

# Technology Transfer in the US: Present State and Current Issues

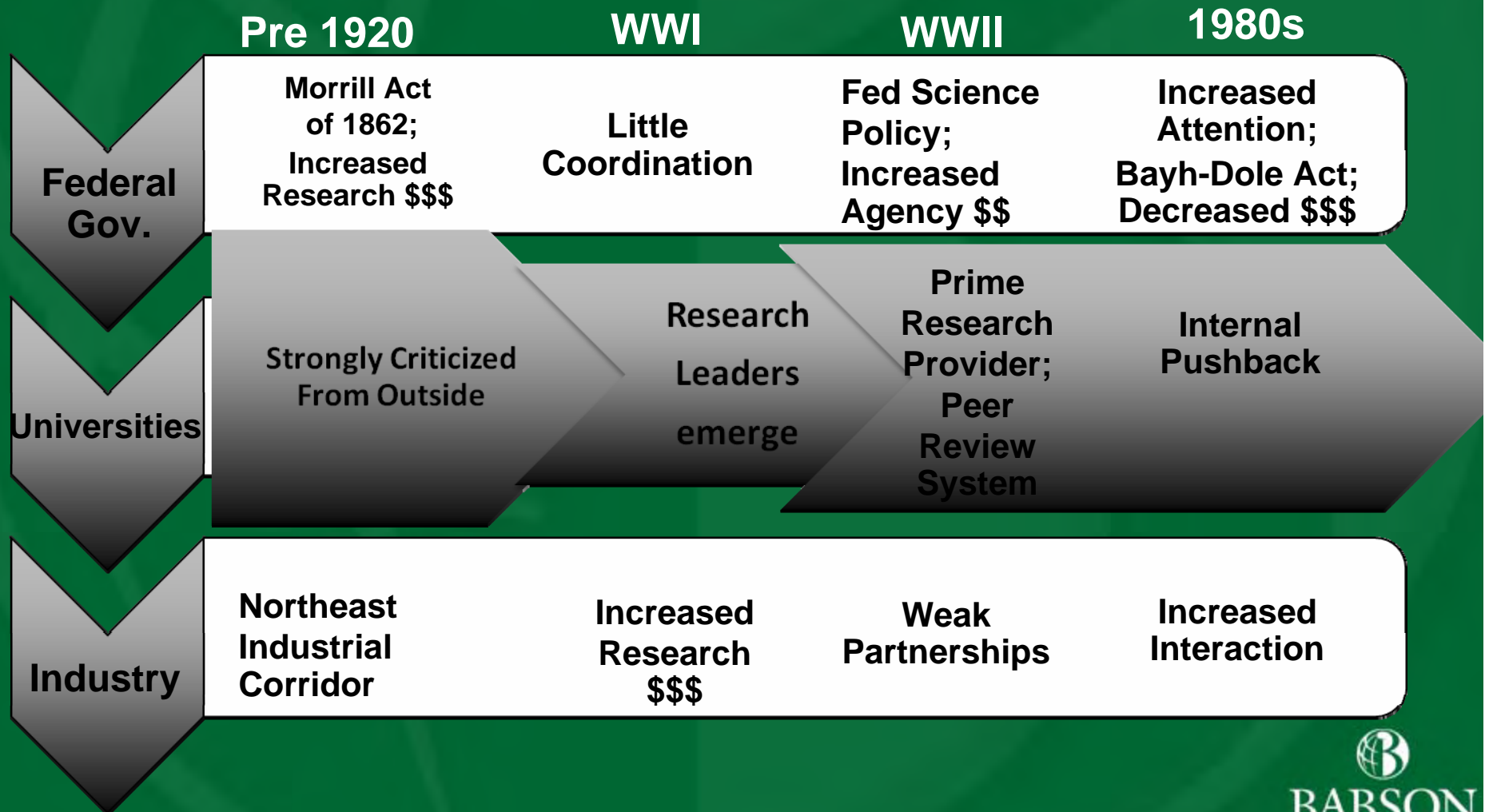
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# Timeline: U.S. Tech Transfer



# More Recent History

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1980s to present: The pace quickens

Players:

- Federal laboratories
- Universities
- Industry
- Research Institutes
- Local, state, and federal governments
- Third party intermediaries (e.g. venture capitalists)

Source: Ewing Marion Kauffman Foundation . 2003.

