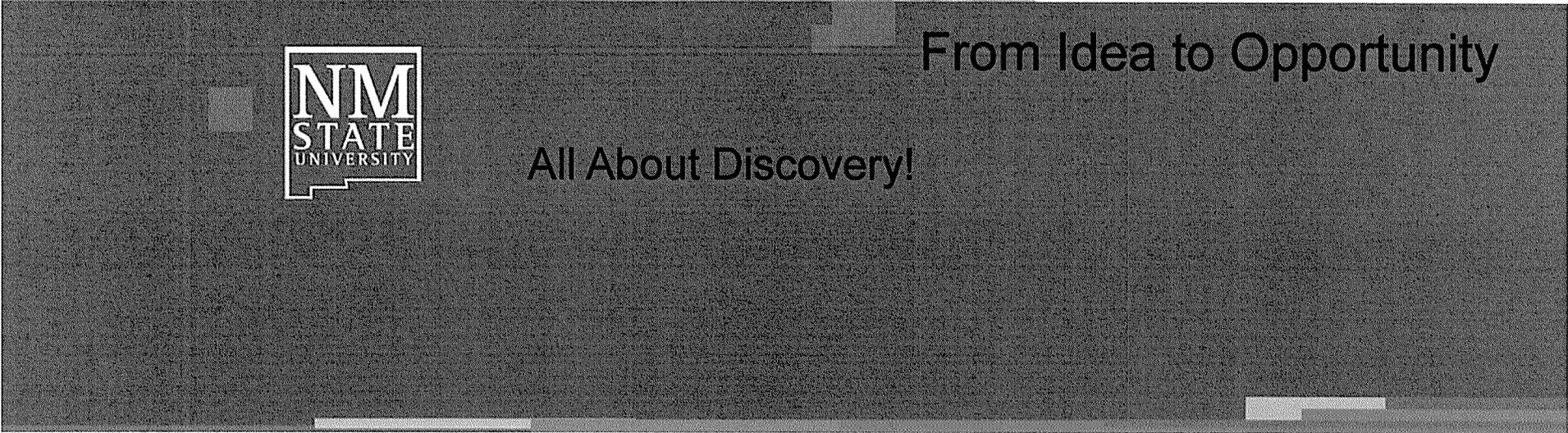
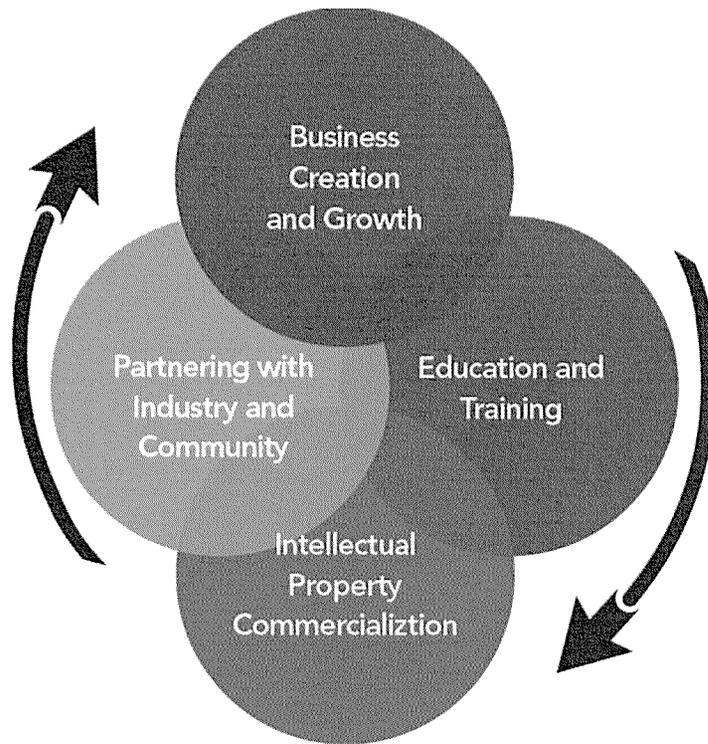


From Idea to Opportunity

All About Discovery!



Arrowhead Center: An Engine for Economic Development



Arrowhead Center plays a vital role in economic development, commercializing discoveries and innovations, encouraging entrepreneurship, launching and developing new businesses, and creating lasting partnerships between stakeholders on and off-campus.

