THE UNIVERSITY OF ARIZONA
Research, Discovery & Innovation

The University of Arizona as an Innovation Hub

Stephen Fleming
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Agenda

- Who Am I?
- Universities and Industry
  - The Role of the University
  - The Role of Corporate Research Labs
  - Strategic Corporate Engagement
- Questions and Answers

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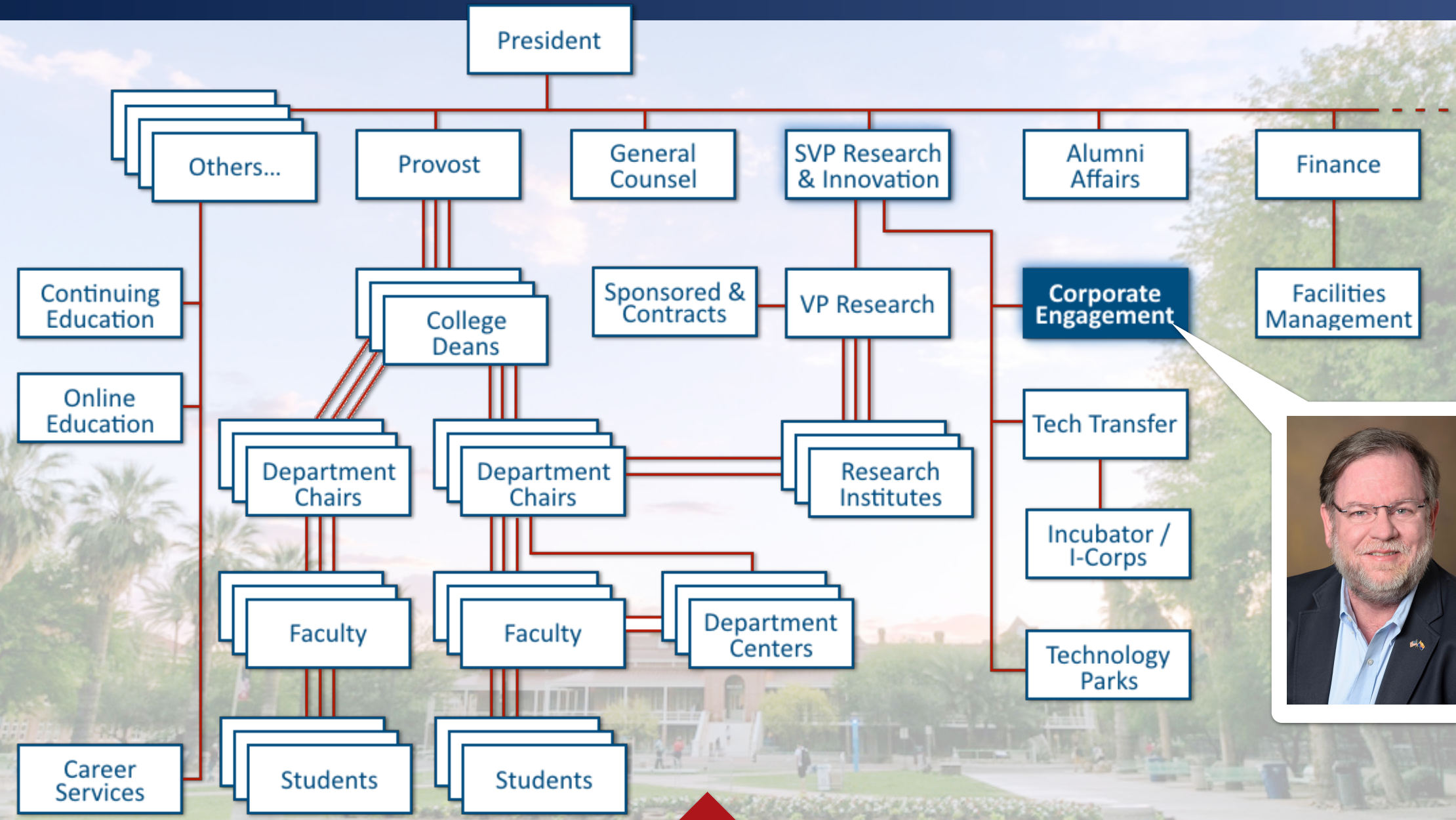
Who Am I?

Universities and Industry

- The Role of the University
- The Role of Corporate Research Labs
- Strategic Corporate Engagement

Questions and Answers

Who Am I? Where Do I Fit In?



What Did I Do Before?

11 years as Vice President, Georgia Institute of Technology.

Responsible for economic development, including commercialization, corporate partnerships, manufacturing support, incubators, accelerators, ecosystem development, & more.

What Did I Do Before?

20+ years venture capital experience at General Partner level:

- 18 investments as lead investor.
- 12 profitable exits *(including 4 IPOs, one $650M acquisition)*.

15 years corporate operations experience:

- AT&T Bell Labs
- Nortel Networks
- LICOM *(venture-backed telecom equipment startup)*.

BS, Physics, Georgia Tech *(Highest Honors)*.

