

STC.UNM

The Innovation Door to the University of New Mexico

Economic and Rural Development Committee Meeting

July 7, 2014



Presented by:

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CEO & Chief Economic Development
Officer kuuttila@stc.unm.edu

(formerly known as the Science & Technology Corporation at the University of New Mexico)

STC Overview



STC.UNM serves and supports all of the University's academic programs, from science and medicine to fine arts and business management.

STC.UNM was formed in 1995.

STC Mission

To foster a Rainforest in the Desert, STC.UNM nurtures innovation and economic development for the UNM community.

As a New Mexico Research Park Act organization, STC.UNM does this by:

- ❖ protecting technologies developed at UNM and transferring these technologies to the marketplace, via starting new companies and transferring technologies to established companies;
- ❖ connecting the business community to UNM for access to expertise, facilities, and research activities; and
- ❖ facilitating UNM's role as a contributor to New Mexico's economic development



STC Board of Directors



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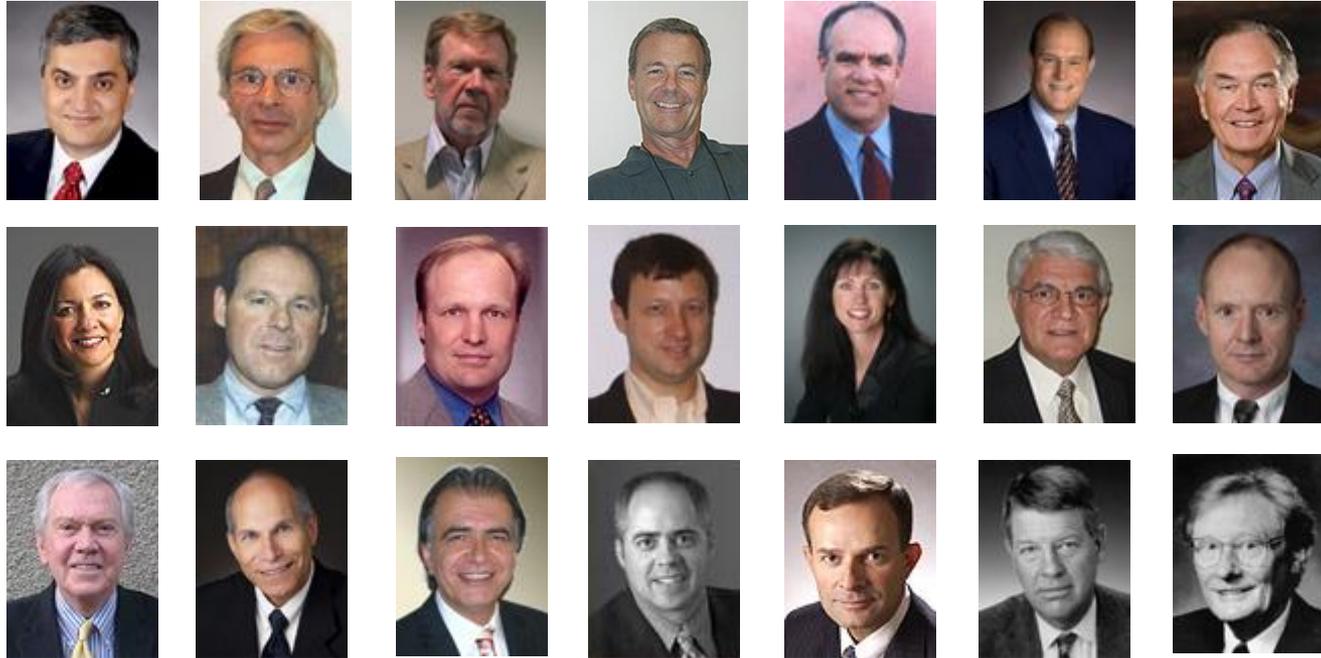