Chartered to lead NMSU's economic development initiatives

Infrastructure: Team and Environment

- Team of 13 professionals
- 12 Enterprise Advisors
- Entrepreneur and Investor-in-Residence
- 25 graduate assistants
- Researchers/Inventors
- Alums
- 100 + subject matter experts
- Advisory Council
- Business incubators
- Proof of concept center
- NMSU intellectual property
- Real estate
- NMSU facilities

Broad regional network of entrepreneurs, investors, and business, scientific, and technical experts

Arrowhead in Action

25



Arrowhead students assisting clients

90



Studio G Members

53



Faculty IP projects in the commercialization pipeline

230



Students in Innoventure program

60



Small businesses receiving business and technical assistance

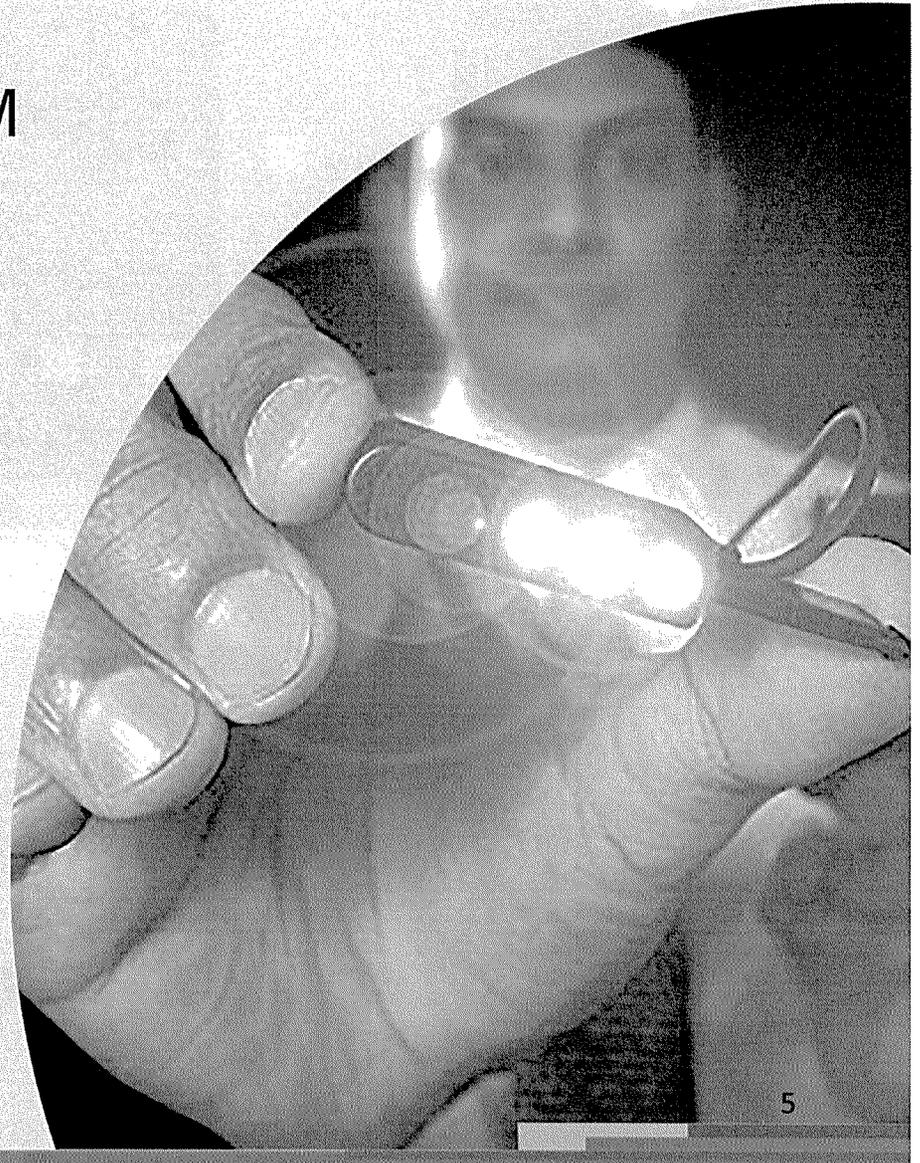


Arrowhead has demonstrated impressive success lately; our numbers tell only part of the story.

