

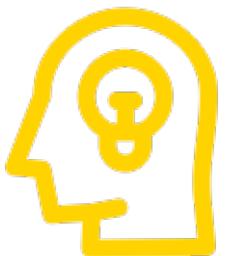
# SOFTWARE COMMERCIALIZATION

## NATIONAL ACADEMIES

Drew Bennett  
Associate Director Licensing - Tech Transfer  
March 2, 2020

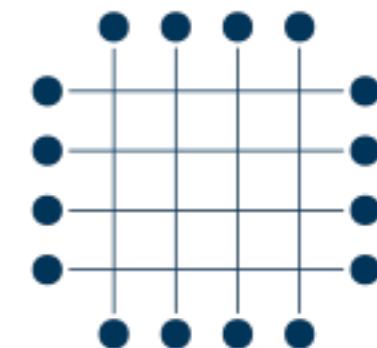
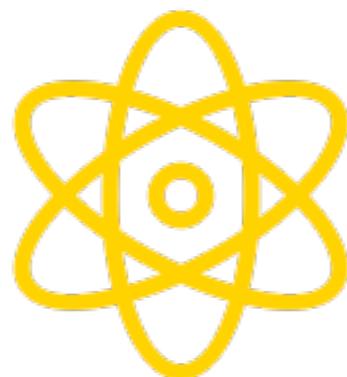
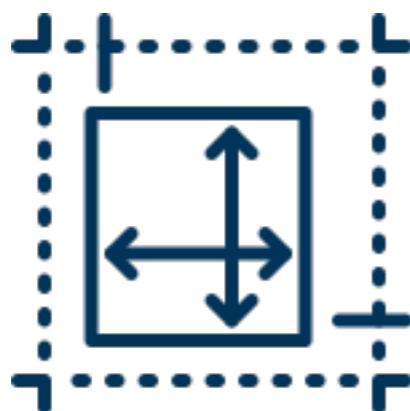
# AGENDA

- UM Tech. Transfer Overview
- Value Drivers
- New Era, New Opportunities
- Case Approaches Examples
- Summary



# UM RESEARCH

- \$1.62 Billion Research Spending (2019)
- #1 in research volume among U.S. public universities, according to the National Science Foundation
- 2.8 M square feet of lab space for research and teaching



# FY 2019 IN REVIEW

**502**

INVENTION  
REPORTS

**198**

PATENTS  
ISSUED

**232**

LICENSE/OPTION  
AGREEMENTS

**22**

NEW BUSINESS  
STARTUPS

**\$16.3**

MILLION  
IN REVENUE

**2,000+**

JOBs CREATED  
SINCE 2000

# DIGITAL VALUE DRIVERS

- Project History



- Focal Point



- Problem Complexity



- Expertise and Know-How



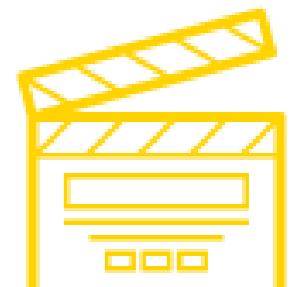
- Raw Innovation



# NEW OPPORTUNITIES

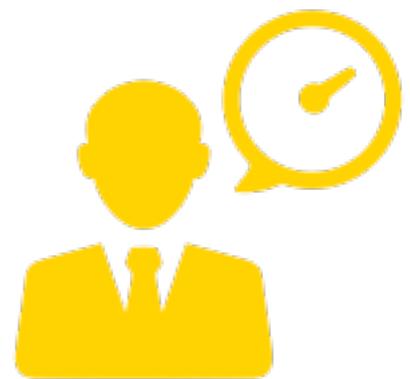
State of Technology and Support:

- Data
- Benchmarking
- Deep Learning, Artificial Intelligence and Machine Learning
- Open Source/Open Access
- Start-Up Interest & Momentum
- Funding Support
- Formal IP Protection vs. Open Innovation



# TRADITIONAL APPROACHES

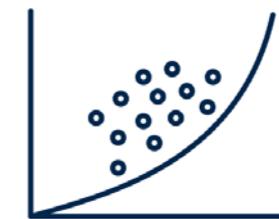
- Direct User Licensing
- Partner Licensing
- Service Based Deployment - SAAS
- Professional Services and Support
- Brand Support



# AI/ML: CASE EXAMPLE

## Advanced Medical Image Analytics

- *Technology:* Artificial Intelligence/Machine Learning Image Analysis
- *Focus Areas:* IBD/Chron's Disease
- *Key Issue:* Objective Assessment, Repeatability
- *Other:* Pace/Lack of Innovation



