Office for Technology Commercialization

Raising the Odds of Success for Tech Transfer

Jay Schrankler
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University of Minnesota
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How to define success-return based, cash based or fundraising based?

-Going public or “filing” to go public positive ROI for investors*

-Sale of the company for a positive ROI for investors

-Raising a large amount of capital (pre-returns)

-Licensed technology for payments and royalties (cash)

*Skill vs. Luck in Entrepreneurship and venture Capital:
Evidence from Serial Entrepreneurs
Gompers, Kovner, Lerner, Scharfstein Harvard University 2006

Metrics are meaningless unless tied to Successful Outcomes

- **The trap of "activity" metrics:**
  - Measure a salesperson success on "miles travelled" versus "sales made"?
  - Houses built versus houses sold?
  - Patents filed versus patents awarded?
  - Number of licenses versus number that generate income or successful products on the market?
  - Many more examples…
- **Does the activity of starting a company or licensing a technology position it for commercial success-necessary but certainly not sufficient.**
- **What if we had the "cure" for a terrible disease and licensed it to the wrong company or the wrong people and it never got developed?**

A Focus on Start Up Companies and What Defines a University Based Start Up*

A technology spin-out is defined as:

A company engaged in business that is dependent upon licensing or assignment of technology for initiation from a public research institute (e.g. University, Government Laboratory, etc.).

Technology spin-outs are a sub-set of:

New technology-based firms which commonly have the following characteristics:

- Their value is linked primarily to the longer-term growth potential, derived from scientific knowledge and IP.
- In early stages the companies lack tangible assets.
- Their products initially have little or no track record and are largely untested in markets.

*BVCA Investing in Enterprise 2005

Entrepreneurial Success-Experience Matters:

Success Indicator	First Time Entrepreneur Success Rate*	Serial Entrepreneur Success Rate*
Public filing , went public, acquired or merged	25.3%	36.9%
Early Stage First Round Funding	45%	60%

Other Key Findings*:

- Entrepreneurs with prior success are able to raise money at an earlier stage in their second venture-critical for early stage University Technology
- Specific industry experience increases the likelihood of success
- Effect of Predicting Prior Success on Future Success is very large

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A Good University TTO Utilizes Experienced Entrepreneurs

We also find that universities that generate the most start-ups have more favorable attitudes towards surrogate (experienced) entrepreneurs. It appears that a combination of academic and surrogate entrepreneurship might be the best approach for universities that wish to develop successful technology-transfer based start-up companies.

*surrogate (external) entrepreneurs assuming a leadership role

Academic and Surrogate Entrepreneurs in University Spin-out Companies

Stephen J. Franklin, Mike Wright and Andy Lockett

A good checklist-can help raise the odds

- ❑Ecosystem of support and money. Angel, Venture, Government Grants, Incubators, etc.
- ❑Good IP
- ❑Market need-does it solve an unmet need
- ❑Market size-is opportunity big enough to attract investment
- ❑Management team-experience, etc.
- ❑Entrepreneurial and partnering researcher or faculty member
- ❑Conflict of interest

Top reasons why for every 100 deals a venture firm evaluates, only 1 receives funding

Without these things, a start-up will fail

- Management
- Money
- Technology
- Entrepreneurial Faculty (for University based start ups)

Costs/Expenses the U of M has incurred for start-ups

- $3.9M in bad patent debt
- $5M worth of innovation/ignition grants
- Delayed patent cost payment for start-ups with U of M equity stake

Office for Technology Commercialization Mission

To translate University of Minnesota research into new products and services that provide growth opportunities for our licensees, benefit the public good, improve the quality of life, and generate revenue to support the University's research and education goals.