Arrowhead Innovation Network



- In 2012 EDA awarded a \$2 M grant to Arrowhead for expansion of our proof of concept center, Launch
- Launch accelerates moving NMSU inventions and innovations to market
- Annual competitions with seed grants of \$25,000
- Partners throughout NM and west TX

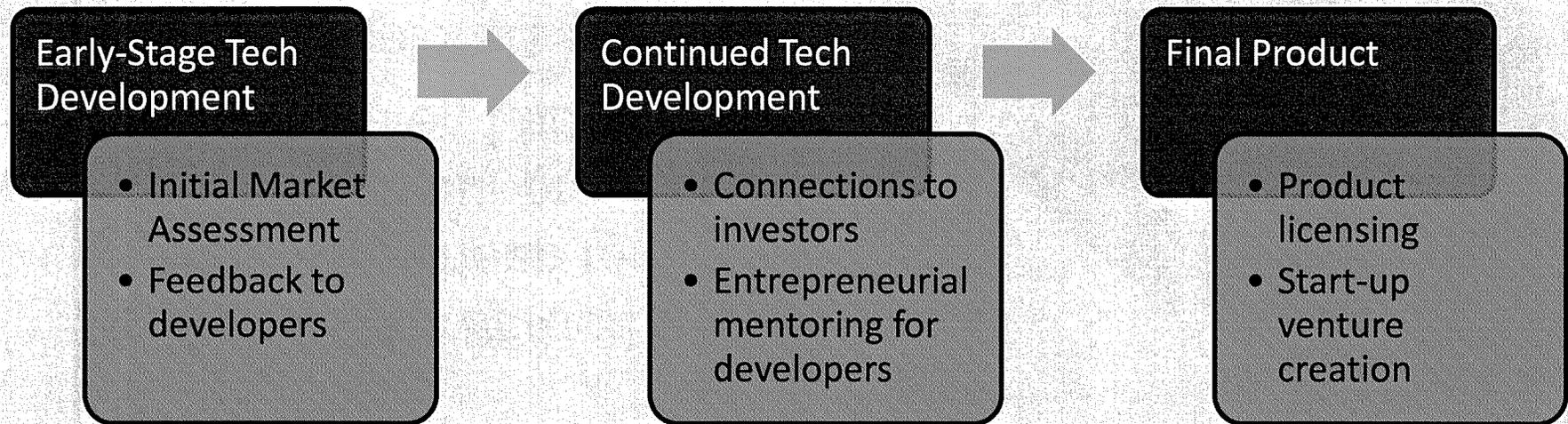


Arrowhead Innovation Network



Commercialization activities begin early in technology development, with market factors shaping the process

- Shorter time to market
- Market-driven
- Considers wants, needs of potential consumers



Launch proof of concept center

University Center for Regional Commercialization



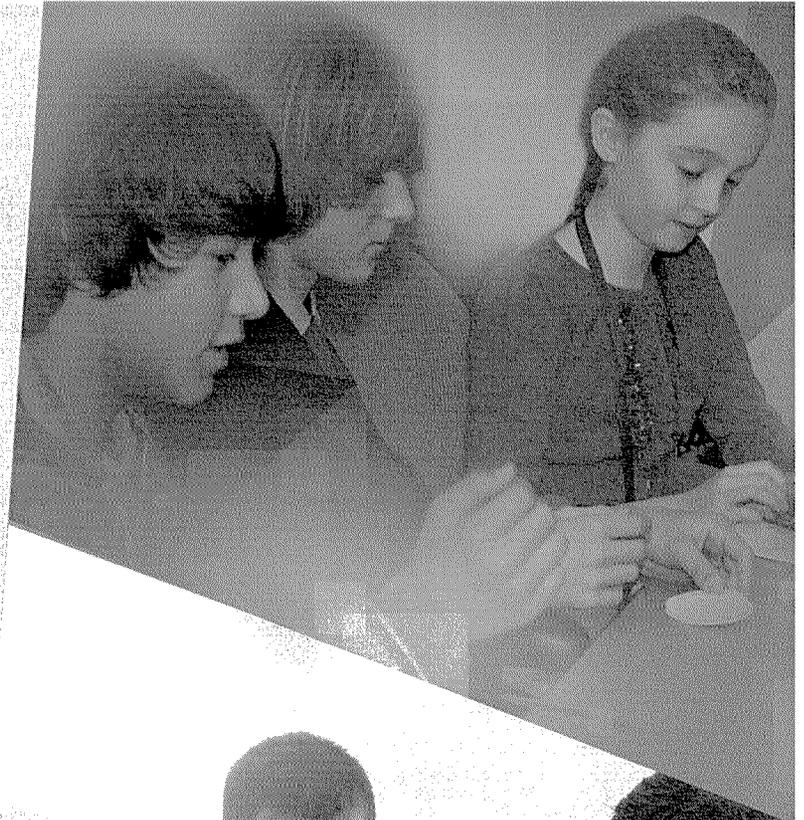
- In 2013, Arrowhead became an EDA University Center for Regional Commercialization
- 54 clients in sectors such as health care, agriculture, energy, software and app development, water technologies, and retail products
- Providing resources and infrastructure to assist inventors, aspiring entrepreneurs, and small business startups