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Universities and Industry

- **The Role of the University**
- The Role of Corporate Research Labs
- Strategic Corporate Engagement

Questions and Answers

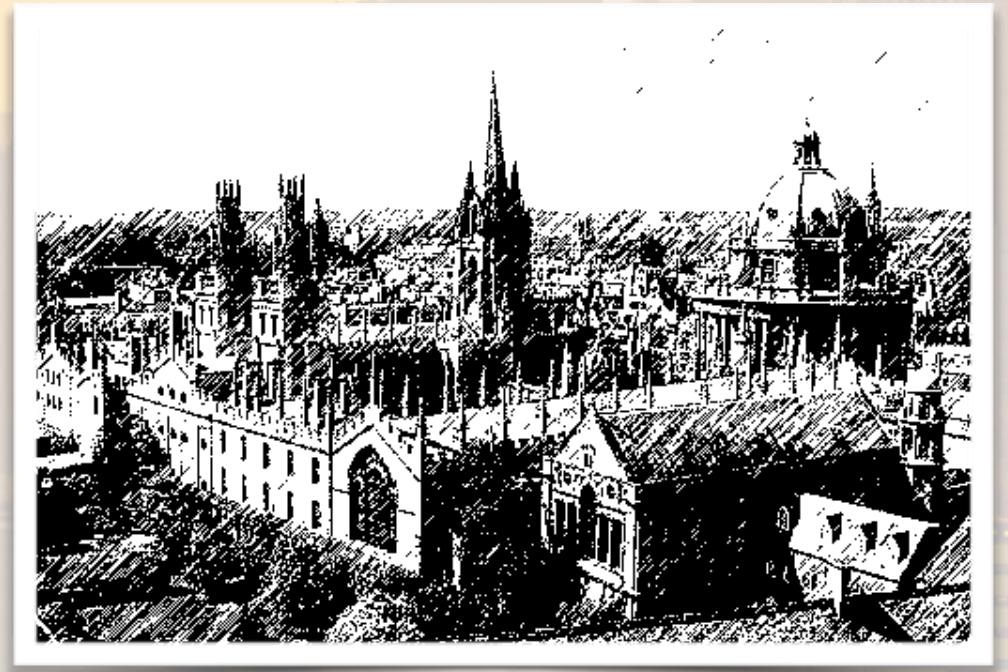
Role of the University

Three distinct stages of university evolution:

Reference: Jan Youtie & Philip Shapira, *Building an Innovation Hub: A Case Study of the Transformation of University Roles in Regional Technological and Economic Development*, 2006