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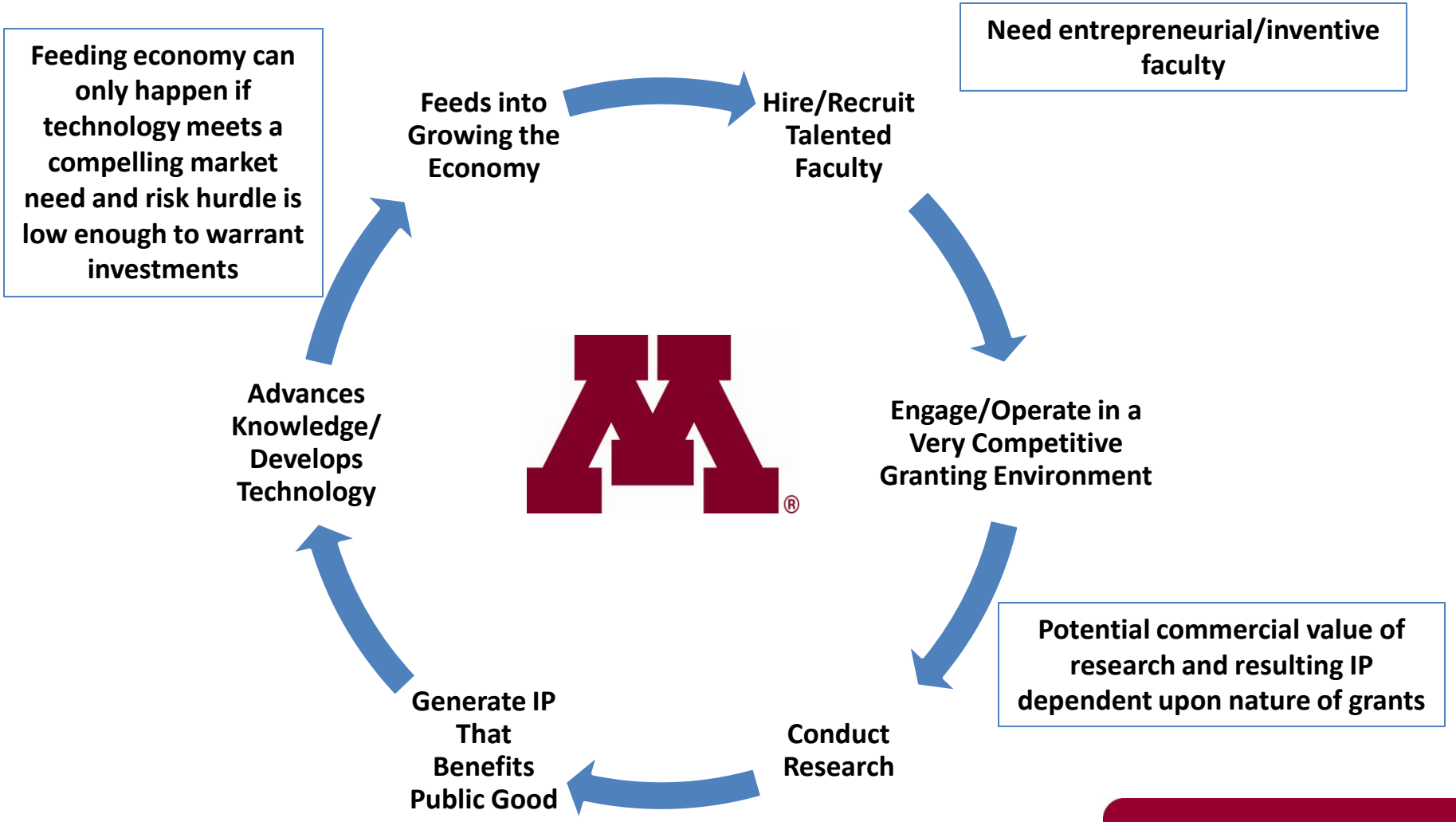
Life Cycle of Research-The dilemma: scientific/academic freedom vs. commercial intent



