clusters

- Attracting new members to the clusters by promoting Northeast Ohio's technology inside and outside the region
- Building relationships among cluster members for funding, research, and business opportunities
- Creating market-driven roadmaps with regional partners that define a vision and path to generate economic growth and jobs in multiple technology industry sectors
- Engaging with federal and state government and policy leaders to develop strategies that enhance cluster growth
- Collecting, reporting and utilizing data that creates and influences cluster growth

Currently, NorTech is focused on two industries in Northeast Ohio - advanced energy and flexible electronics.

Northeast Ohio Innovation Ecology Partners



Questions?

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Materials Used

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