Helping to move products to market, launch and grow business ventures, and transform ideas into realities

Entrepreneurship

- Education and training
- Mentorship
- Workshops
- Research
- Business incubation
- Entrepreneurial pipeline

Strong entrepreneurs build businesses that support and grow the region.

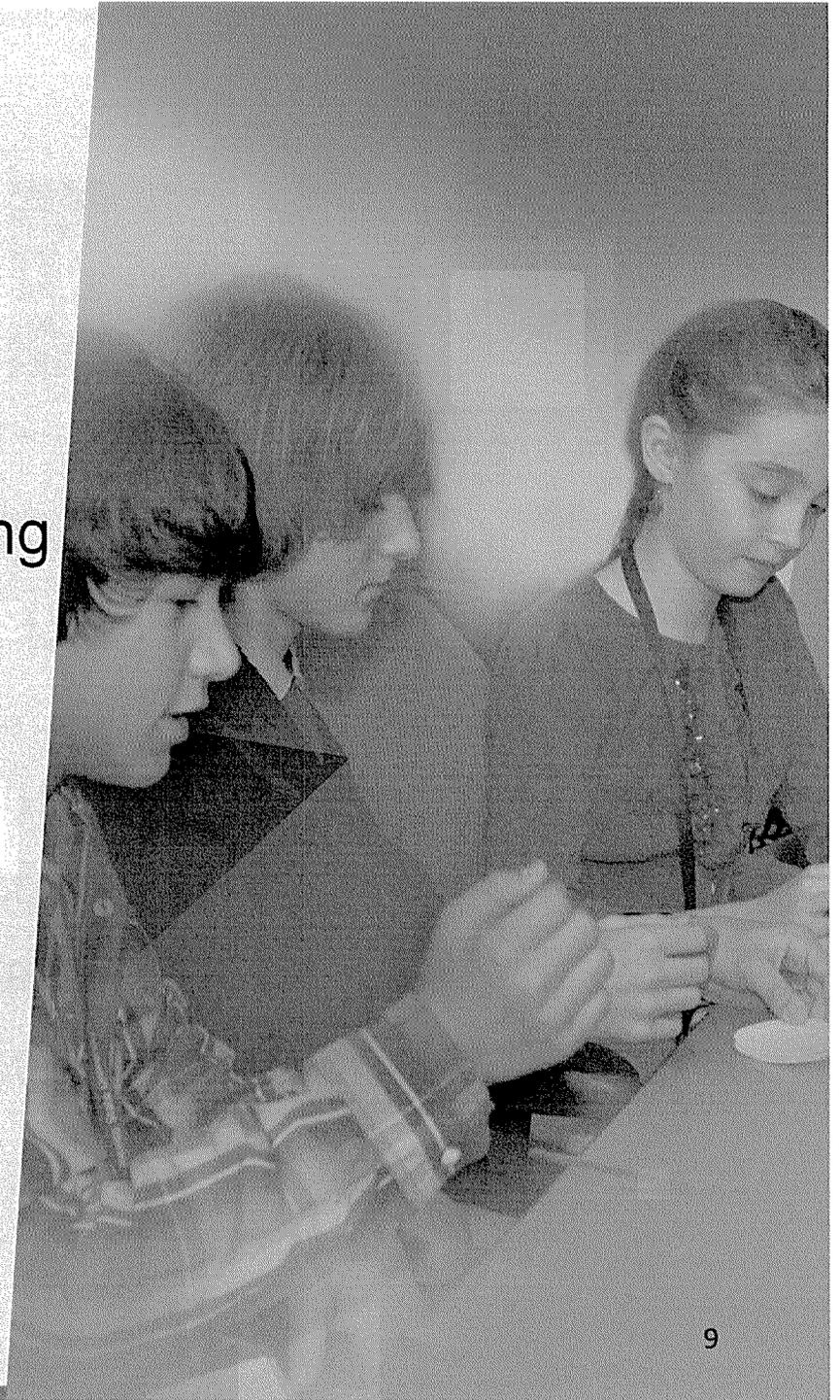


Innoventure

Teaching entrepreneurship to K-12 youth in New Mexico.

- Backpack program (K-5)
- STEM and Lean Canvas modeling for business and technology challenges; an annual competition and summer camps (6-12)

IN 13th YEAR OF OPERATION



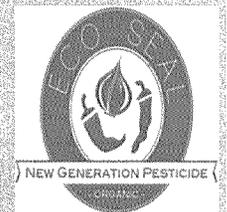


- 55 members working on more than 20 startups
- All majors, all business concepts
- *Disciplined Entrepreneurship* curriculum
- Tremendous growth since start in 2012

Growing Student-led Entrepreneurship: Companies



Oso Coatings™



Crimson Curriculum



studiog.nmsu.edu

Studio G profile

Project/Client	Industry	NM Registered Business	1 Idea	2 Proof of Concept	3 Minimal Viable Product	4 Product
Better Future Foods	Agriculture	Yes				
NMX-1	Agriculture	Yes				
Crimson Curriculum	Education	Yes				
Jacob Torres	Education	No				
Multiple Engenuity	Education	Yes				
Sam Pedrotty	Education	Pending				
35 Solar	Energy	Yes				
Daniel Corona	Engineering	No				
Fence Builder	Engineering	No				
Grassboard	Engineering	No				
Zia Zushi	Food	Yes				
Brook Higginbotham	Medical	No				
G.A.P.E.	Retail	No				
Goat Milk Soap	Retail	Yes				
Putter Grips	Retail	Yes				
Reikh Healing	Retail	Yes				
Byteware	Software	Yes				
Greenshare	Software	No				
Las Health	Software	No				
