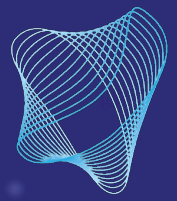

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NSF Engineering Research Center

Corporate Partnerships and the CQN Innovation Ecosystem

Stephen Fleming

University of Arizona

Funded by the National Science Foundation and the Department of Energy under NSF cooperative agreement #1941583

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)*.

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

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Role of the University

Scholarly storehouse

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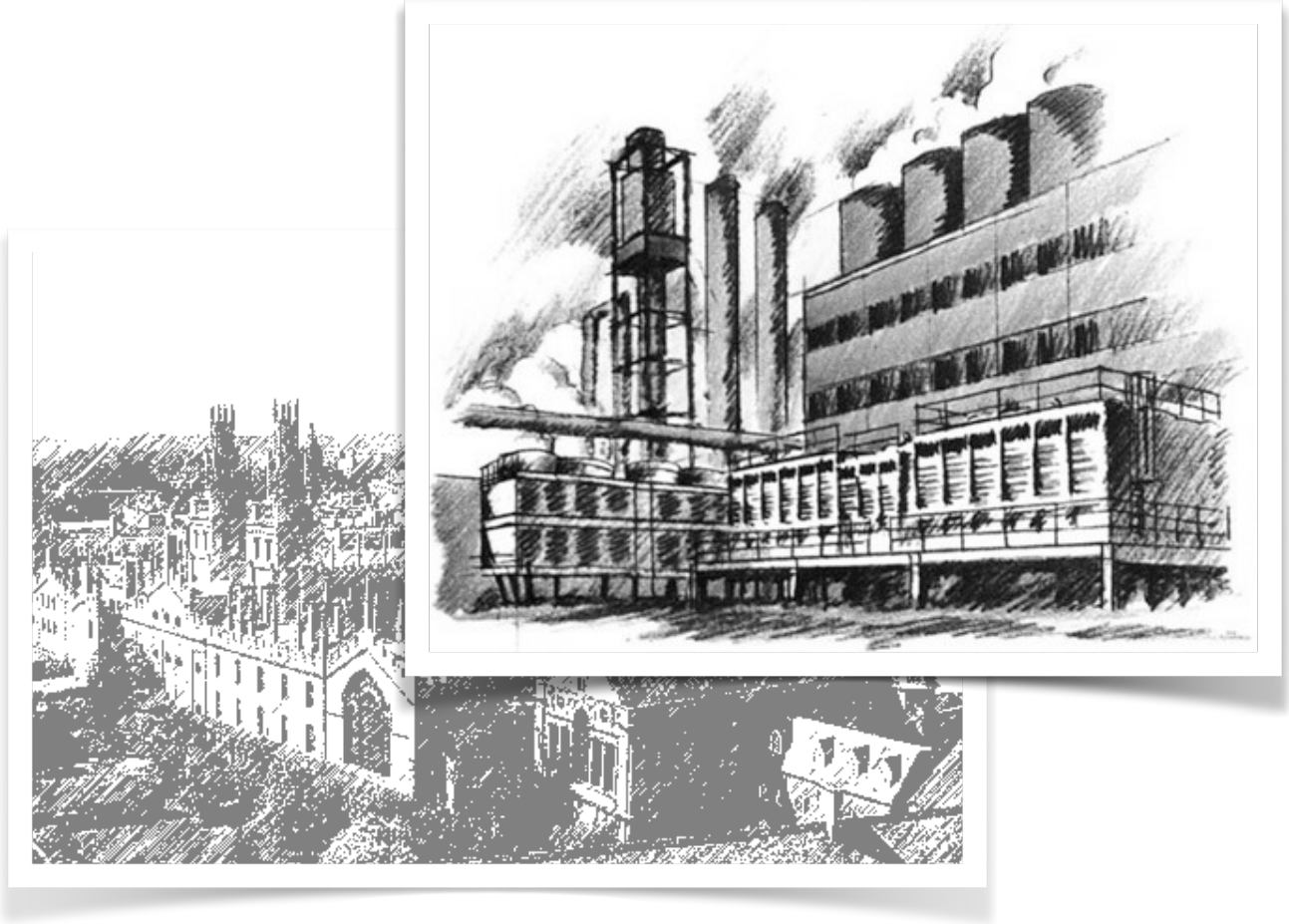
Role of the University

Competence factory



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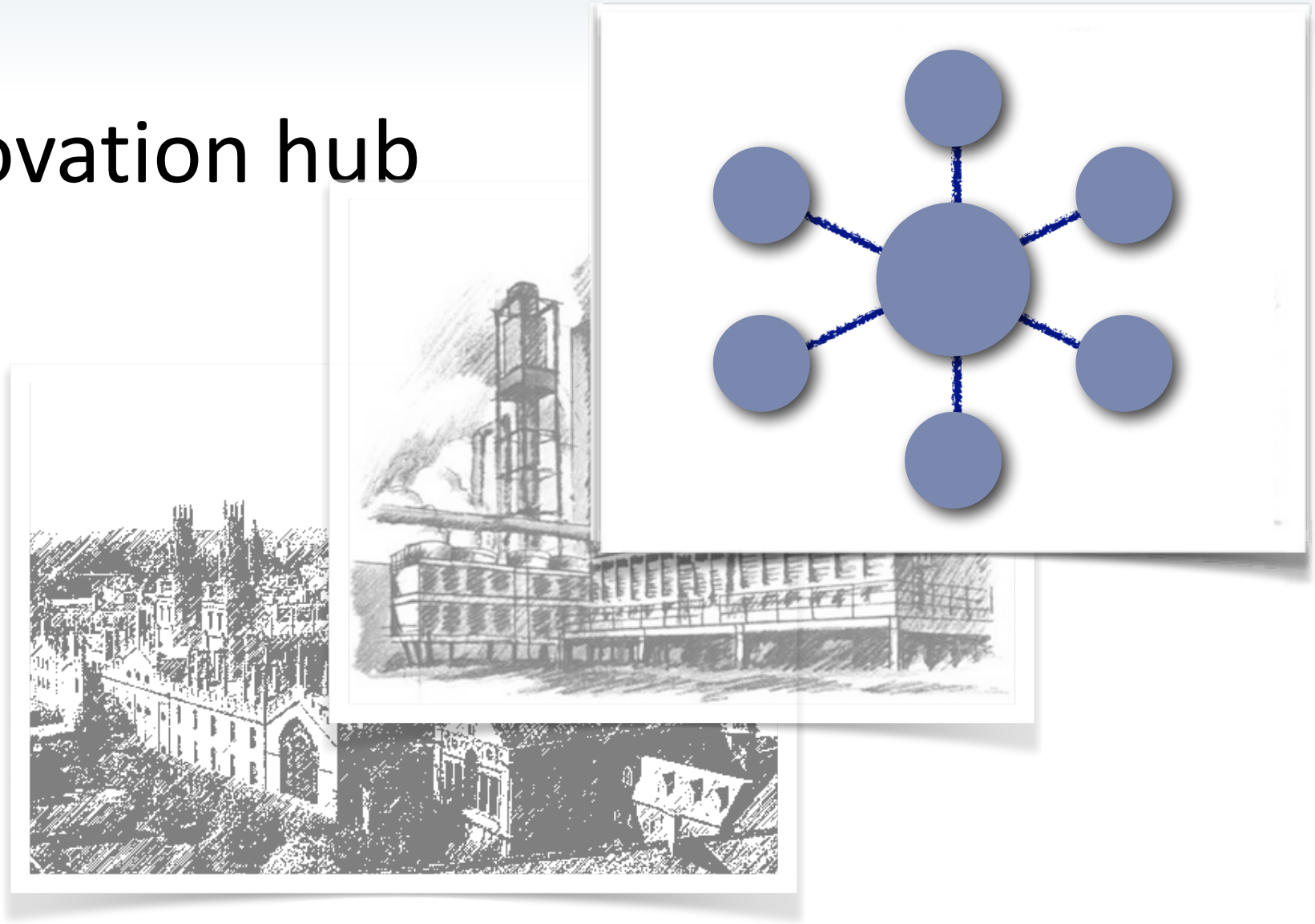
Role of the University