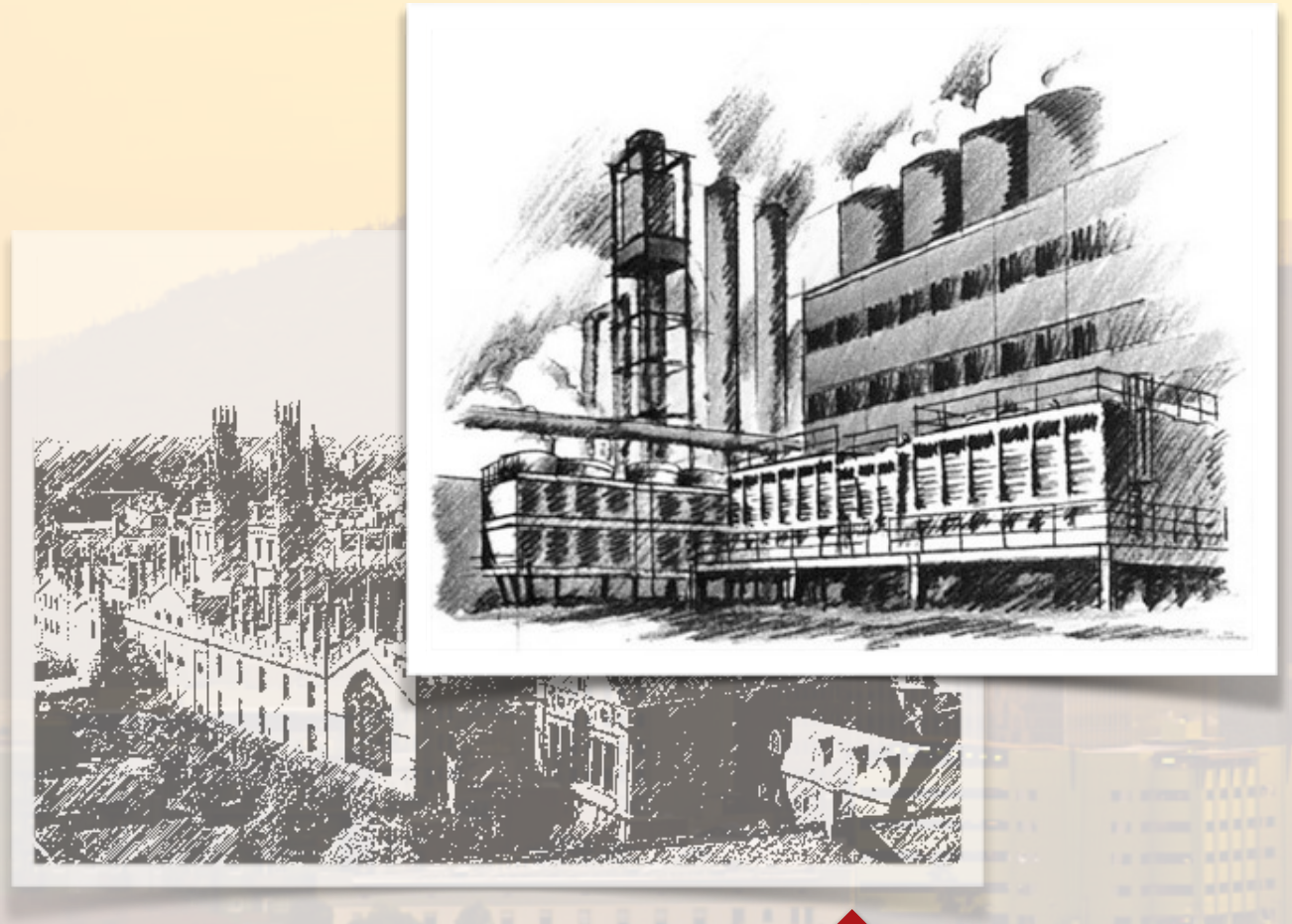
Role of the University

Scholarly storehouse



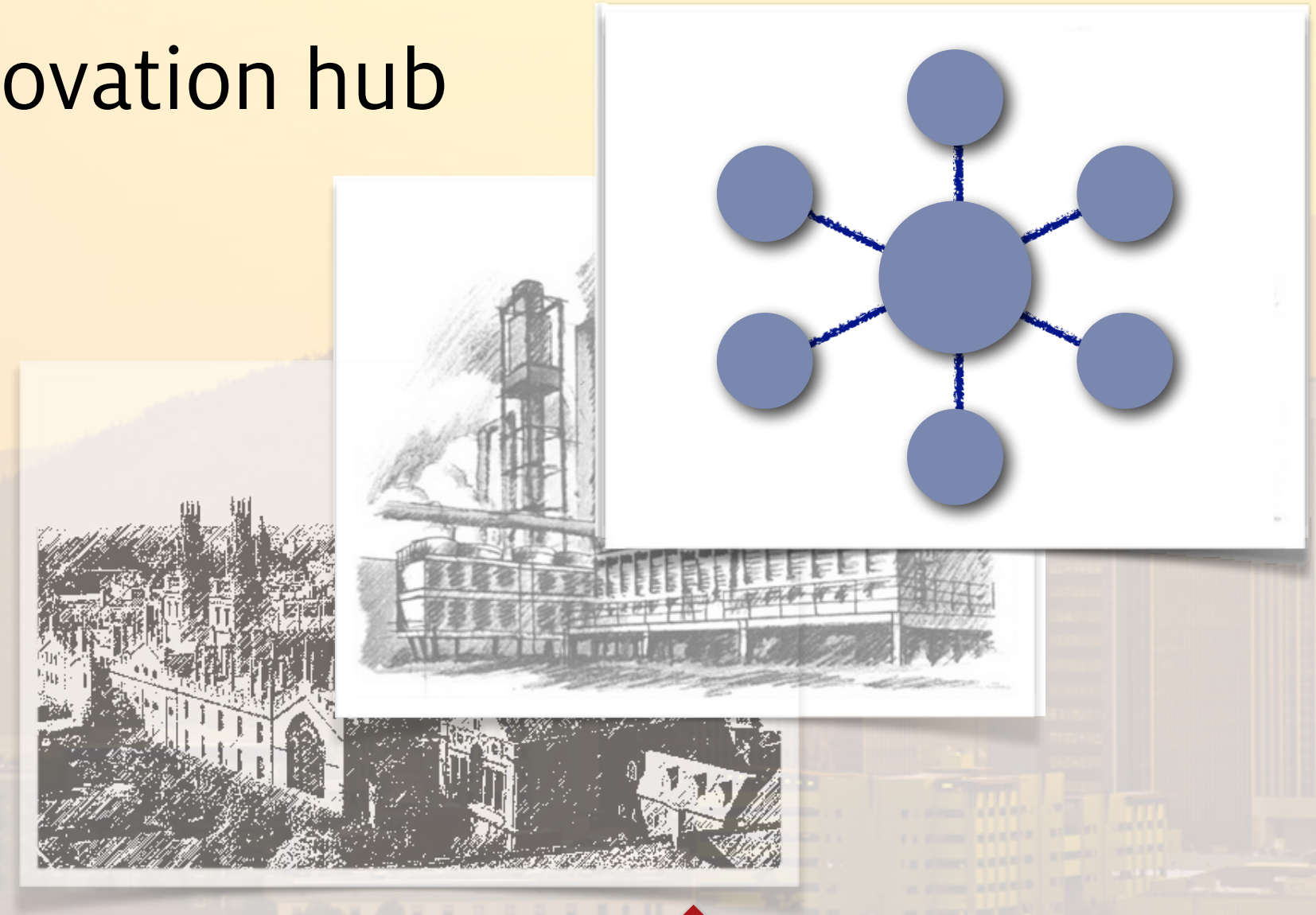
Role of the University

Competence factory



Role of the University

Innovation hub



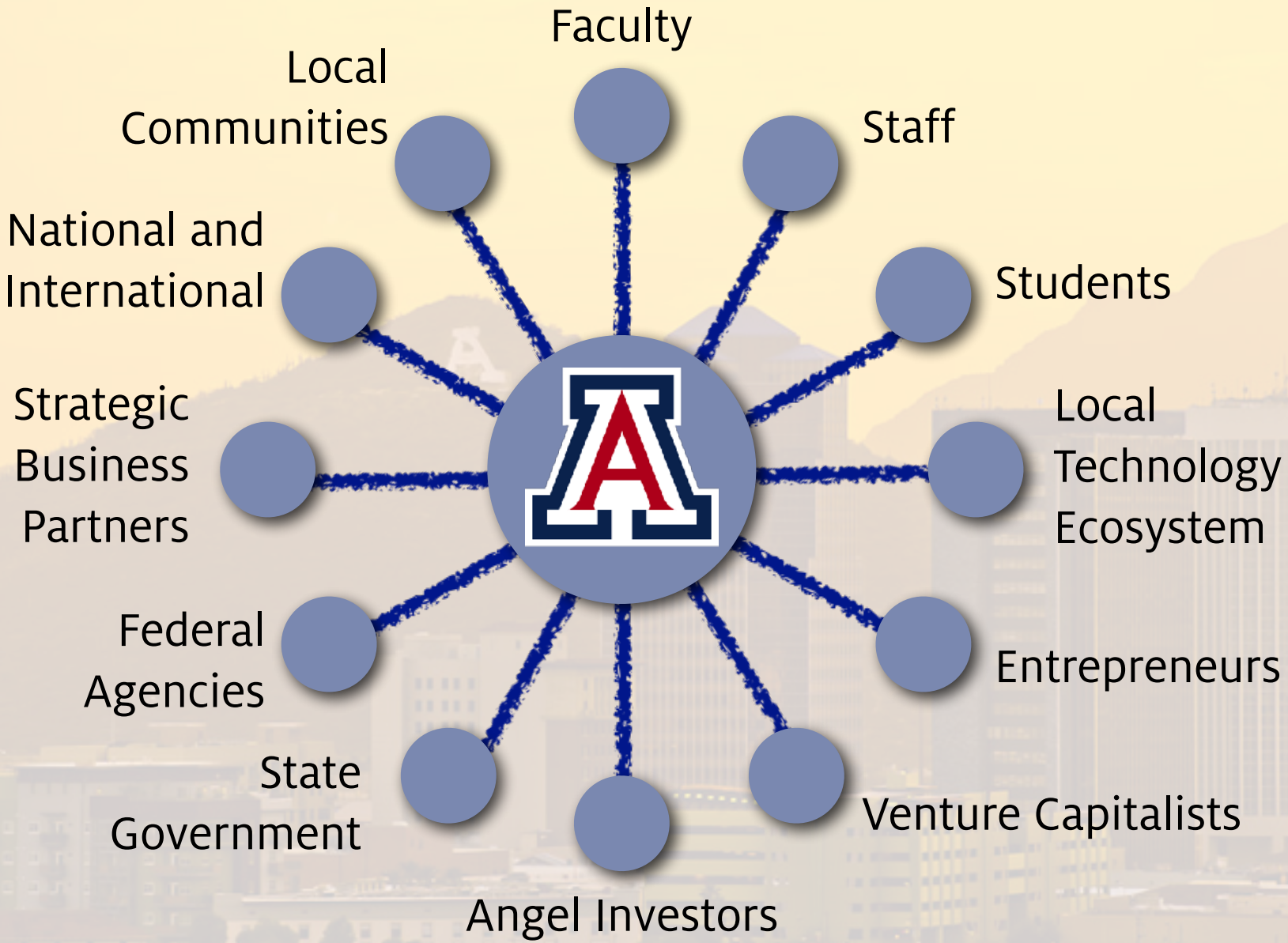
What is Innovation?