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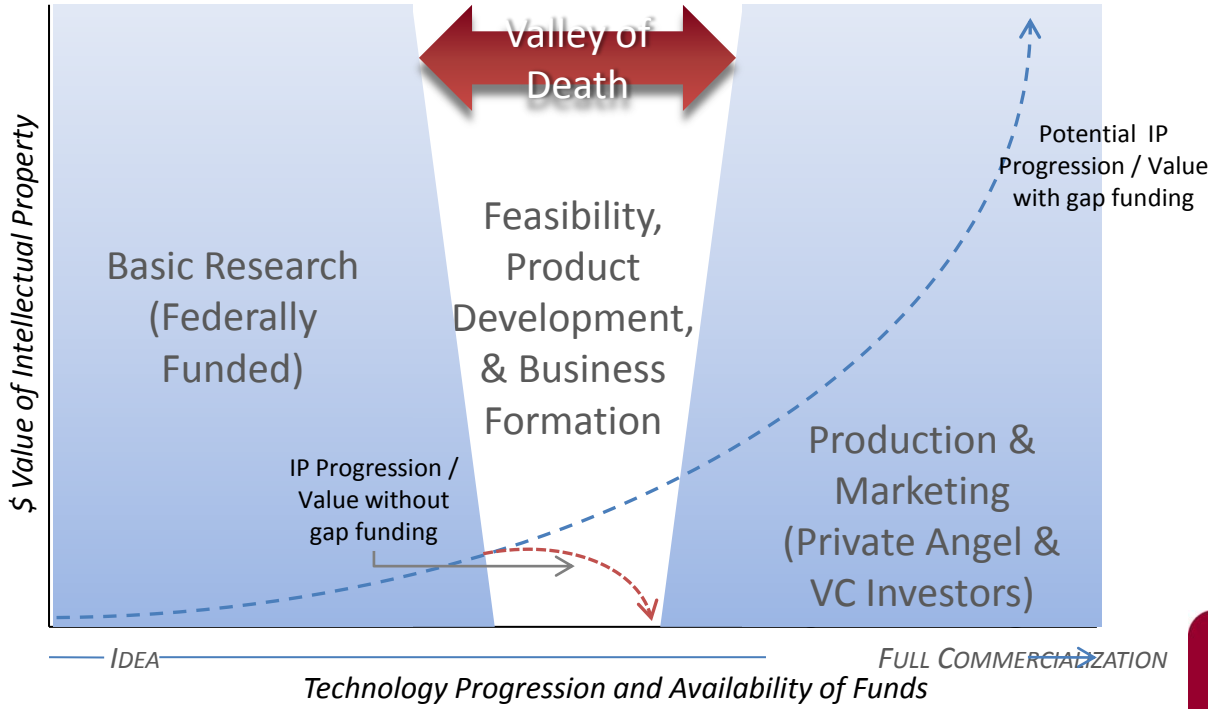
The Significant Problem: Continuing to Fill the Funding Gap

- The gap between federal/state funding and private investments presents a funding need for University technologies.
- The University has partially filled this gap through OTC grants funded by an annual allocation of drug license royalties.