Innovation hub



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Role of the University

Innovation hub

What is Innovation?

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What is Innovation?

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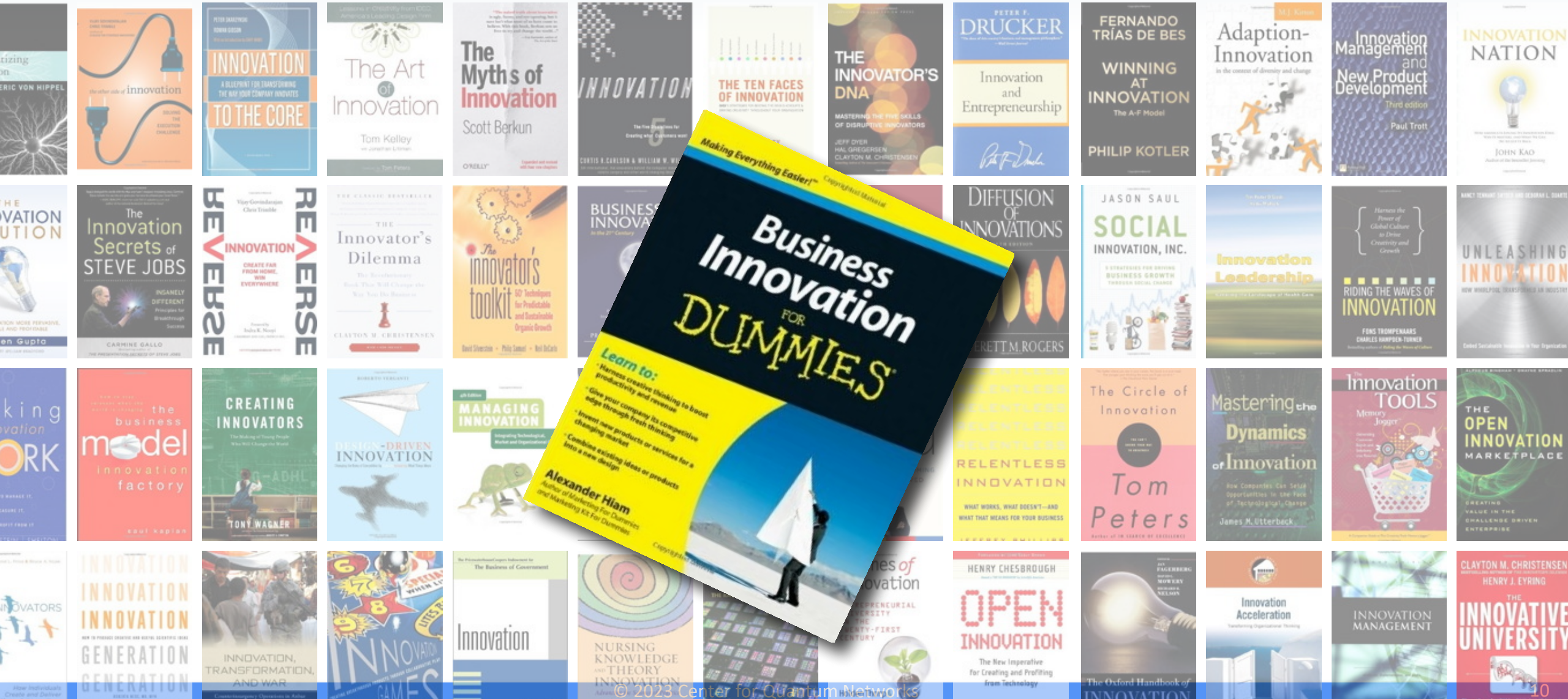
What is Innovation?