Research is the transformation of money into knowledge.

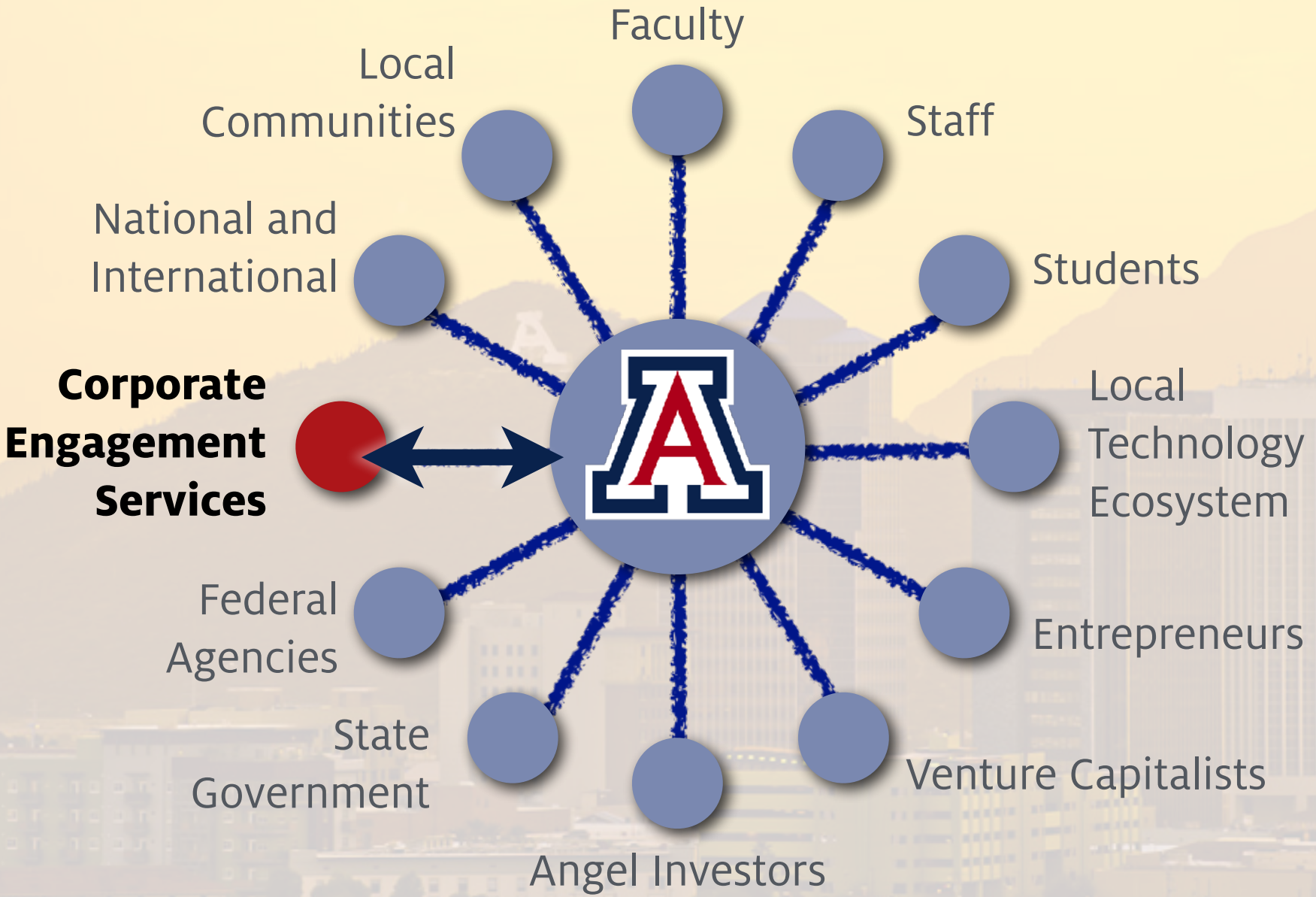
Innovation is the transformation of knowledge into money.

—Dr. Geoffrey Nicholson, 3M
(inventor of the Post-it note)

The University as an Innovation Hub



The University as an Innovation Hub



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Who Am I?