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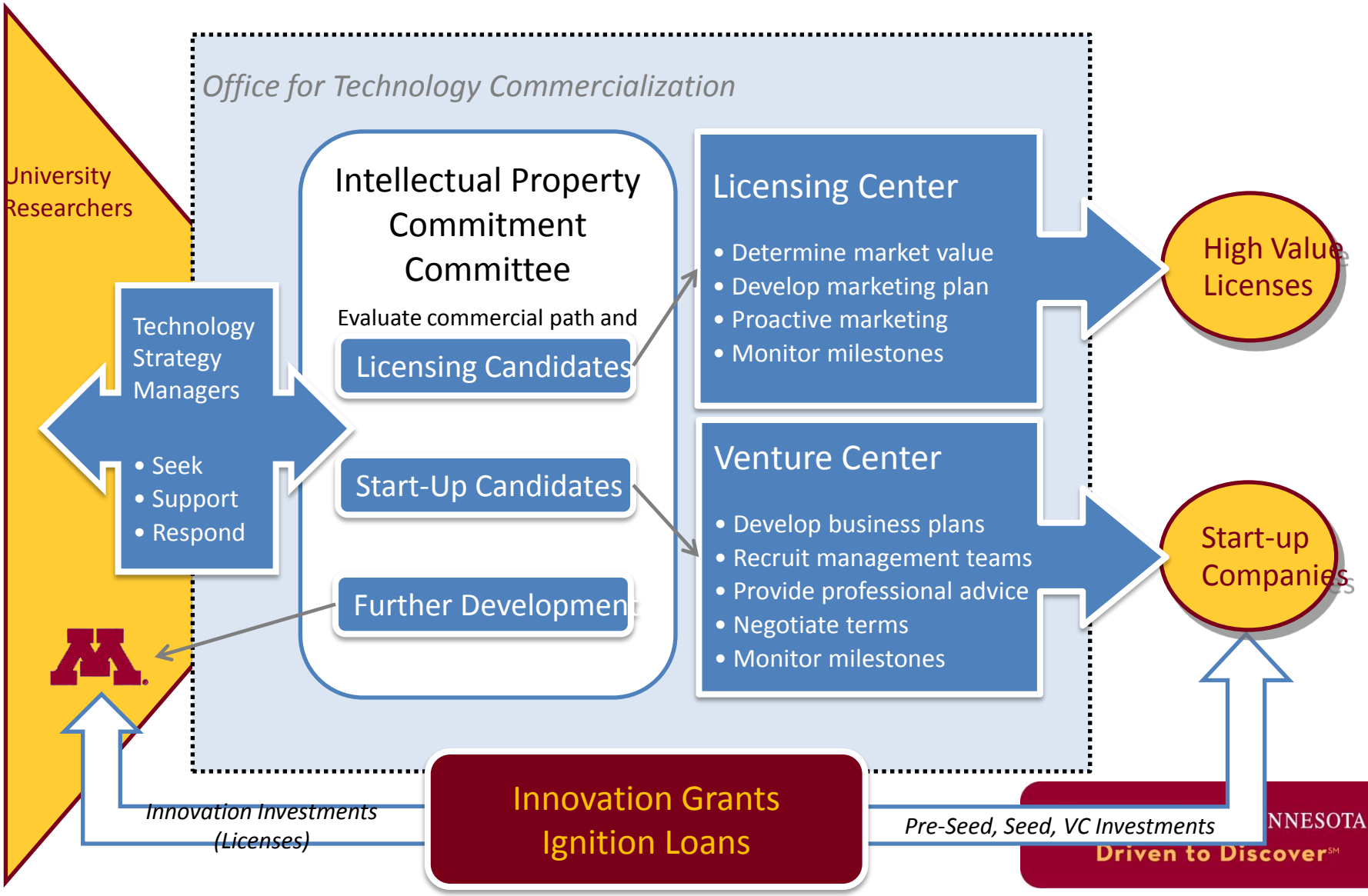
Minnesota's Formula for Raising the Odds for Success

Innovative Approaches	Innovations to Aid Start-up Formation/Success
Industry experience of team	CEO-in-Residence Program
Functional specialization	Internal Business Units
Proven industry based decision making/investment process	Industry Advisors
Searchable technology system Commerce & Search for Technology Transfer System™	Innovation Grants Ignition Loans
Flexible licensing options •Standard License •Custom License •Fast Track Opportunity License •Express License •Option	Flexible & beneficial licensing terms Delay payment of patent costs for start-ups with U of M equity stake

Current Technology Commercialization Process



OTC uses a systematic process to invest in IP with strong commercialization potential

Inventor has new idea

File Initial Patent Application $

File Worldwide Patents $$$

Provide ignition grants $$

Decision to License to Spin Out Company: OTC Venture Center

Stage 1
- New Idea/ Possible Invention Received

Stage 2
- Develop Business Case

Stage 3
- Perform Financial Analysis, Create Marketing Strategy
- Provide innovation grants if necessary

Stage 4
- Contact Prospective Licensees
- Or initiate start-up formation

Stage 5
- Negotiate business & legal terms

Stage 6
- Close Deal

Close/Return to inventor

Close/Return to inventor

Decision to License to Established Company

Strategy Managers → Both Strategy & Marketing Managers → Marketing Managers and/or Venture Center