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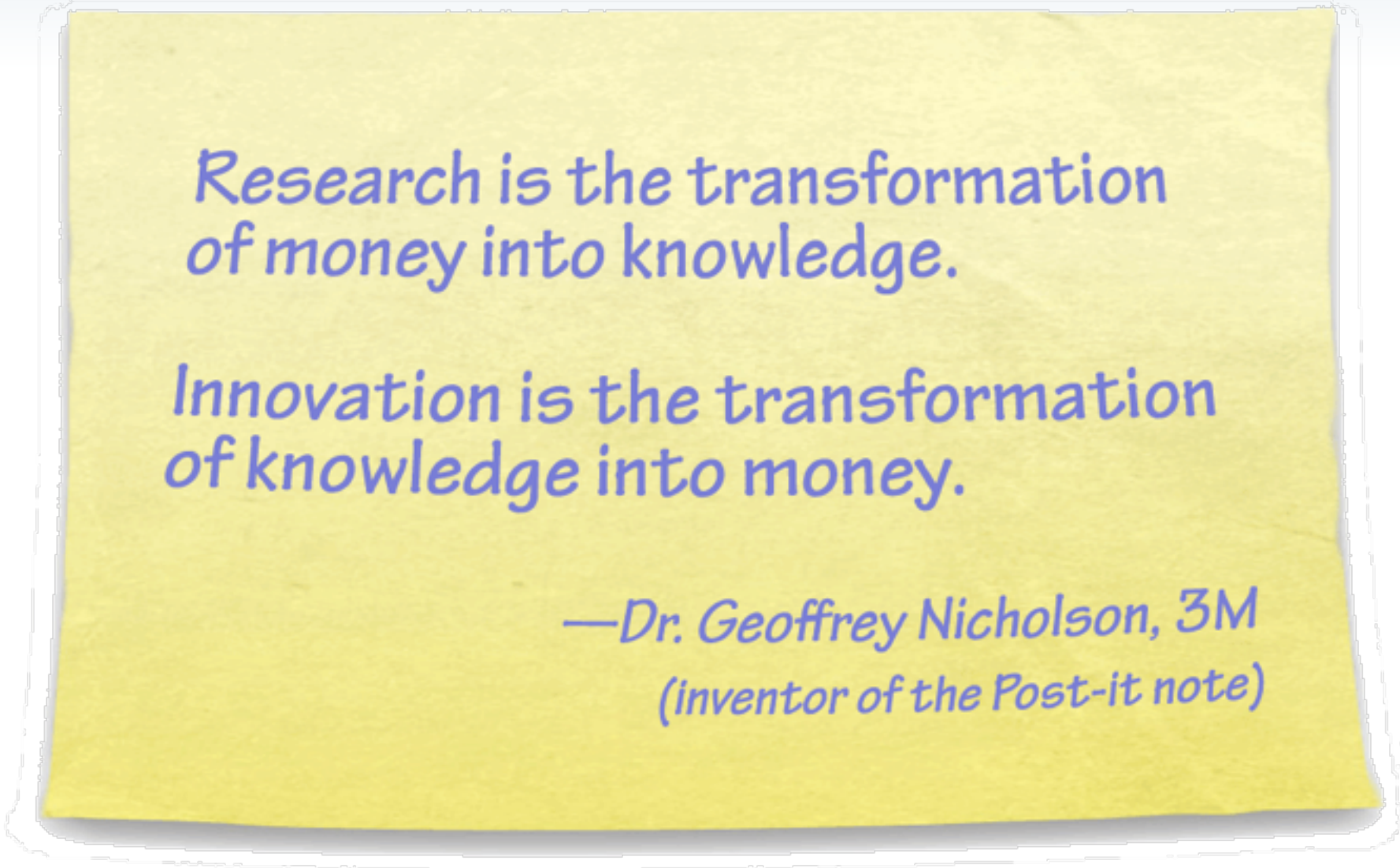
What is Innovation?