Universities and Industry

The Role of the University

▶ **The Role of Corporate Research Labs**

Strategic Corporate Engagement

Questions and Answers

Death of Corporate Research Labs

Photo credit: Rich Johnson, https://www.flickr.com/photos/rajohnson/3547763784/in/album-72157618503195176/

Death of Corporate Research Labs

AT&T Bell Labs: Murray Hill, NJ

In this building:

- Invention of the **transistor**.
- Assembly of the first **telecommunications satellite**.
- Commercialization of the first **laser**.
- Invention of the **C programming language** and the **Unix operating system**.

Decades of major innovations!

Death of Corporate Research Labs

Death of Corporate Research Labs

Corporations are increasingly focused on near-term results.

Who will step up to investigate

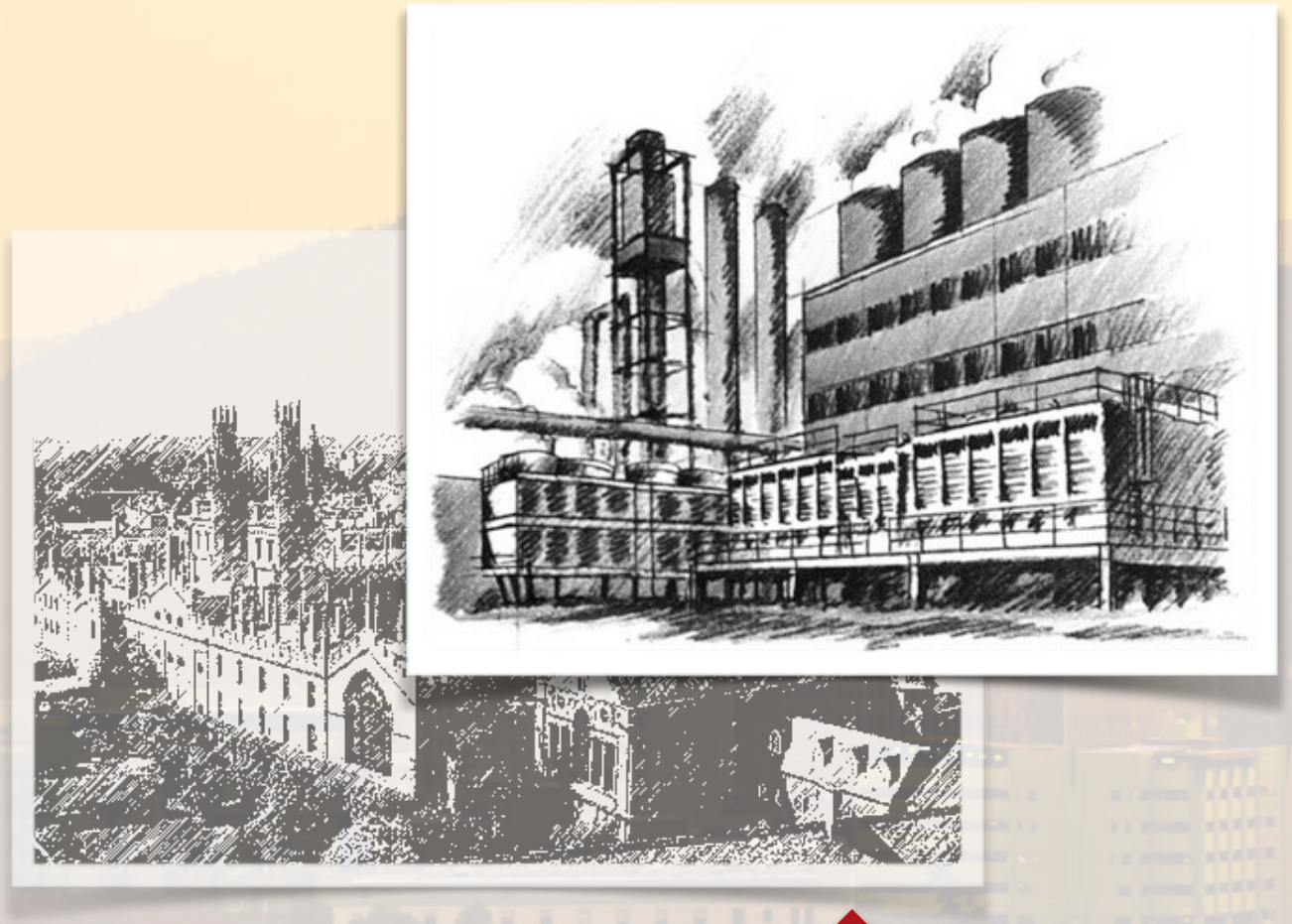
Long-shots: Unorthodox ideas that are likely to fail?

Long-term: Research efforts that won't be translated into useful products for years… or decades?

Emerging: New areas of research that don't fit neatly into divisional org charts?

Role of the University

Competence factory



The Rise of University Research

Research universities are increasingly seen as the new engines of economic growth.

Public-private partnerships must balance

- Commercial focus, while
- Maintaining academic freedom.
  - *Right to publish.*
  - *Curiosity-driven research.*

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The Role of the University

The Role of Corporate Research Labs

▶ **Strategic Corporate Engagement**

Questions and Answers

Corporations Want Access to…

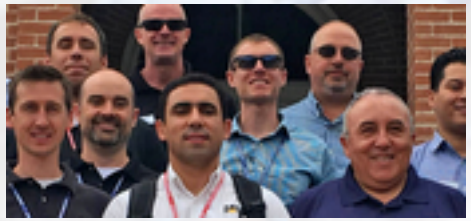
Students

Teaming Opportunities

Faculty Thought Leaders

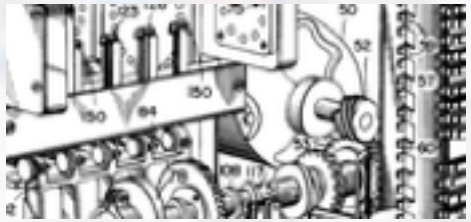
Startups and Spinouts

Core Facilities and Labs



Professional Education

Dedicated Facilities



Intellectual Property

Access to Students

Next-generation talent acquisition.