Rebel Creators	Software	Yes				
Math App	Software	No				
Paraparking	Software	Yes				
Pankaj Sharma	Software	No				
QuikBite	Software	Yes				
Arrowhead Eng Tech.	Water	Yes				

Arrowhead Technology Incubator

- Mentorship to help businesses grow
- Technical guidance from design and development experts
- Access to workspace
- Business development and customer acquisition services and resources
- Resident and virtual
- 15 clients
- Agriculture, IT, energy and water
- Two-phased process of vetting followed by customer acquisition
- Latest methodologies in business model development and lean launch startups

Enabling entrepreneurs to turn scalable ideas into revenue-generating companies

Industry Services

- Prototyping/proof of concept
- Specialized testing
- Applied and basic research
- Licensing NMSU technologies

Arrowhead Center connects industry with NMSU faculty, researchers, students, and labs to help expand a company's capacities and capabilities in research and development.

"We want to provide the business community access to the extraordinary resources of NMSU." Arrowhead Director Kathy Hansen



Arrowhead Park



ARROWHEAD PARK EARLY COLLEGE HIGH SCHOOLS



BURRELL COLLEGE OF OSTEOPATHIC MEDICINE

“
The business models used for these projects are innovative and can be replicated in a lot of different industries.”

We need more public and private cooperation in order to help New Mexico's economy

NMSU President Garrey Carruthers



Regional Economic Development

Arrowhead is contributing to greater growth and development through entrepreneurship and diversification.