## Critical Issues:

- Rapidly Evolving Technology/Science
- Regulatory Pathway and Certification
- Independent Assessment Options
- Evolving Therapeutic Landscape



# AI/ML: CASE EXAMPLE

## Hybrid Solution Approach

### Commercial Partner:

- Type: Exclusive vs. Non-Exclusive
- Focus: Transactional Application & Clinical Tracking
- Regulatory: FDA Clearance
- Market Development: Education and Acceptance
- Sales: “Feet on the Street”



### Research Partners:

- Trials
- Benchmarking
- Model Weights, Parameters and Tuning



# DUAL SOURCE AI/ML: CASE EXAMPLE

## Component Based Approach

### Commercial Partner:

- Service: Technical and Help Desk/Support
- Customization: Professional Development
- Hosted Solution: Transactional Support
- Local Solution: Commercial Application



### Research Partners:

- Research Trials
- Benchmarking
- Model Weights, Parameters and Tuning



# DATA: CASE EXAMPLE

## Unique Data Sets and Analytics

### Commercial Partner:

- Service: Technical and Help Desk/Support
- Analytics: Professional Report Development
- Hosted Solution: Service Based Access



### Research Partners:

- Research Service and Expertise
- Curation and Development
- Development and Benchmarking



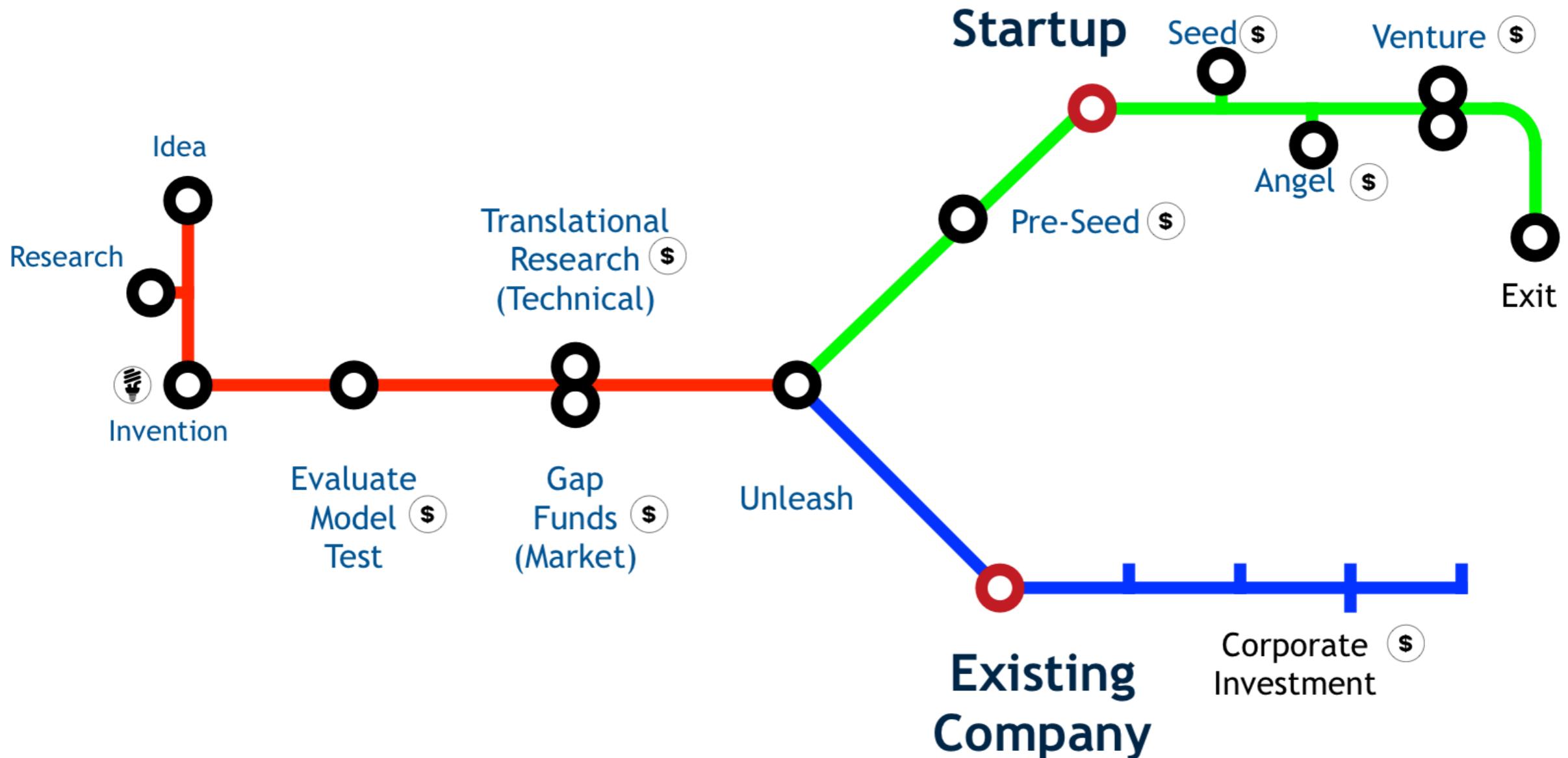
# START-UP SUPPORT: CASE EXAMPLE

## Start-Up Support

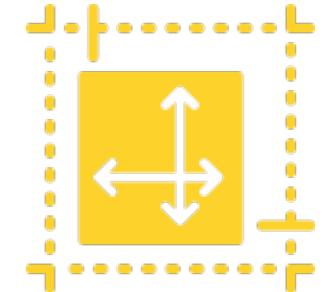
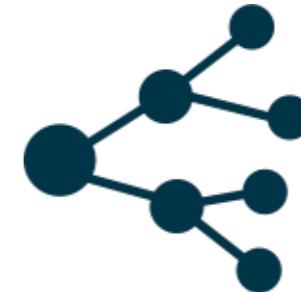
- Focal Point: Ecosystem Development
- Key Needs: Entrepreneurial Skills, Abilities & Network Resources
- Prime Resources: Human Resources & Funding
- License Type: Equity Only



# FUNDING NAVIGATION: CASE EXAMPLE



# SUMMARY: UNIQUE UNIVERSITY VALUE



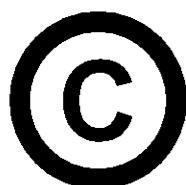
- Collaboration
- Know How/Expertise
- Environment and Risk Profile
- Workflow
- Experimental Foundation

# UNIVERSITY\* IP VS. COMMERCIAL

| Dimension       | University   | Commercial   |
|-----------------|--|--|