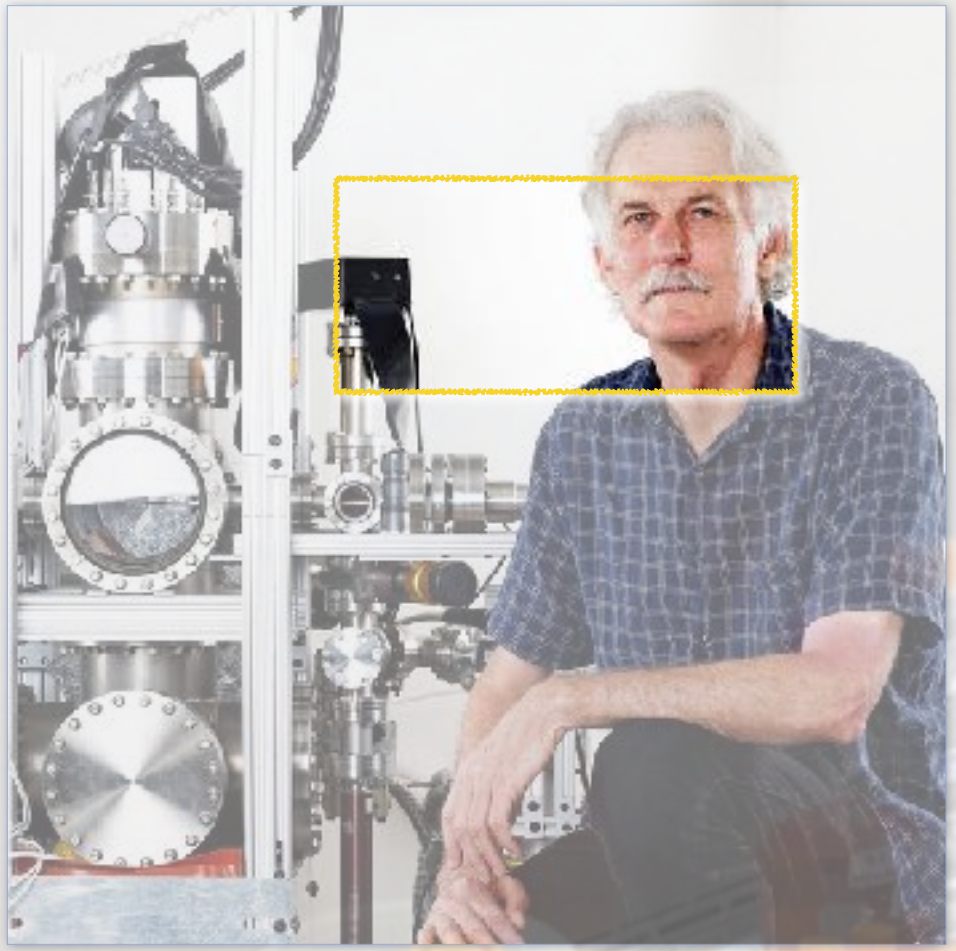
- Graduate and undergraduate levels, including design contests.

Ability to “test-drive” students over multiple semesters/years.

- Demonstrate skills, establish corporate “fit.”

Competitive advantage by attracting top students early in their academic careers.

Access to Faculty Thought Leaders

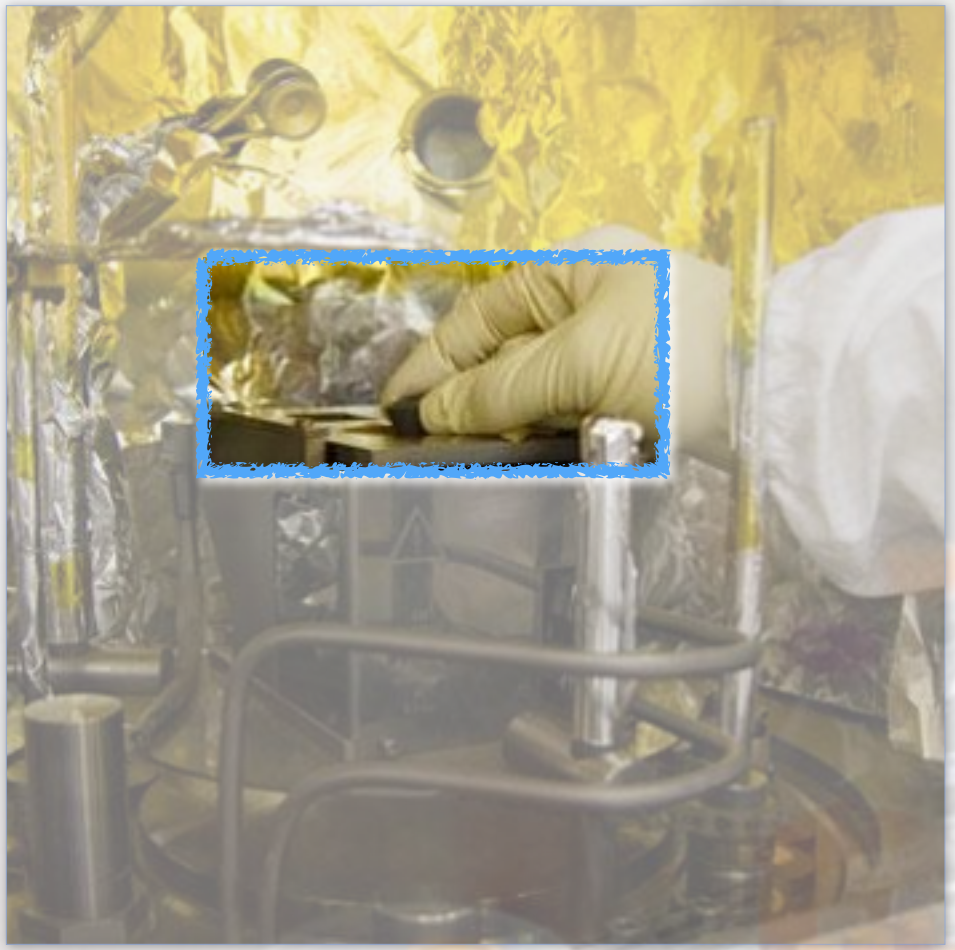


Early access to new technologies and new applications.