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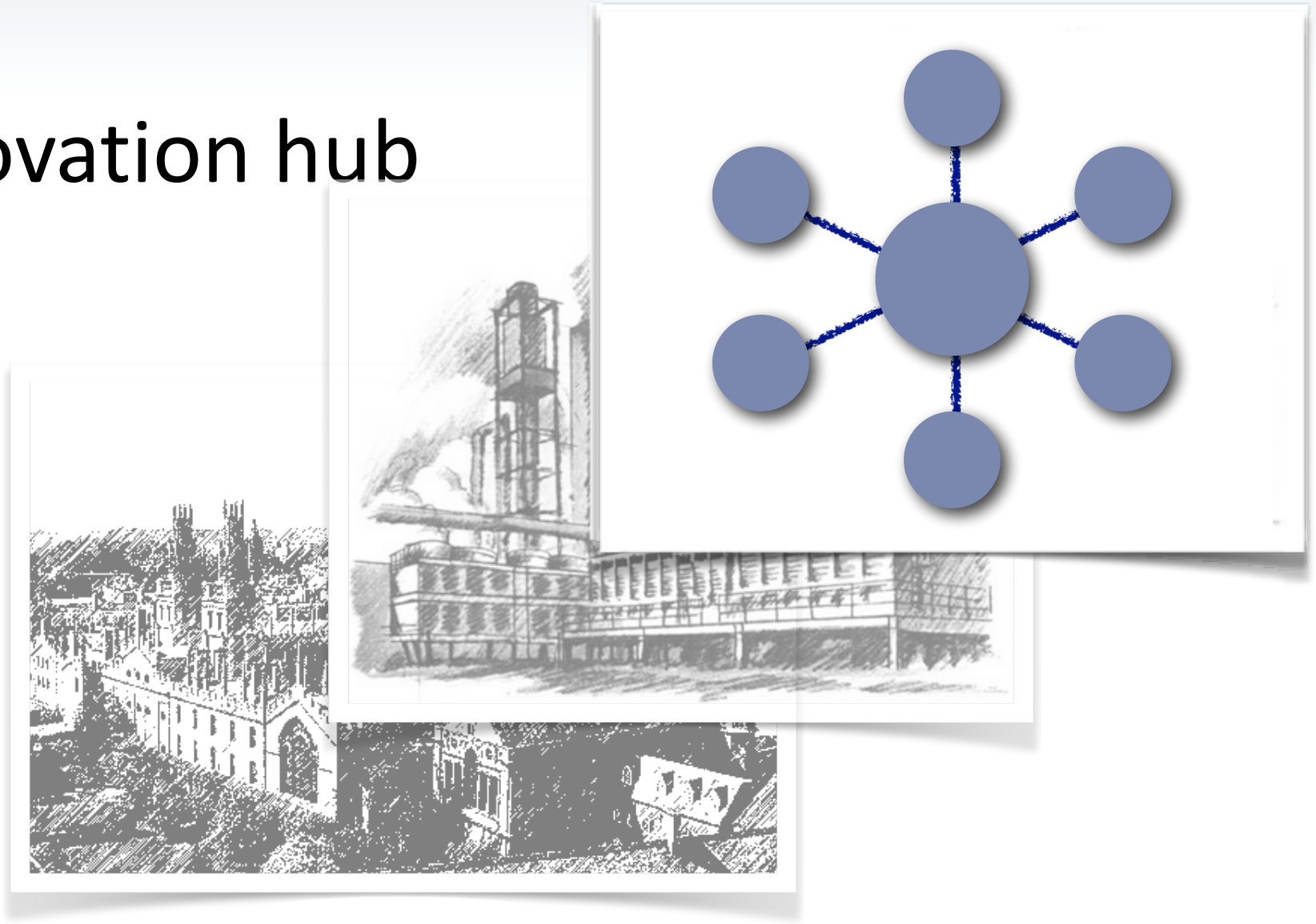
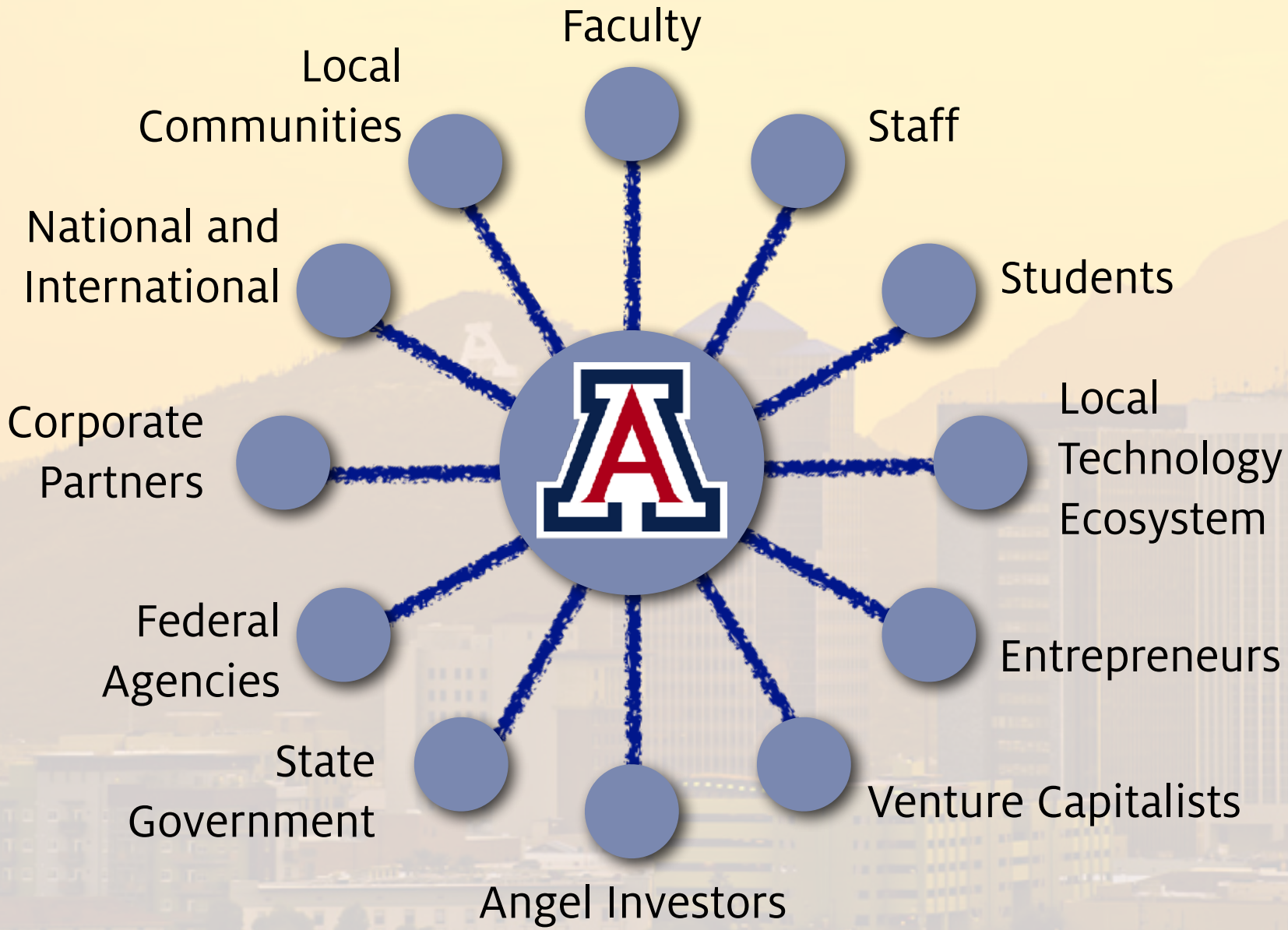
Role of the University

Innovation hub



The University as Innovation Hub



CQN as an Innovation Hub

Core Academic Partners

Other Academic Partners

International Partners

K-12 Education Partners

FFRDCs / Federal Agencies

US Industry

Incubators

Venture Capital Investors

Spinout / Startup Companies

CQN

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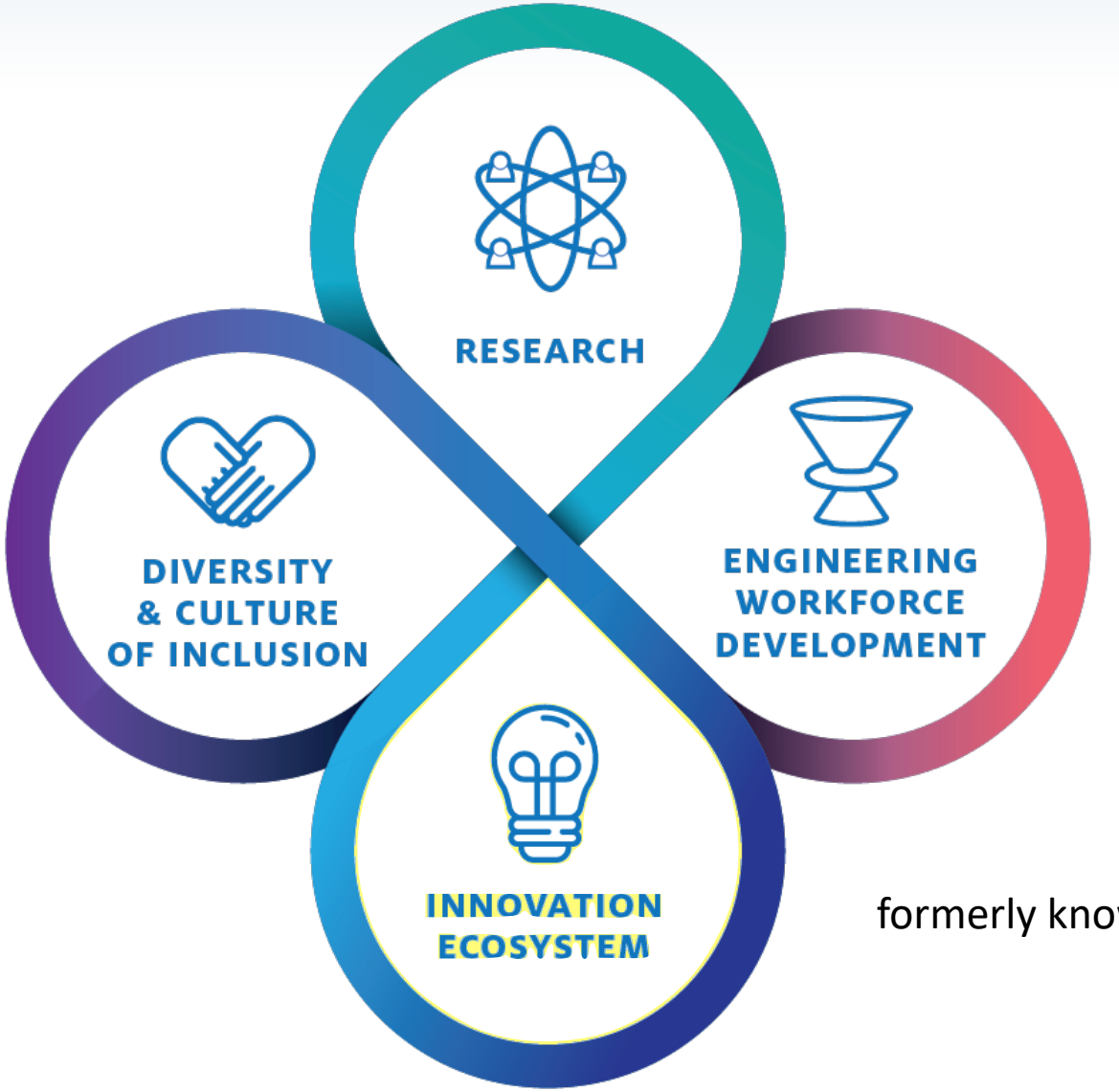
ERC Foundational Components