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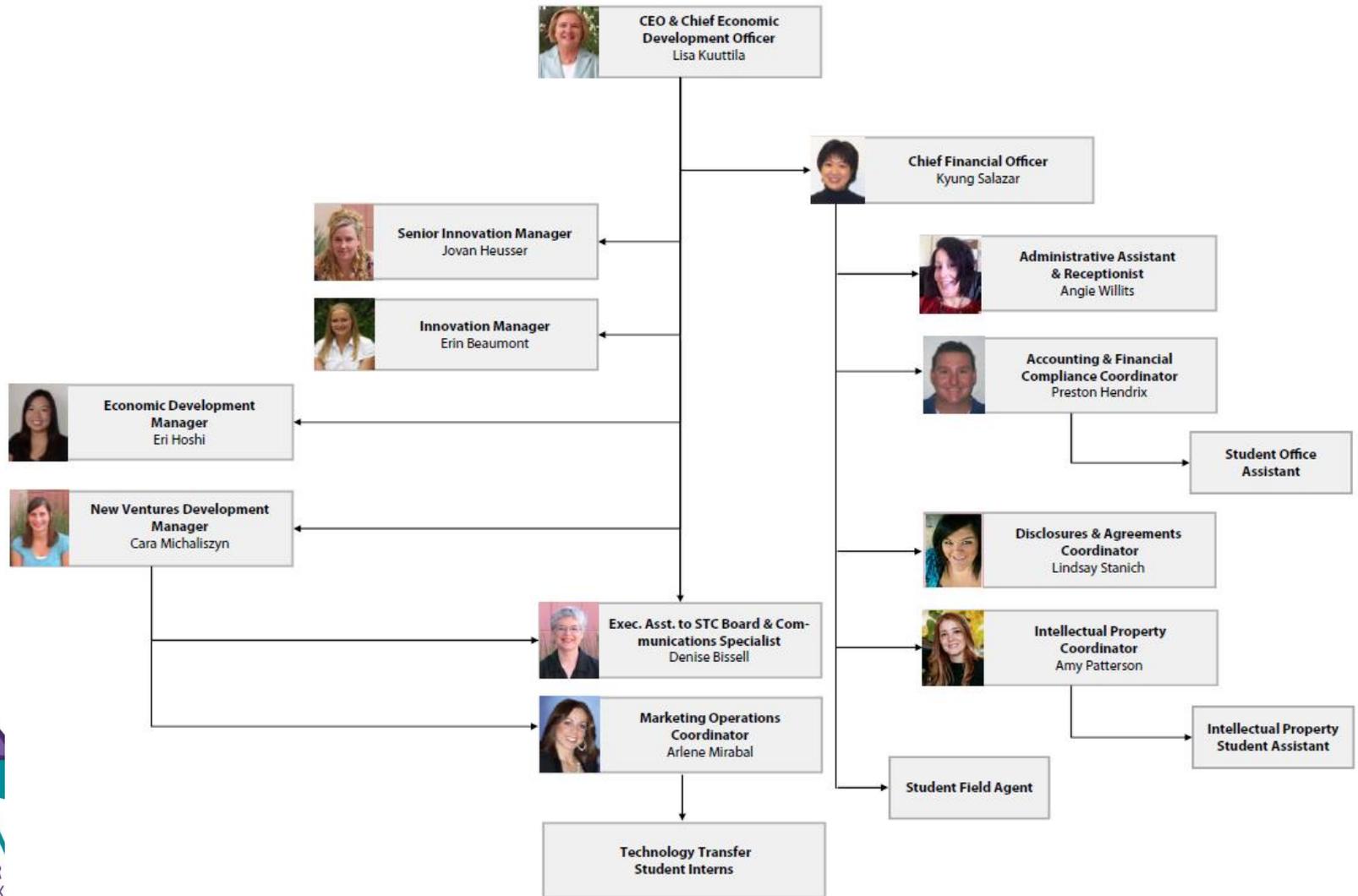
Listed Alphabetically by Last Name (Left to Right)

First Row: Dr. Chaouki Abdallah, Dr. Joseph L. Cecchi, Dr. James Cramer, Dr. Michael Dougher, Dr. Robert Fisher, Dr. Robert Frank, Gene Gallegos, J.D.,