Playing offense: Establish first mover advantage in new markets.

Playing defense: Prepare and protect against disruptive changes to existing businesses.

Access to Core Facilities and Labs



Specialized scientific instruments/equipment for experimental research.

Cutting-edge technologies for new product research and development.

Professional services including training, education, and expert consultation.

Access to Dedicated Facilities

Tech Parks Arizona: Environments that support and promote corporate research and innovation.

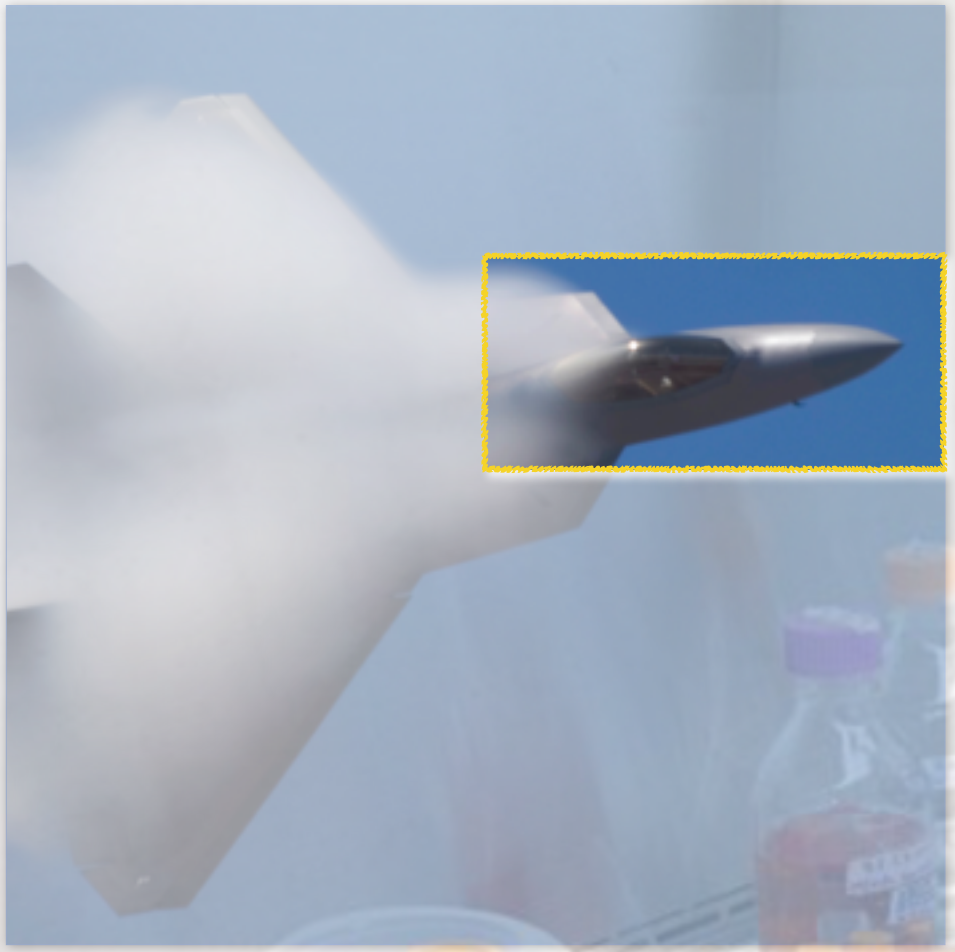
Facilities:

- Incubator space for startups.
- 2 million square feet of office, R&D, laboratory, and production facilities for larger companies *(incl. IBM, Raytheon)*.
- More under development.

Unique grid-connected Solar Zone.

Global "soft landing" services.