formerly known as “Pillars”

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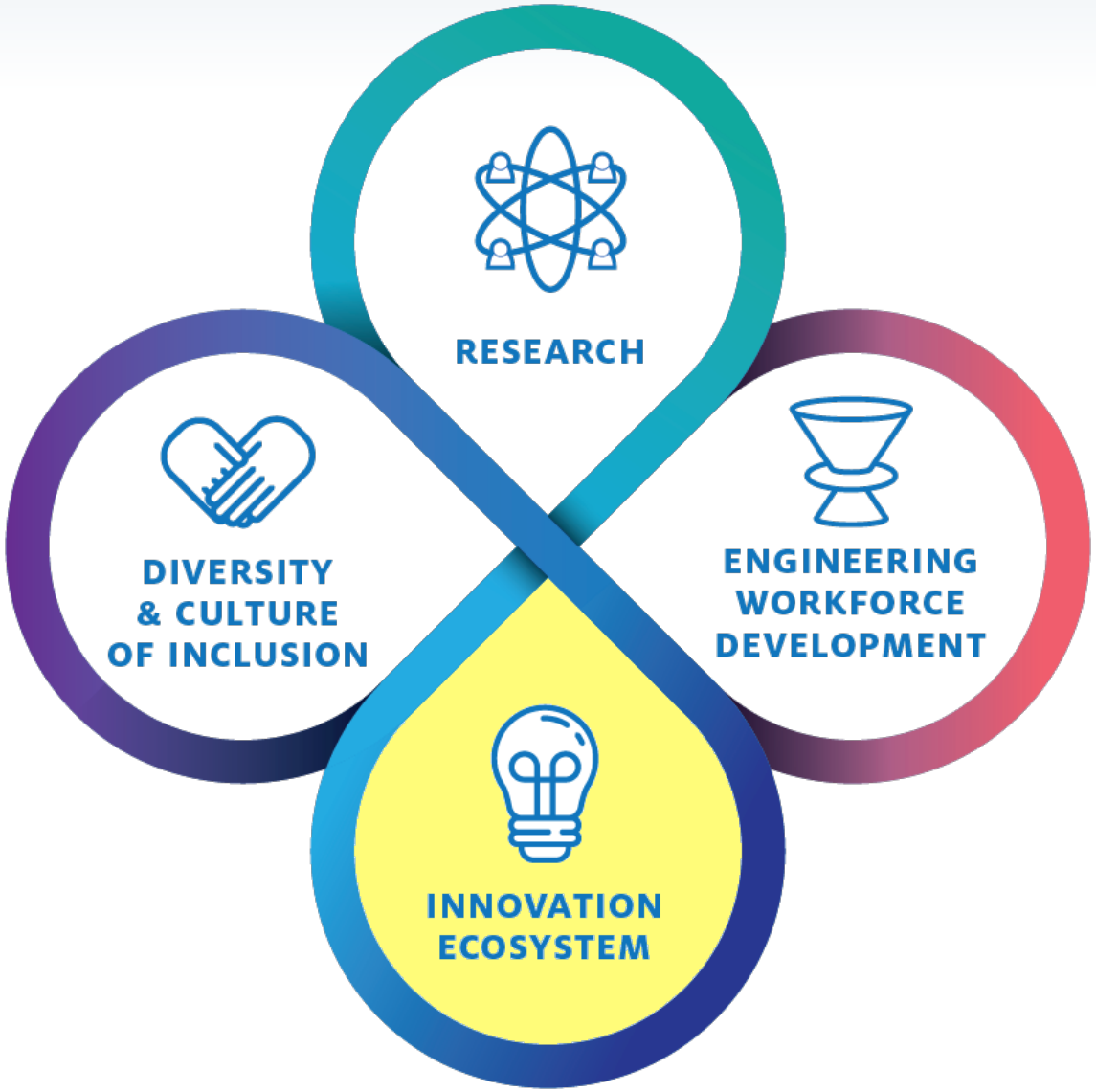
ERC Innovation Ecosystem



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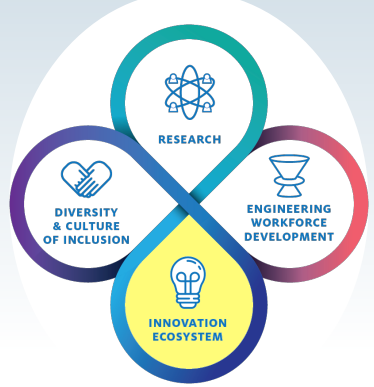
CQN Innovation Ecosystem



Core Academic Partners

Other Academic Partners

International Partners

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CQN

Spinout / Startup Companies

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US Industry

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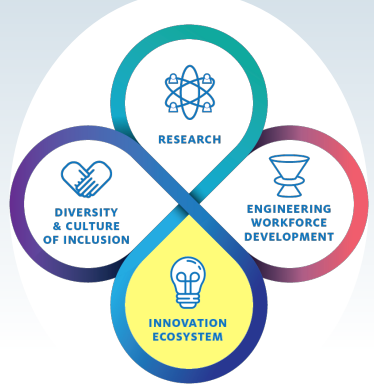
CQN Industrial Partners Program