# Current State

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- Metrics
  - Licensing FTE
  - Research Expenditures
  - Licenses & Options Executed
  - Startups
  - Disclosures
  - US Patents Issued
  - New Patent Applications
  - License Income

Source: AUTM. U.S. Licensing Activity Survey: FY 2007

# Who are the major players?

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- 2007 Licenses & Options Executed
  - 231 U of California System
  - 203 U of Washington/Wash. Res. Fdn.
  - 125 U of Georgia
  - 116 MIT
  - 113 Iowa State
  - 106 North Carolina State University

Source: AUTM. 2007.

# Who are the Major Players?

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- Start-ups 2007
  - 38 UC System
  - 24 MIT
  - 18 U of Utah
  - 12 Columbia
  - 11 U of Washington/Washington Res. Fdn.
  - 10 U of Colorado
  - 10 U of Kentucky Res. Fdn.
  - 10 Northwestern

Source: AUTM. 2007. © Patricia G. Greene and Mark P. Rice 2009

# Who are the Major Players?

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- License Income 2007

– \$791,210,587	New York University
– \$135,632,417.	Columbia
– \$97,593,575	Univ. of Calif. System
– \$85,298,599	Northwestern
– \$71,226,905	Wake Forest University
– \$63,315,910	Univ. of Minnesota
– \$63,283,697	Univ. of Washington/Res. Fdn.
– \$61,600,000	MIT

**Source: AUTM. 2007.**

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# Other Exemplars

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- Alfred University
- Brigham Young University
- Florida Agricultural and Mechanical University
- Iowa State University
- Montana State University
- Rensselaer Polytechnic Institute
- Springfield Technical Community College
- University of Akron
- University of Central Florida
- University of North Carolina at Charlotte

Source: Innovation Associates. 2007.

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# How Do The “Others” Play?

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- Entrepreneurial culture
- Research niches
- Collaboration with governments and industries
- Federal research funding
- Incentives for tech transfer & entrepreneurship
  - Hiring and promotion policies
- Linked resources for start-ups

Source: Innovation Associates. 2007.

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# What are the major issues emerging?

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- Qualitative methodology
  - Content Analysis of “Technology Transfer Tactics” (2008) – using NVivo
- Top 5 issues from the content analysis:
  - **New Models** – examples of new ways of doing things, including new ways of collaborating within and across university boundaries
  - **Intellectual Property** – anything related to patent policies and practices
  - **University Bureaucracy** - ways in which the university structures and practices impact Tech Transfer
  - **Global Issues** – how schools are trying to increase the range of their partnerships and sizes of their markets
  - **Valuation Models** – both for technologies and also for tech transfer practices

# Triangulating Content Analysis Outcomes with Insights from Expert Interviews

Laura Kilcrease

Former Executive Director

The University of Texas IC2 Institute's Center  
for Commercialization and Enterprise, and  
Founder and Former Executive Director  
Austin Technology Incubator

Thomas Chmura, VP of Economic Development

Bill Rosenberg, Exec. Director of Commercial Ventures and Intellectual Property  
University of Massachusetts

Chuck Rancourt, Former Director  
RPI Office of Technology Commercialization

Steve Derezinski  
Founder and Past Director  
Georgia Tech VentureLab

Joe Koepnick  
Senior Director of Innovation  
Advancement and Business Development  
University of Southern California

# New Models

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There is increasing interest in helping deal with the ‘valley of death’. Through the Massachusetts Technology Transfer Council, we can provide invaluable **coaching** to ‘wannabe’ companies or early stage startups; to help them develop a pitch and presentation; to get them headed in the right direction and seek funding.”