Access to Teaming Opportunities



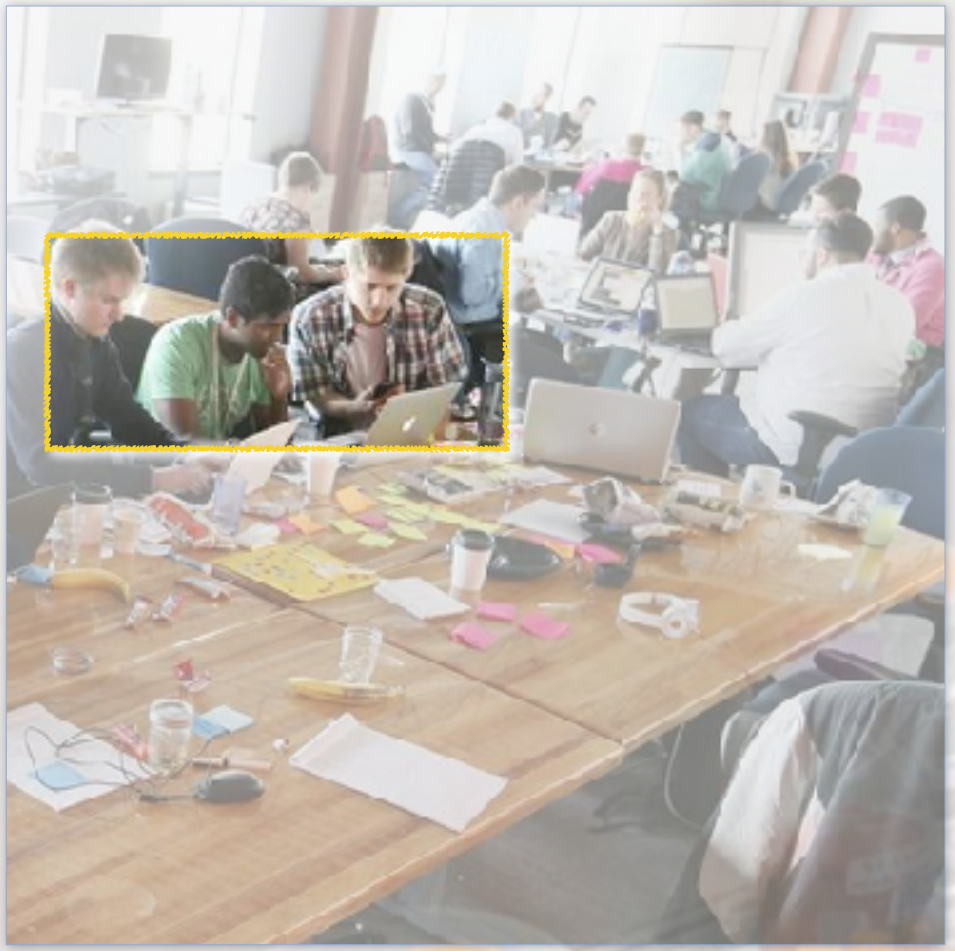
US government research grants to universities are increasingly requiring corporate partnerships.

- SBIR/STTR
- Technology transfer
- Increasing TRL levels

Corporate interest is disproportionate to dollar amount

- Access to future development contracts
- Workforce development

Access to Startups and Spinouts



Low-cost, low-impact experimentation with new technologies and services.

- Avoid premature “mainstreaming” into existing lines of business.
- “Sandbox” for corporate innovation.

Evolving relationships:

- Investor.
- Customer.
- Business partner.
- Acquirer.

Access to Professional Education

Sharpening the capabilities of existing employees.

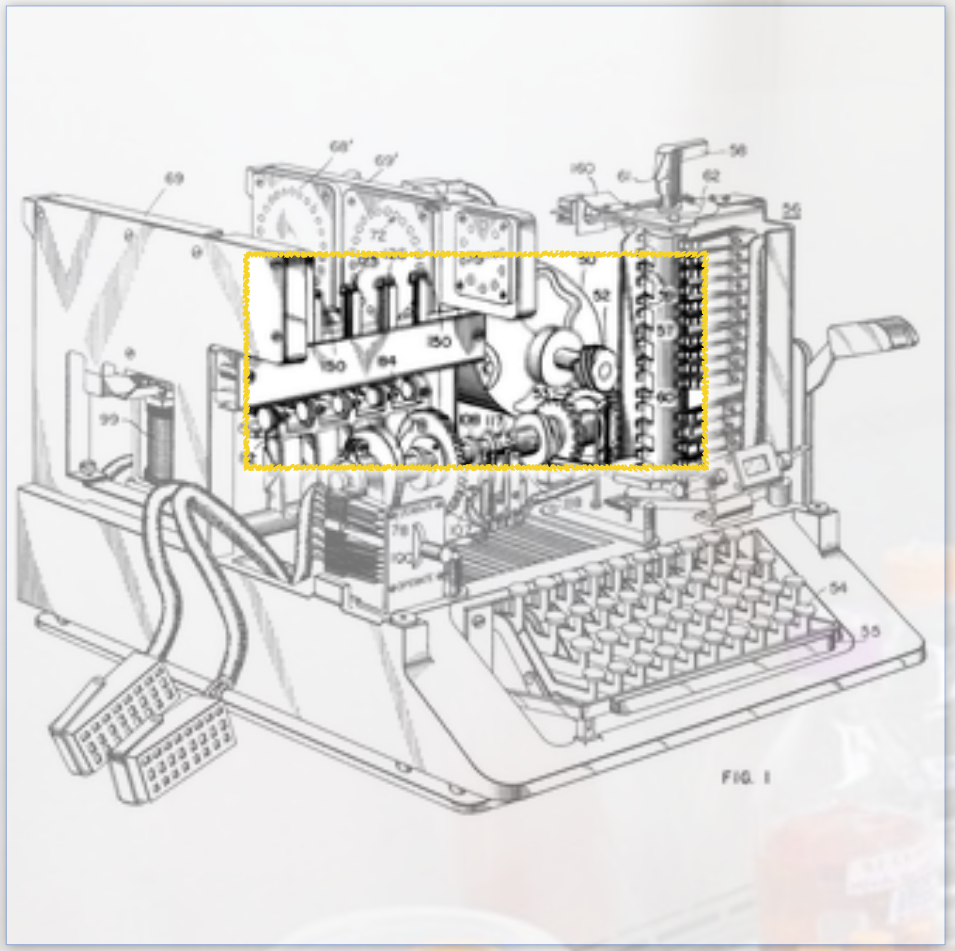
New technologies and skills

New career paths

Standard certificates, or customized company-specific programs.

Face-to-face and online options available.

Access to Intellectual Property



Subject of detailed and frequently contentious negotiations.

Sometimes difficult for corporations to accept university restrictions on patent ownership.

The best way to transfer technology is in the skull of a recent graduate.

So you're back to talent acquisition!

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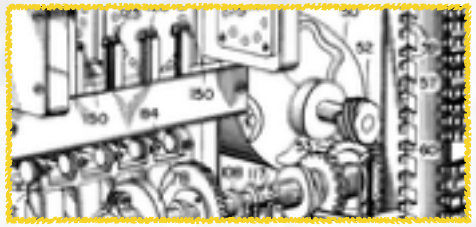

Intellectual Property

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Questions and Answers

Thank You!

Thank You!

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