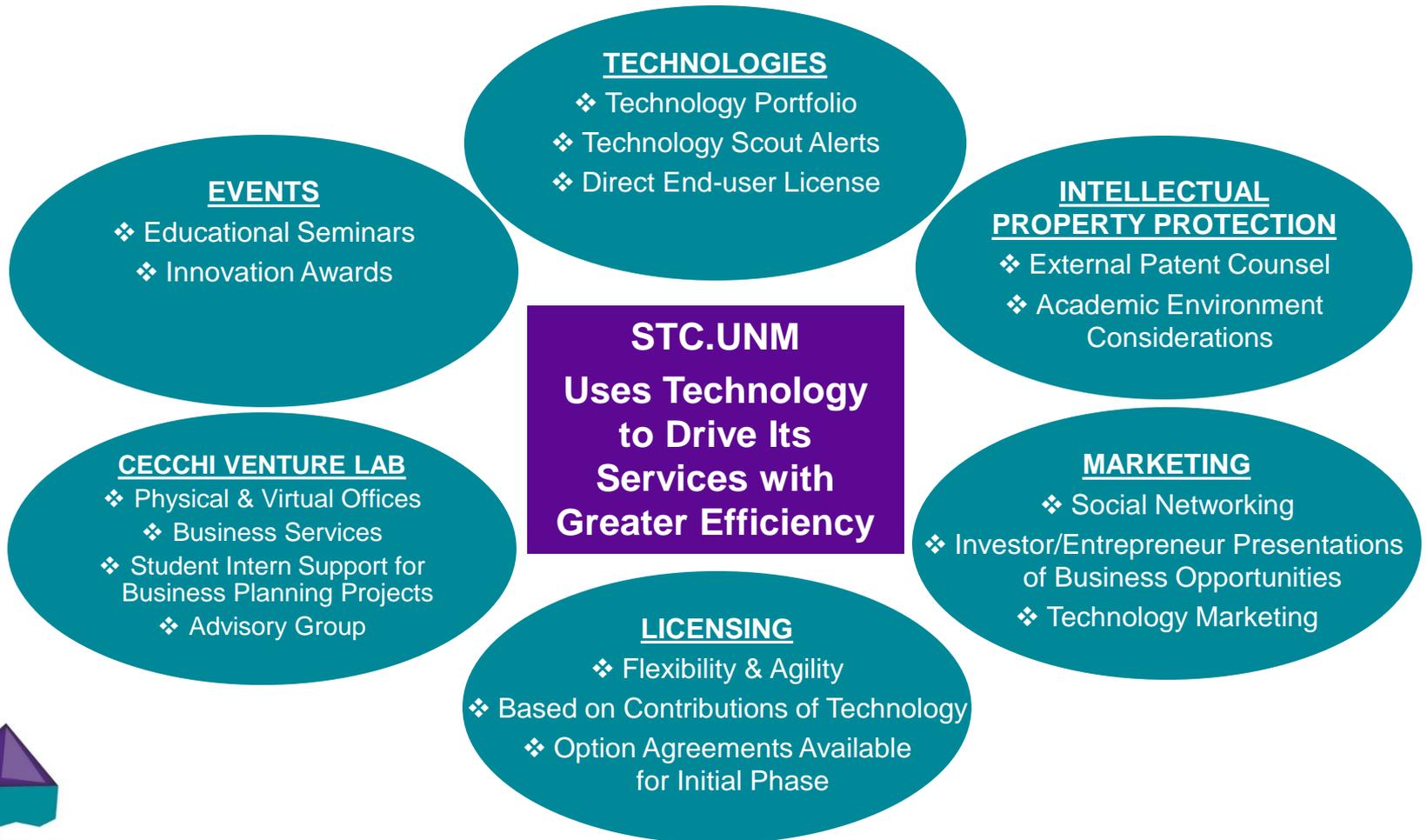
Second Row: Ms. Maria Griego-Raby, Mr. David Harris, Dr. Richard Larson, Dr. Gregg Mayer, Ms. Cindy Gill, Mr. Fred Mondragon, Dr. Pope Moseley,