Bill Rosenberg,  
Executive Director of Commercial Ventures and Intellectual Property,  
University of Massachusetts



# University Bureaucracy

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“The university organizational structures and processes promote disciplinary silos, making **collaboration** across departments a challenge.”

Chuck Rancourt,  
Former Director,  
Rensselaer's Office of Technology Commercialization



# Intellectual Property

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“We are always behind the eight ball on IP management. It’s an imperfect solution and the **resources** are never sufficient to maintain **communication** with the faculty; to manage IP in a timely fashion; and to manage the internal systems.”

Steve Derezinski  
Founder and Past Director  
Georgia Tech VentureLab



# Valuation Models

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“Valuation models only work well with existing markets. Our stuff is very early, often with **nascent or non-existent markets**. It’s too difficult to figure out **how valuable** a TYPICAL patent might be years before products have evolved and with ever-changing markets.”

Joe Koepnick

Senior Director of Innovation Advancement and Business Development

University of Southern California



# Global Issues

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“Can you legitimately license overseas? How do you **build connections**? Should you bolster foreign competition?”

Laura Kilcrease

Former Executive Director

The University of Texas IC2 Institute’s Center for Commercialization and Enterprise, and

Founder and Former Executive Director

Austin Technology Incubator



# What new and important issues emerged from the interviews?

What is most important to a University versus tech transfer? Are we trying to fit a round peg into a square hole???

True tech transfer is a **long term activity** and not a short term cash flow activity.  
Laura Kilcrease (UT Austin)

A major issue is the role and overall **influence of industry and their relationship to universities.**

These apply to the type of research universities should accept ( and not accept), industry rights to IP that may develop; and their relationship to individual faculty (conflicts of interest). This is heightened economic times – when universities are looking for alternate sources of revenues.

Bill Rosenberg (UMass)

- Education and training
- **Staffing and adequacy of resources**
- Information systems.

Chuck Rancourt (RPI)



# Slide 1: What additional trends in technology transfer do you see emerging, if any?

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**More focus on startups** to develop technologies and serve as engines to direct sponsored research back to the laboratories. Greater efforts to develop IP further within an institution to increase its value prior to commercialization.

Bill Rosenberg (UMass)

**More collaboration** among offices. **More formal tech transfer educational programs** such as curriculum at Albany Law School .

Chuck Rancourt (RPI)

**Technology transfer** is getting more attention as a quick fix or unexploited asset for improved **cash flow**.

Laura Kilcrease (UT Austin)

## Slide 2: What additional trends in technology transfer do you see emerging, if any?

A far more mature view of “outward facing” commercialization.

Early on, licensing was a very administratively-focused task: disclosures, patent filings, publication reviews, etc.

Offices have realized that without a valid licensor, there is no point in patenting. This has led to ever more outward facing offices -- hiring in **marketing, business development and entrepreneurs** to work inside the university and help bridge the “talent divide” between university research and commercial markets.

Steve Derezinski (Georgia Tech)

Focus is moving toward knowledge, not just tech, transfer, and instead of developing technologies **developing people to be life long innovators.**

There is also a huge trend toward **full start up support and innovation as well as entrepreneurial education.**

Joe Koepnick (USC)