Functional Excellence Model

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U of Minnesota Office for Technology Commercialization Venture Center Strategy

Four Components for University Start-ups

- Technology
- People
- Financial Capital
- Entrepreneurial/Engaged Faculty

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Key Elements Needed for a Venture Backed Start Up

Must-Haves

- Big market opportunity (>$500 MM/yr)
- Disruptive technology
- Large IP barrier to entry
- Comparables that point to success
- Unmet Market Need

Venture Center Strategy

CEO-in-Residence Program Participant Qualifications

- Started a technology company
- Raised capital
- Successfully established the business
- Sold the business
- Secured investor profit
- Seeking new opportunities

Success of the Office for Technology Commercialization

- The OTC continues to support the University's mission by making research innovations available for the public good through licenses and producing financial returns to be reinvested.
- With reorganization and new leadership, has generated over $200 million in revenue since 2006.

Stock Market Indices	July 3, 2008	June 30, 2009	Δ V
Dow	11,288	8447	(25%)
S&P 500	1263	919	(27%)
NASDAQ	2245	1835	(18%)
OTC	**FY 2008**	**FY 2009**	**Δ V**
Revenue (total)	$85M	$92M	+8%
Revenue (without Ziagen)	$7.8M	$8.7M	+11%
Disclosures	217	244	+12%
New Patents Filed	58	65	+12%
# of Licenses	63	59	(6%)

"The U of M's Office for Technology Commercialization has recruited experienced industry executives, wooed corporations and venture capitalists, and developed ways to better market the school's intellectual property assets." - *StarTribune, April 6, 2008*

Momentum is building: 11 Start-ups launched in past 18 months despite one of the worst investment environments in history

Month/Year	Company	Description	Heavy incubation within OTC prior to launch	Heavy incubation not needed
02/2009	ASCIR	Ascir: Low Cost & Real-Time Gas Detection From Remote Distances	✓	
05/2009	BIOCEE	BIOCEE: Industrial Biotech		✓
05/2009	Celladon	Celladon: Molecular Therapeutics for Cardiovascular Disease		✓
08/2009	R8Scan Corp	R8Scan Corp: Biotech & Pharma Research Tooms	✓	
10/2009	Hennepin Life Sciences	Hennepin Life Sciences: Anti-infectives for Women's Health		✓
02/2010		Miromatrix Medical: Cardiovascular Regenerative Medicine	✓	
02/2010	CaSTT	CaSTT: Web Commerce & Search Optimization *	✓	
03/2010	NeurEndo Pharm	NeurEndo Pharm: Early Stage Drug Development		✓
05/2010	EarlyLearningLabs	Early Learning Labs: Preschool Learning Test *	✓	
06/2010	XO-Thermix	XO-Thermix: Novel Thermo-Chemical Tissue Ablation	✓	
06/2010	NEWWATER	NewWater: Biocatalyst-Based Potable Water Filtration		✓

*Running within University currently

Licensing to established MN companies is also important

- Technologies can enable new products and line extensions
- These products help support and sustain their business
- U of M technologies that were licensed to, developed by, and are now being sold by MN companies:
    - Royal Concrete Pipe (Stacy, MN): SAFL Baffle
        - Orders received from MN municipalities
    - St. Jude (St. Paul, MN): CSL catheter
        - Electrophysiology mapping
    - MJ Biologics (Mankato, MN): PRRS vaccine
        - Prevents swine disease
    - Nutricepts Inc. (Burnsville, MN): CrystalBan™
        - Improves cheese quality, body, and yield
    - R&D Systems Inc. (Minneapolis, MN): Monoclonal antibodies
    - CA3 Biosciences Inc. (Edina, MN): Monoclonal antibodies
    - Diasorin (Stillwater, MN): Monoclonal antibodies
    - Medtronic (Mounds View, MN):Visible Heart

Summary-Increasing the Odds

- Have an industry experienced TTO team from both the large company and start up company sides

- Getting surrogate or serial entrepreneurs to help with start ups greatly improves chances for success

- A robust selection and stage gate process “ferrets out” the potential winners