THANK YOU



Arrowhead Center

575-646-6120 | www.arrowhead.nmsu.edu
info@arrowheadcenter.org



Non-traditional approaches to economic development through: business incubation, workforce training, research institution collaboration, and investment in technology intellectual property

I. Two Pathways that need to converge

- Idea to Innovation
- Cradle to Career

II. Idea to Innovation

A. Taxonomy

(1) Incubator

Business incubation is a business-support process that helps launch startup and fledgling companies by providing entrepreneurs with an array of needed resources and services. These services are usually developed or orchestrated by incubator management and offered in the business incubator and through its network of contacts. A business incubator's main goal is to produce successful firms that will be financially viable and free-standing when they leave the program.

(2) Venture Development Organizations

One of the more recent and most successful technology-based economic development interventions to emerge for regional innovation is an adequately resourced regional venture development organization. A VDO is a public or nonprofit organization that contributes to economic development by providing a portfolio of services, including

- assisting in the creation of high-growth companies;
- providing expert business assistance to those companies;
- facilitating or making direct financial investments in companies; and
- accelerating the commercialization of technology.

(3) University Accelerators

Educational nonprofits that accelerate the development of student entrepreneurs and innovation at universities throughout the United States. University accelerators typically provide seed grants to support students through the early stages of development. Unlike for-profit accelerators, university accelerators do not take equity stakes in student-founded companies, and they are typically agnostic when it comes to technology focus. Some university accelerators, such as StartX at Stanford, extend services to faculty and alumni, as well. University accelerators provide the same range of services as other accelerators, including mentoring, technical assistance, use of facilities, and networking, usually including a demo day.

(4) Proof of Concept Centers

POCCs accelerate the commercialization of innovations developed by university faculty and staff, and help move these innovations into the marketplace. POCCs provide seed funding for novel, early-stage research that most likely would not be funded by other conventional sources. POCCs facilitate and foster the

exchange of ideas between university innovators and industries via the various mentors associated with the center. From a business-plan perspective, a POCC represents an investment by a university in improved technology transfer. In terms of the value proposition, POCCs provide a “collection of services to improve the dissemination and commercialization of new knowledge from universities in order to spur economic development and job growth.

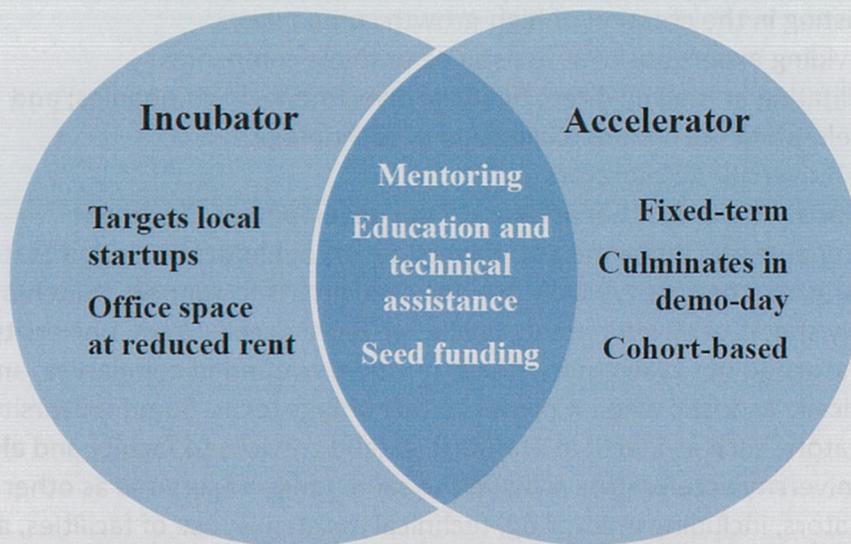
(5) Corporate Accelerators

These accelerators engage in the provision of seed capital and various combinations of mentoring, technical assistance, networking, and facilities to entrepreneurs, inventors, and startup teams to advance certain goals of the corporate or institutional parent. Corporate accelerators grow and manage portfolios of complementary startups to accelerate innovation and gain a competitive advantage.