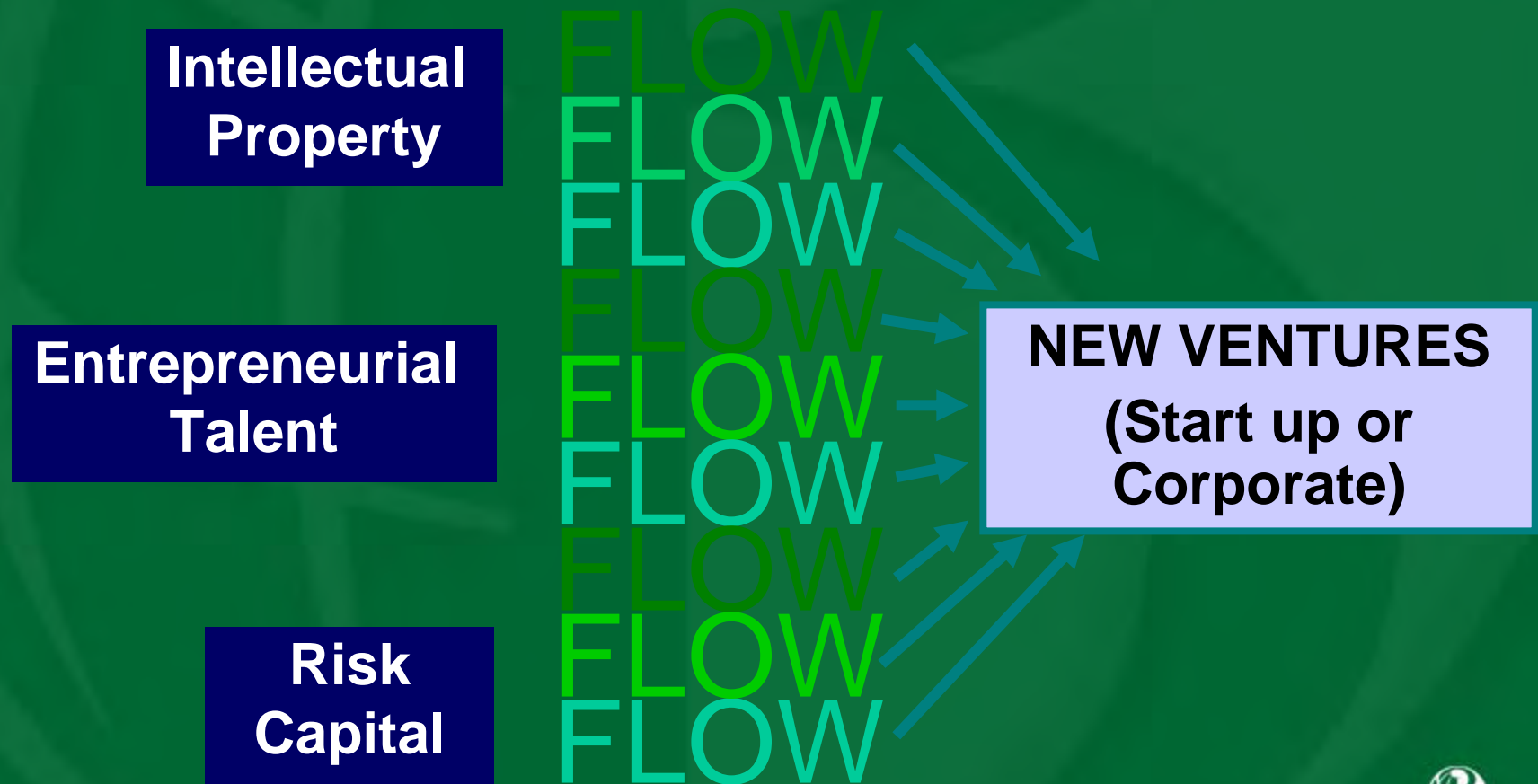
# Future action and research

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## Some Possible Questions:

- How does technology transfer fit into an **entrepreneurial ecosystem** -- for green field start up ventures or for corporate ventures?
- How can the **processes, systems and structures** through which intellectual property is created, developed and commercialized be enhanced?
- How can we expand **the cadre of people** who are highly skilled at managing these processes, systems and structures.
- What **metrics and assessment processes** are most useful for determining inputs and outputs.