Third Row: Mr. Robert Nath, Dr. Paul Roth, Dr. Mansoor Sheik-Bahae, Pedro Saurez, Esq., Mr. Gary Tonjes, Mr. Charles Wellborn, Dr. Albert Westwood

STC Organizational Chart



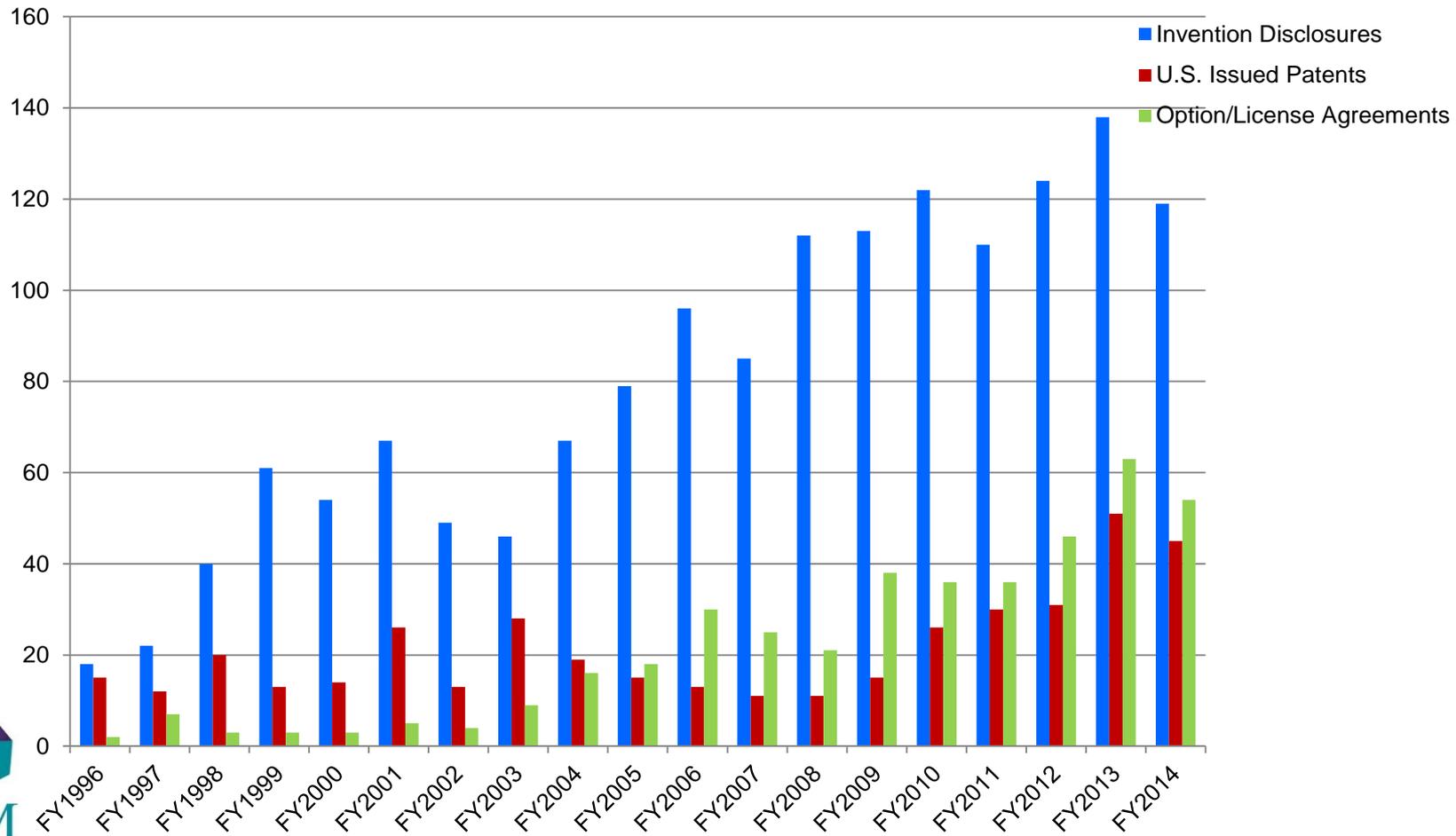
STC's Commercialization Activities



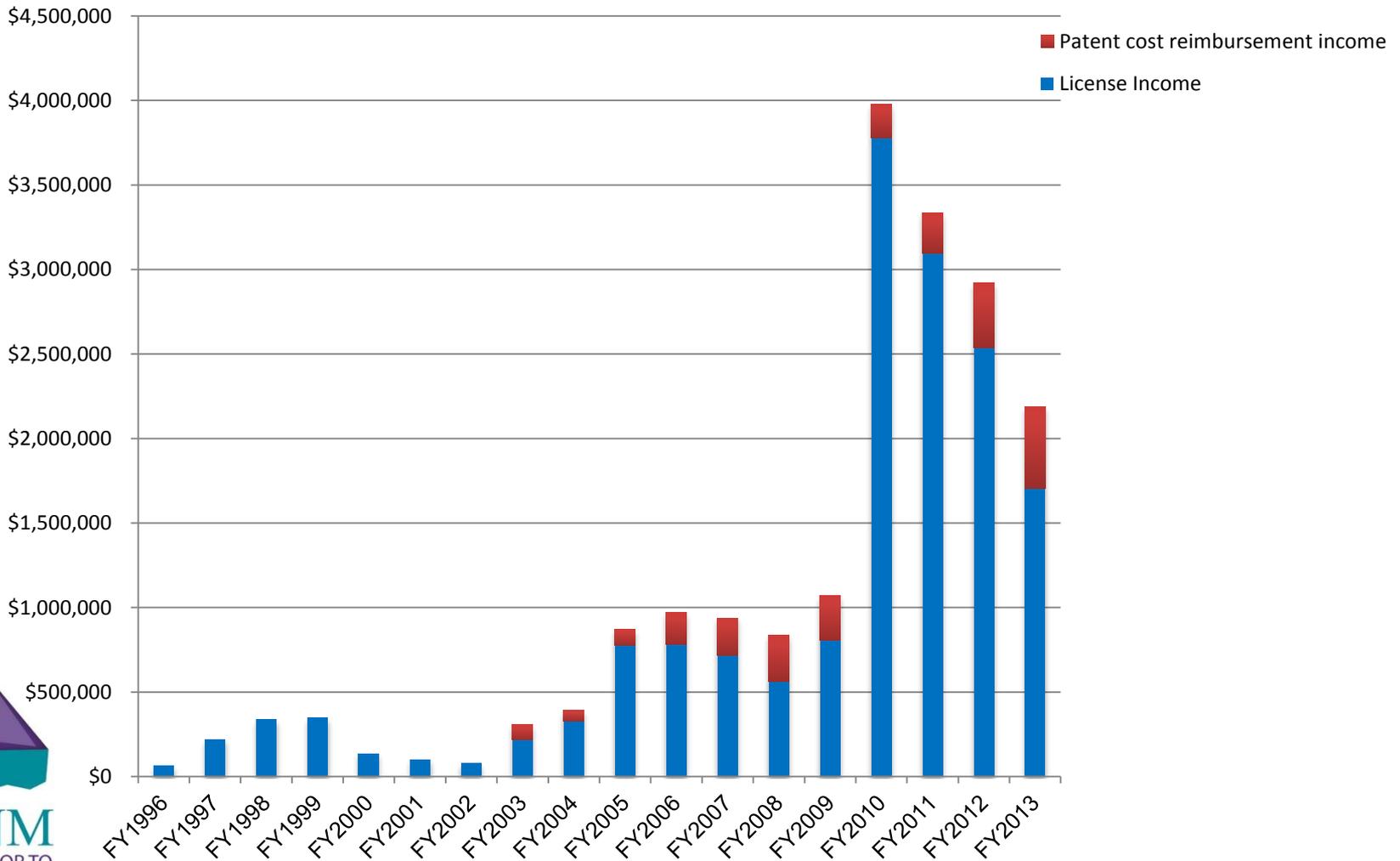
STC's Economic Development Activities



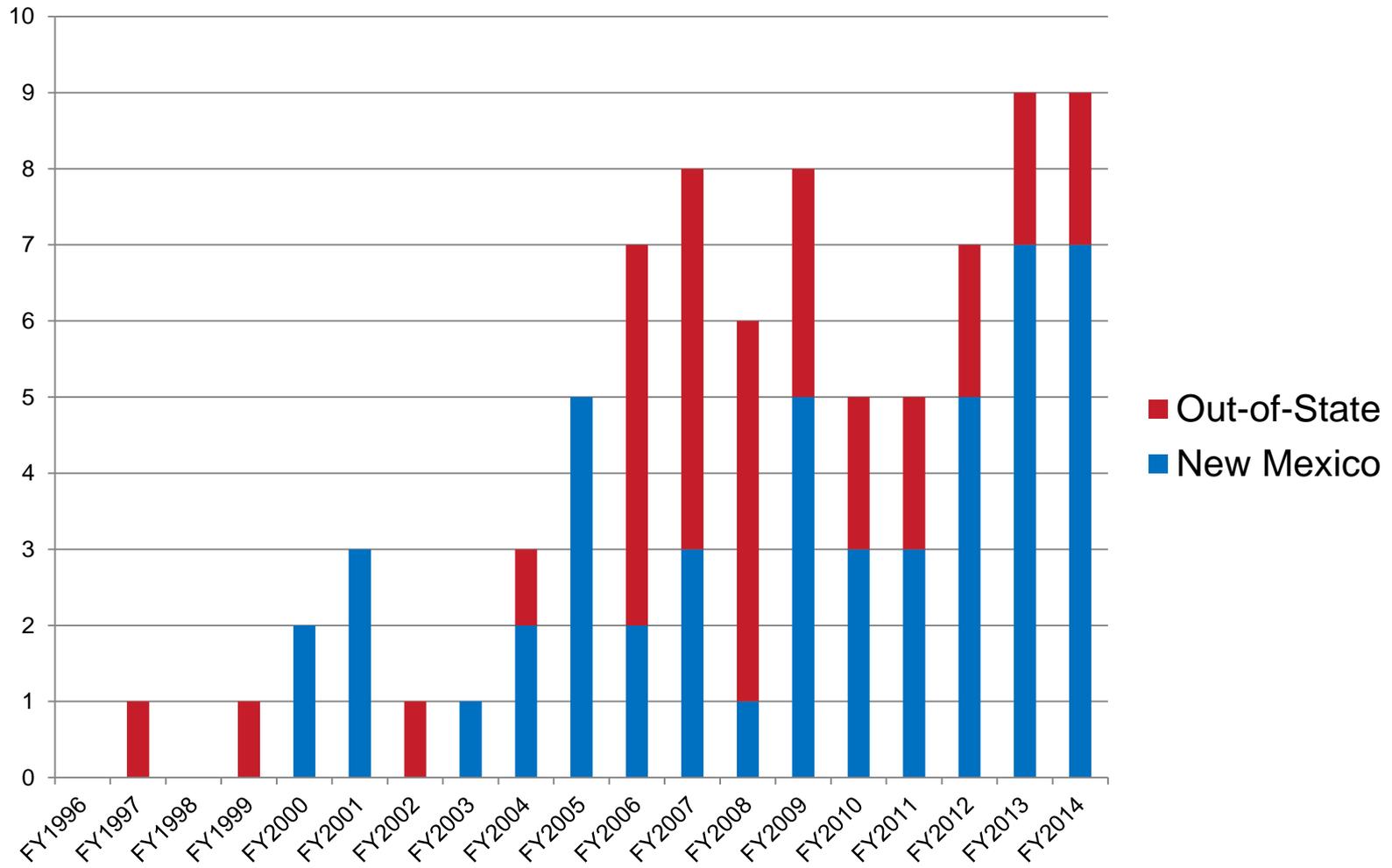
STC Metrics



STC Metrics: Income



STC Metrics: Start-up Companies



STC Active Start-up Companies

New Mexico	New Mexico Continued	Out-of-State
SolaranRx (2014)	Wedge Health Communications, LLC (2011)	Water Skin, Inc. (2014)
First Photonics (2014)	Lotus Leaf Coatings (2010)	Photoacoustic Devices (2014)
TruSucSys (2014)	Respira Therapeutics (2010)	Human Recombinant Protein and Vaccine Initiative for Africa (2013)
PanMuse, LLC (2014)	SK Infrared (2010)	algorithmRX (2012)
Pucara Engineering and Logistics, LLC (2014)	Quatros (2009)	Magic Dragon Technologies, Inc. (2011)
Accelera Diagnostics (2014)	GLO-USA (2008)	zNano (2010)