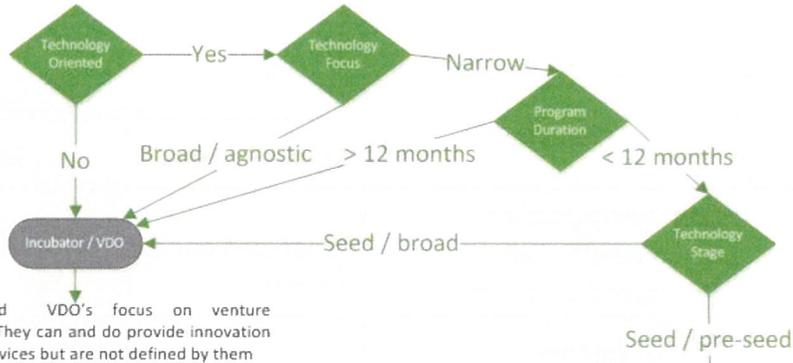
(6) Innovation Accelerators

Innovation accelerators are stand-alone, for-profit ventures in the business of:

- Identifying cohorts of promising startup companies with rapid, high-growth potential.
- Making seed-stage investments in those companies in exchange for equity.
- Engaging in innovation-acceleration activities with these companies to help them obtain next-stage funding.
- Cashing out for a profit when these companies are acquired or have successful IPOs.



Incubators & Venture Development Organizations



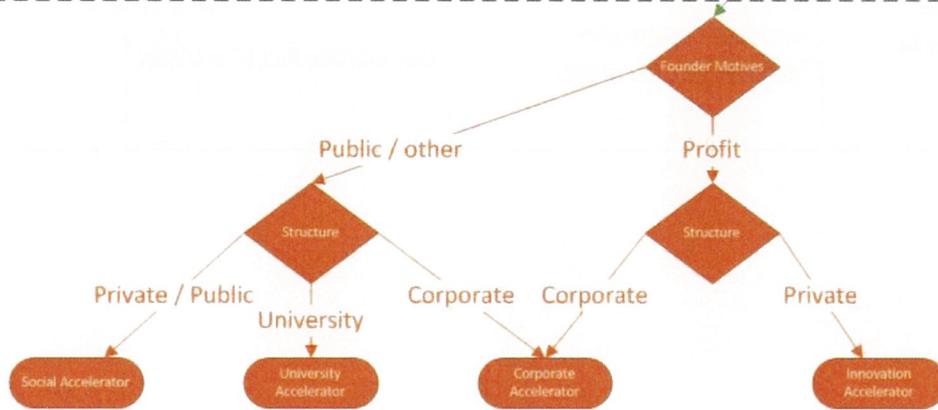
Incubators and VDO's focus on venture development. They can and do provide innovation acceleration services but are not defined by them