# Enhancing Technology Transfer: Increasing the flows of.....



# Uncertainty Framework

**Radical Innovation**

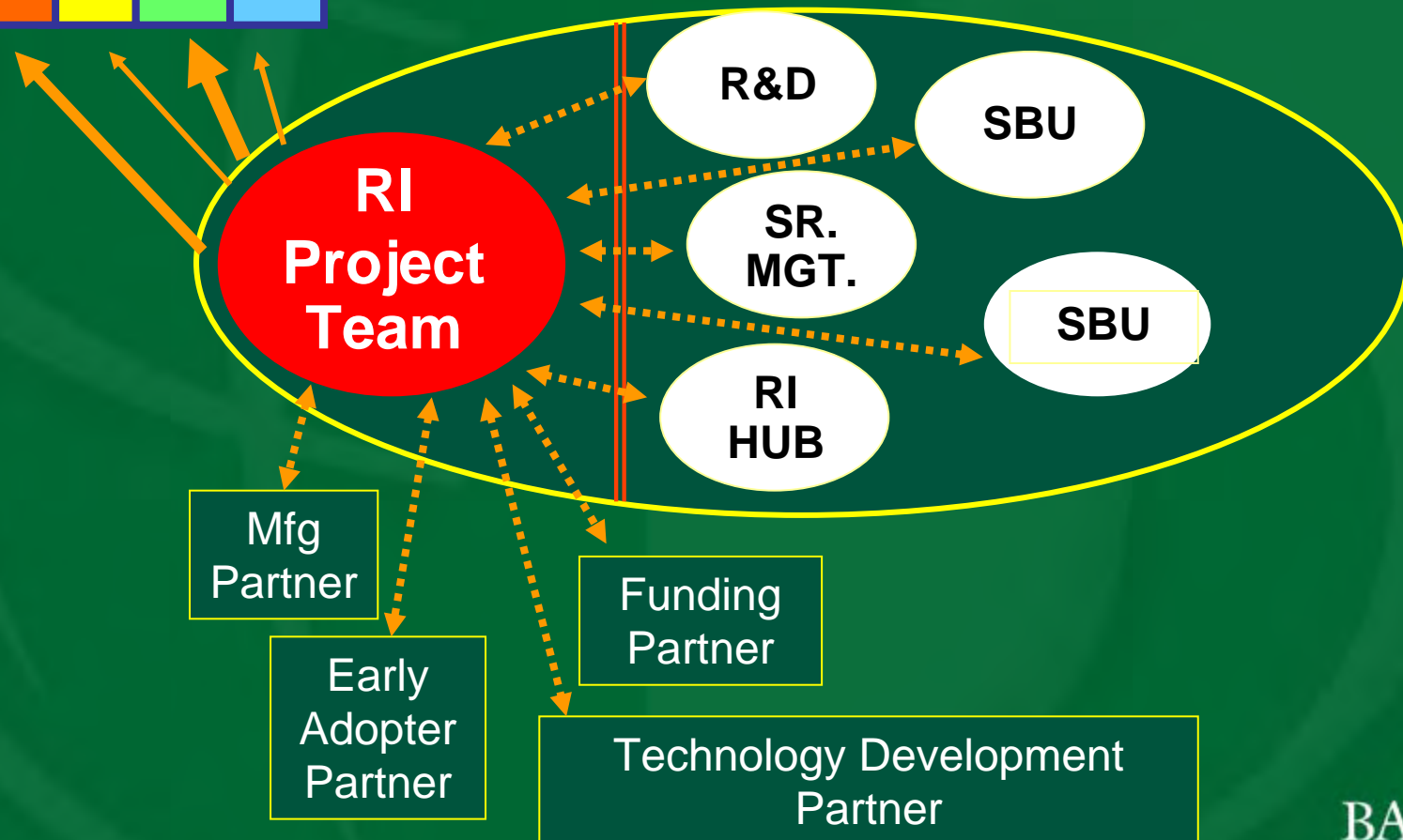
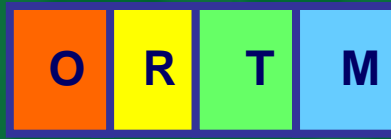
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**Incremental Innovation**