Core Academic Partners

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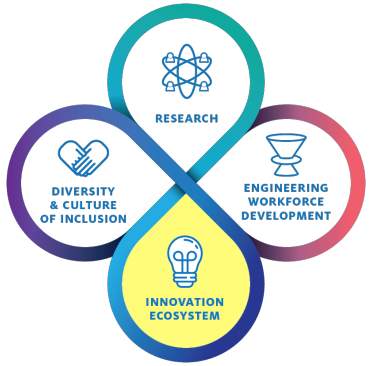
Industrial Partners Program (IPP)

IPP Membership Level	Bronze	Silver	Gold	Diamond
Annual Contribution ‡	In-Kind/NC*	$10,000	$40,000	$150,000
Early Access to Research Results	✓	✓	✓	✓
Technical Collaboration	✓		✓	✓
Industry Advisory Board (IAB)	observer	observer	1 vote	2 votes
Access to Facilities, Seminars, Recruiting of Students & Postdocs	✓		✓	✓
Ability to Sponsor Research			✓	✓
Customized Research Opportunities				✓
Early Access to Intellectual Property				✓
Partial Patent Costs Reimbursement				✓
Priority Option for IP Licensing				✓



* Bronze membership is reserved for government agencies, not-for-profits, venture capital firms, etc.
‡ All Members may adjust cash, in-kind, and IP license credits with the approval of the Center Director.

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IPP Membership — March 2023

NSF

Bronze	Silver	Gold	Diamond
AEROSPACE	Aliro	LOCKHEED MARTIN	CISCO
FLYBRIDGE CAPITAL PARTNERS	ANAMETRIC	QULABS	Infleqtion
OSAGE UNIVERSITY PARTNERS	CORNING	QuNETT	ColdQuanta SUPERTECH
JPL	GaN Corporation	Qunnect	JUNIPER NETWORKS
RESEARCH, ENGINEERING WORKFORCE DEVELOPMENT, INNOVATION ECOSYSTEM, DIVERSITY & CULTURE OF INCLUSION	GENERAL DYNAMICS Mission Systems	Raytheon Technologies	L3HARRIS™
	nu QUANTUM	TOPTICA PHOTONICS	
	QIS Quantum Innovative Solutions		
	TELEDYNE TECHNOLOGIES INCORPORATED		

Companies on this page have joined or committed to join the CQN IPP.

Corporations Want Access to…

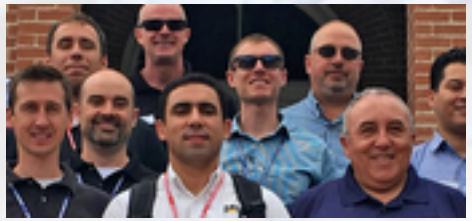
Students

Teaming Partnerships

Faculty Thought Leaders

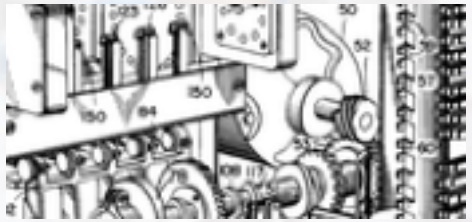
Startups and Spinouts

Core Facilities and Testbeds



Professional Education

Dedicated Facilities



Intellectual Property

Access to Students

Next-generation talent acquisition.

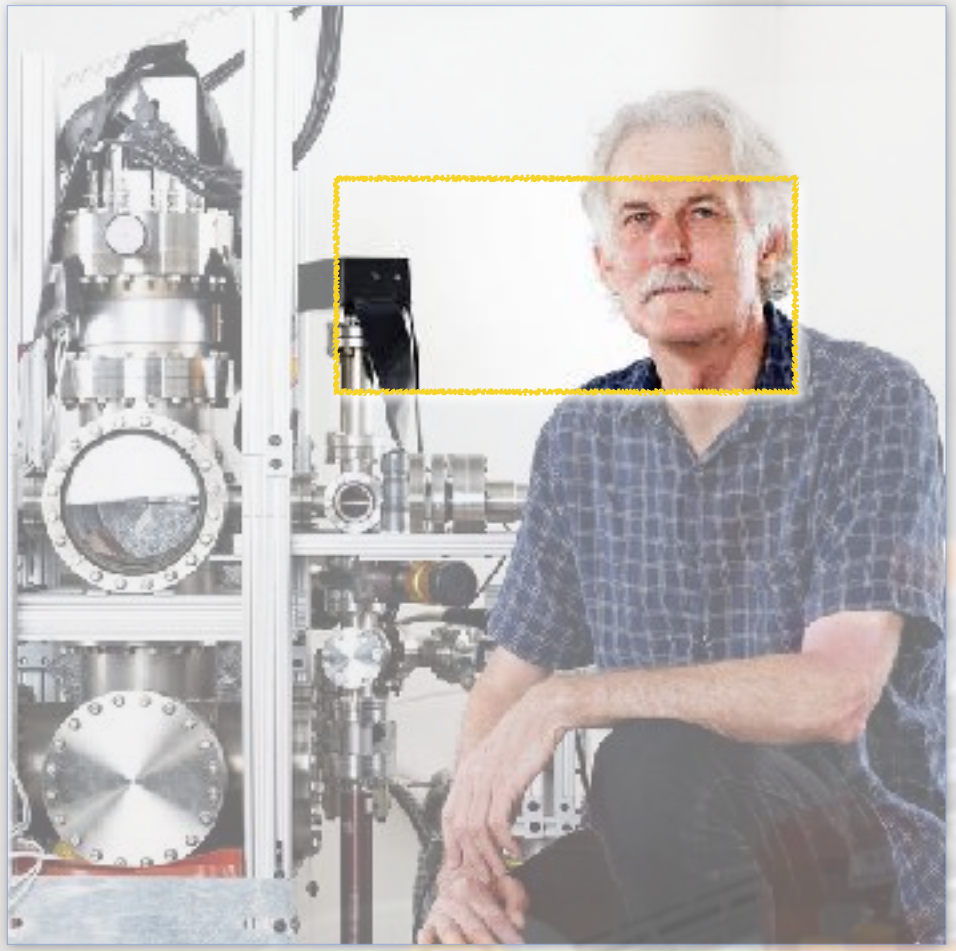
- Graduate and undergraduate levels, including design contests.