Proof of Concept Centers



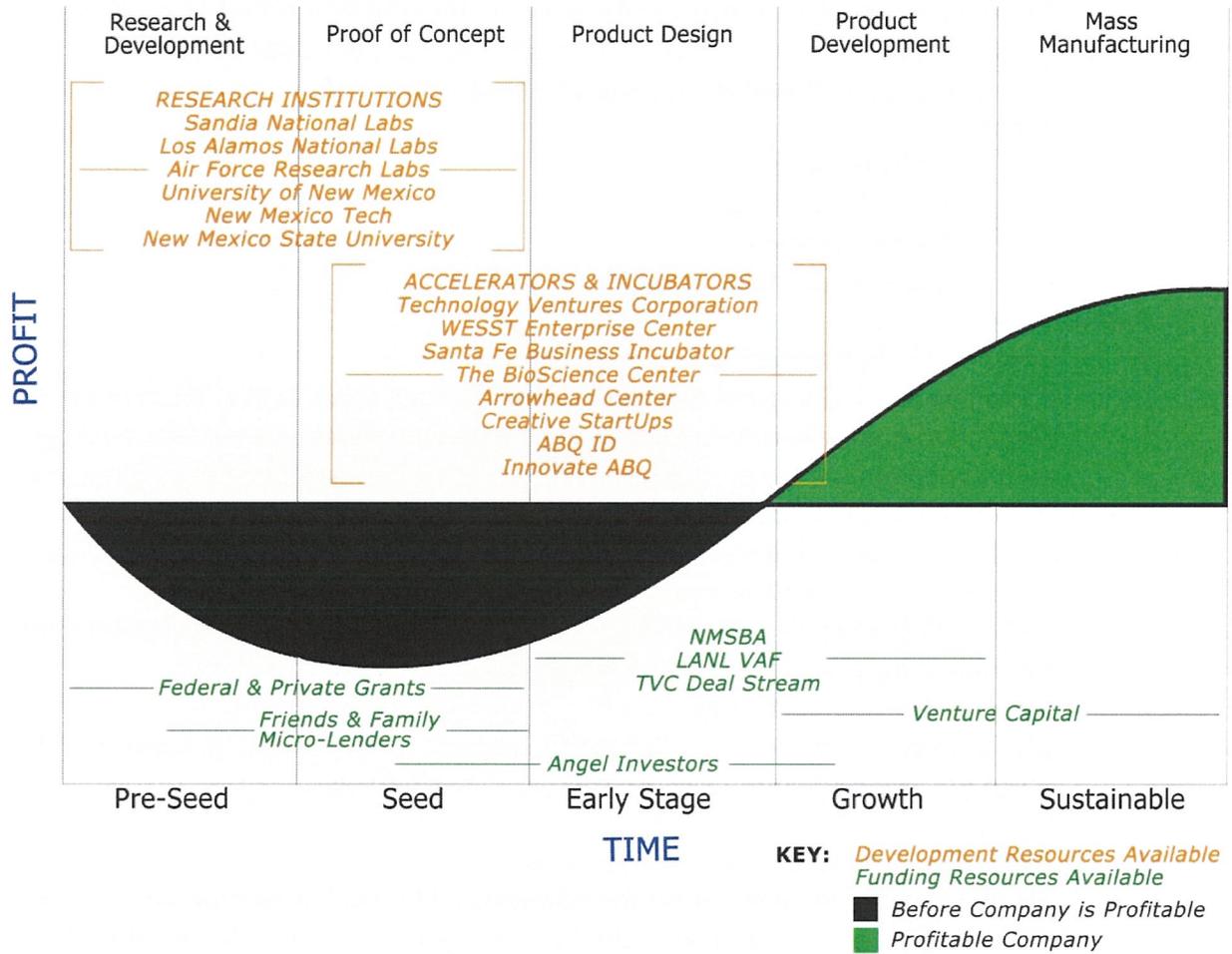
Proof of Concept Centers focus on development of technology with minimal focus on venture development

Innovation Accelerators



Broad Categor	Objective	Organization Types	
		Single Primary	Multiple Primary
Nonprofit / Public Good	Commercialization of university and sponsored research	Proof-of-Concept Centers	University Accelerators
	Local/regional economic	Incubators	
For- Profit/ Private Interests	Profit from investment in startups	Innovation Accelerators	Venture Development Organizations Social Accelerators
	Further corporate innovation strategy	Corporate Accelerators	

New Mexico's Entrepreneurial Ecosystem & Resources



III. Cradle to Career: Work-Based Learning

A. Defined

Learning technical, academic, and employability skills by working in a real work environment. Three main purposes include cognitive development, social/emotional development, and career development

B. Types

1. Job Shadowing
2. Internships/Co-op
3. Apprenticeships
4. School-Based Enterprise

IV. Pathway Convergence

A. Center for Collaboration & Commercialization

C3 will be an inspiring and energizing place that will serve as the “front door” to Sandia National Laboratories, providing access to the Labs, and building linkages with the community (city of Albuquerque’s and the University of New Mexico’s Innovation District and Innovate ABQ initiatives). It will be a place where Sandians and their industrial, academic, and government partners can interact easily and freely, outside the gates.

Located in the Sandia Science & Technology Park (SS&TP), the new multi-tenant facility will be dedicated to increasing Sandia’s collaboration and commercialization activities.

C3 will offer spaces for lease along with programs and services for tenants and partners, all designed to facilitate successful partnerships.

B. Richard P. Feynman Center for Innovation

The Richard P. Feynman Center for Innovation (FCI) facilitates programs designed to stimulate high-tech start-ups and business growth, create job opportunities, and attract business and capital to the region. Together, the Laboratory and the communities of Northern New Mexico are working to build a diverse and vital economy.

C. SmartState (USTAR, and others)

Centers of Excellence

Endowed Chairs

Scholarships

Program

Brick and Mortar

Innovation Capital

All funds must be match with non-State dollars

D. Arrowhead