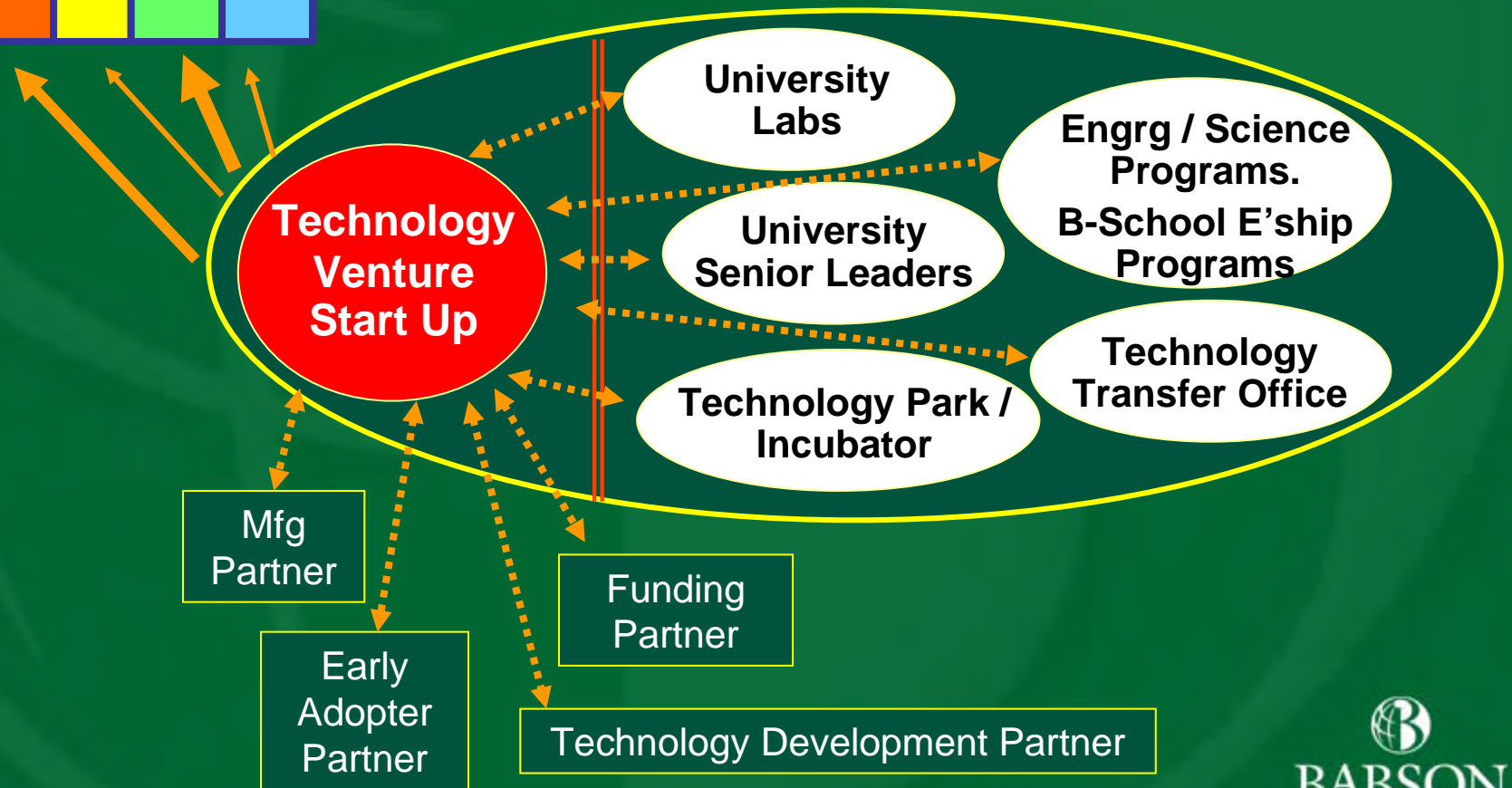
# Technological Venture in a Corporate Context

Uncertainty Framework



# Technological Venture Start Up in a Context of a University-Based Entrepreneurship Ecosystem

Uncertainty Framework



# Future action and research

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Other Possible Questions???