| Code            | <ul style="list-style-type: none"><li>▪ Working Prototype/Advanced Prototype</li></ul> | <ul style="list-style-type: none"><li>▪ General Release</li></ul>          |
| Environment     | <ul style="list-style-type: none"><li>▪ Mat Lab, R, SAS, Tensor Flow</li></ul>         | <ul style="list-style-type: none"><li>▪ Python, JAVA, C++</li></ul>        |
| QA/Scalability  | <ul style="list-style-type: none"><li>▪ Testing is the experiment/research</li></ul>   | <ul style="list-style-type: none"><li>▪ Dedicated QA and Process</li></ul> |
| Code Management | <ul style="list-style-type: none"><li>▪ Google Drive, Local, Github</li></ul>          | <ul style="list-style-type: none"><li>▪ GitHub, SVN</li></ul>              |
| Documentation   | <ul style="list-style-type: none"><li>▪ Papers &amp; Know How</li></ul>                | <ul style="list-style-type: none"><li>▪ User Guide/Inline</li></ul>        |
| Validation      | <ul style="list-style-type: none"><li>▪ Bench Test</li></ul>                           | <ul style="list-style-type: none"><li>▪ Beta Test</li></ul>                |

\* Generally - There are always unique cases!

# TRADITIONAL IP & Software ADVANTAGES & DISADVANTAGES



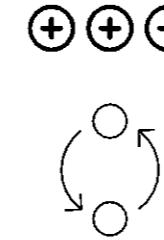
Copyright



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Patent

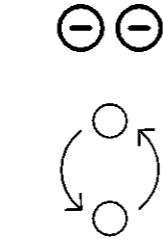
- Utility
- Plant
- Design



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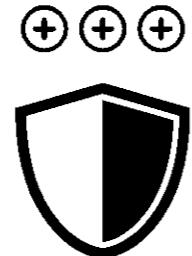
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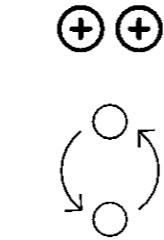
Trade Secret



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Defense

Time to  
Coverage

Supports  
Changes

Open

Publishing

Platform

# We are inspired

To redefine how world-class university research can fuel a region and solve the world's great challenges.



# Q & A

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