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

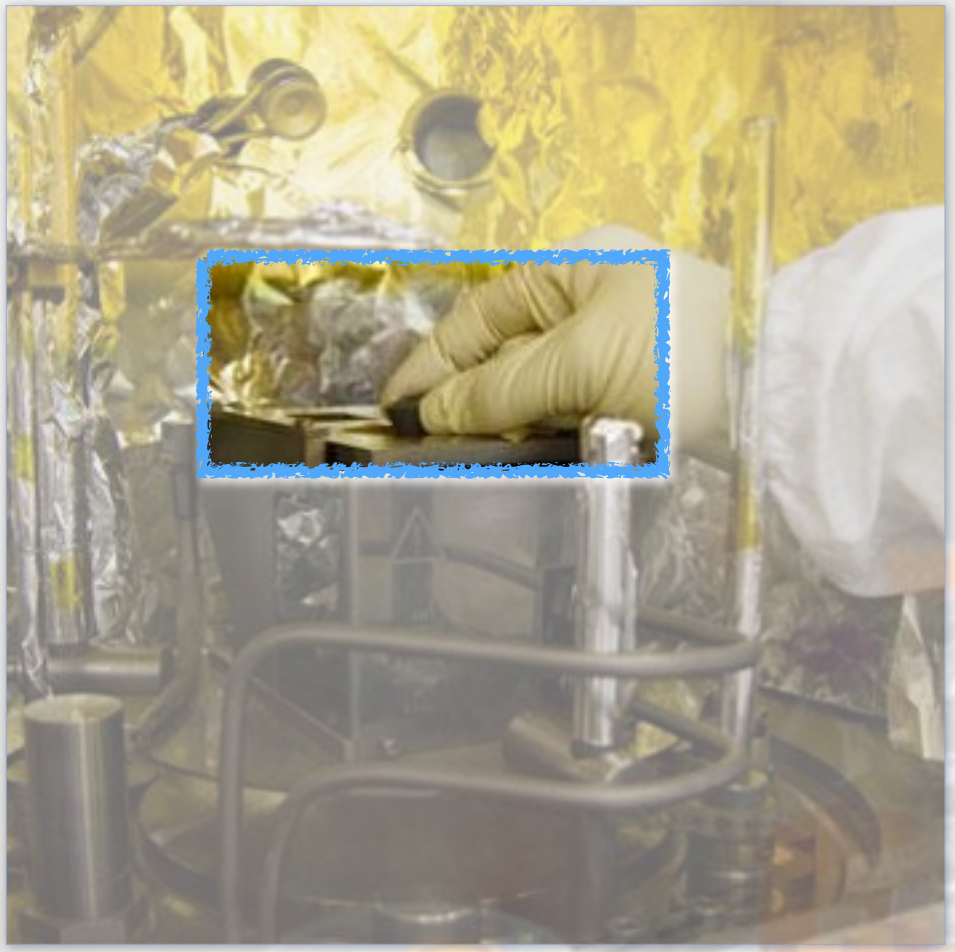


Early access to new technologies and new applications.

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 Testbeds



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.

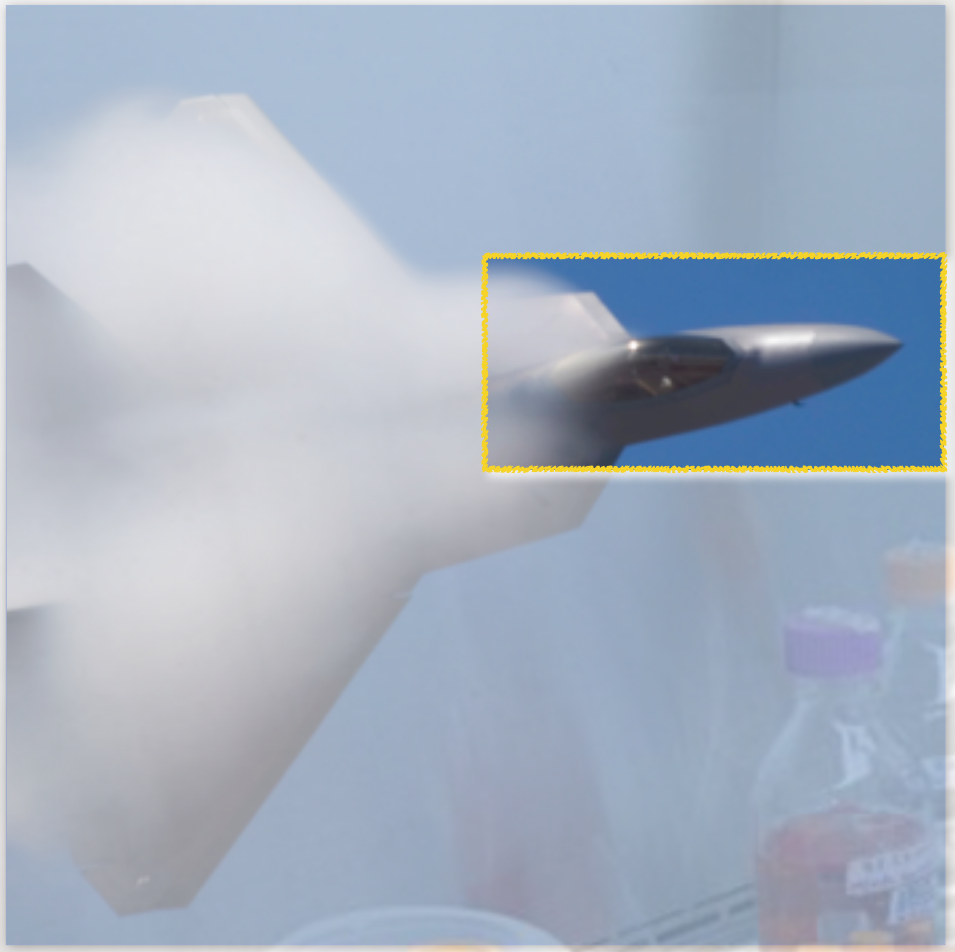
Facilities:

- 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



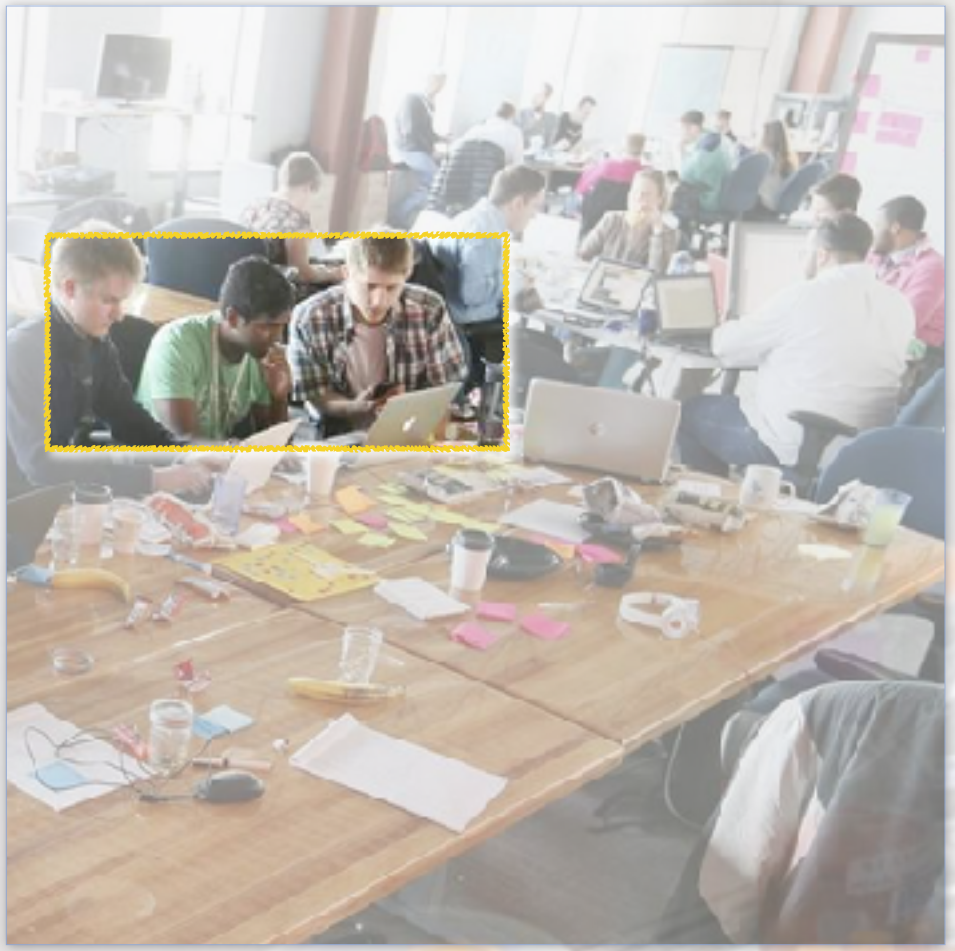
US government research grants to universities are increasingly requiring corporate partnerships.

- 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.

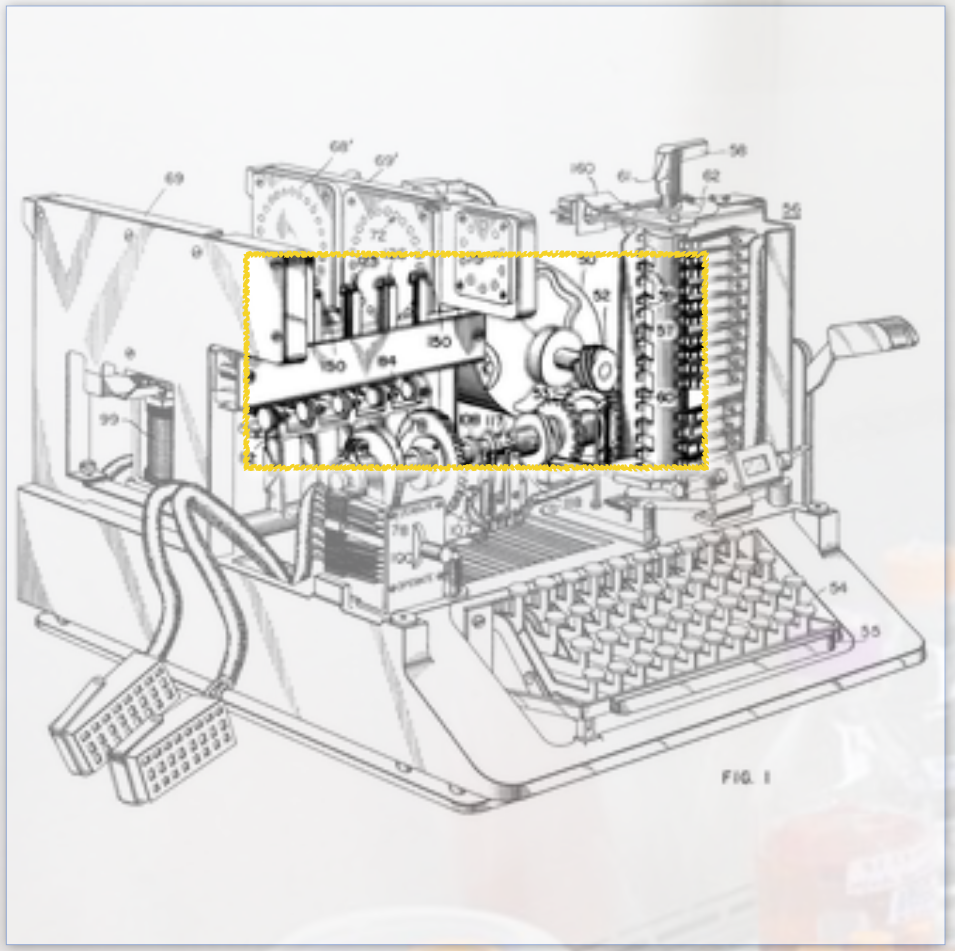
New technologies and skills

New career paths

Masters degrees, or 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!

Corporations Want Access to…

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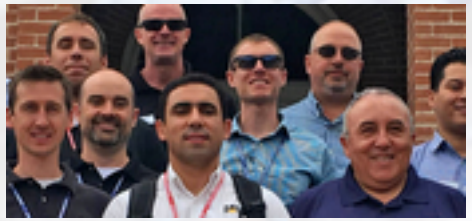

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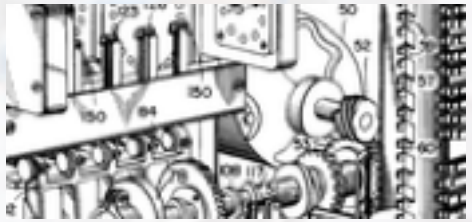
Dedicated Facilities



Intellectual Property

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Thank You!

Stephen Fleming

THE UNIVERSITY OF ARIZONA

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Twitter @stephenfleming

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