Pressure Analysis (2014)	Azano Health (2007)	Plures Technologies, Inc. (2009)
Batterade, LLC (2013)	NanoMR (2007)	Artemis Health (now Verinata Health) (2008)
Eta Diagnostics Incorporated (2013)	Nanocrystal, LLC (2007)	NuView Radiopharmaceuticals (2008)
Apline Biosciences, LLC (2013)	Intellicyt (2006)	MagnetoOrganics (2007)
Biophagy, LLC (2013)	K&A Wireless (2005)	Attochron, LLC (2004)
Dynamic Photonics, Inc. (2013)	Exagen Diagnostics (2004)	
Ecopesticides International, Inc. (2013)	Avanca Medical Devices, Inc. (2004)	
Tyrosine Pharmaceuticals, Inc. (2013)	CoMet Solutions, Inc. (2003)	
Pajarito Powder (2012)	MesoSystems Technology, Inc. (now a subsidiary of ICx Technologies, Inc.) (2000)	
ThermoDynamic Films, LLC (2012)		
Oligocide, Inc. (2011)		
TransMix Safe Lock, Inc. (2011)		
Avisa Pharma (2011)		
AgilVax (2011)		
Magic Dragon Technologies, LLC (2011)		



STC Peer Institution Comparison

Among 18 peer institutions for every \$2 Million in research dollars, STC is:

- ❖ 4th in number of invention disclosures
- ❖ 1st in number of licenses and options agreements signed
- ❖ 11th in licensing income
- ❖ 2nd in number of start-up companies created



STC Website

INVENTOR LOGIN

HOME NEWS/EVENTS TECHNOLOGIES INVENTORS ENTREPRENEURS ECONOMIC DEVELOPMENT ABOUT

STC.UNM
THE INNOVATION DOOR TO
THE UNIVERSITY OF NEW MEXICO

STC wins a 2014 Innovation Ecosystem Award!

GLOBAL INNOVATION SUMMIT + RAINFOREST RECOGNITIONS

STC.UNM
Receives 2014 Innovation Ecosystem Award!

Read more >>

In the Spotlight...

WEI WANG, PH.D.

Professor, Department of Chemistry & Chemical Biology
The University of New Mexico

Dr. Wang has disclosed 39 inventions, received two issued U. S. patents, has two pending patent application, one license agreement with Aldrich Chemical Company, Inc., for his metal-free organo- catalysts technology, and one option to license agreement with Andaman Therapeutics, Inc., for his bi-functional cancer drugs technology. In 2009, Dr. Wang received \$25,000 in gap funding from STC's gap-fund program to develop his technology for a more efficient and cost-effective process to produce the pharmaceutical agents Lyrica and Balcufen. Dr. Wang's metal-free, small molecule-based organocatalysts as general promoters can catalyze a wide variety of organic reactions. Aldrich Chemical is licensing his technology for the synthesis of structurally diverse chiral building blocks. These catalysts offer attractive features such as easy preparation, low cost, operational simplicity and environmental friendliness since they are not composed of expensive and toxic metals. Additionally, the catalysts perform reactions under mild conditions and are very stable because they are not sensitive to air and water. They can be immobilized on solid support and are easier to recycle and reuse. These characteristics make them particularly appealing for practical applications in





Innovate ABQ Overview

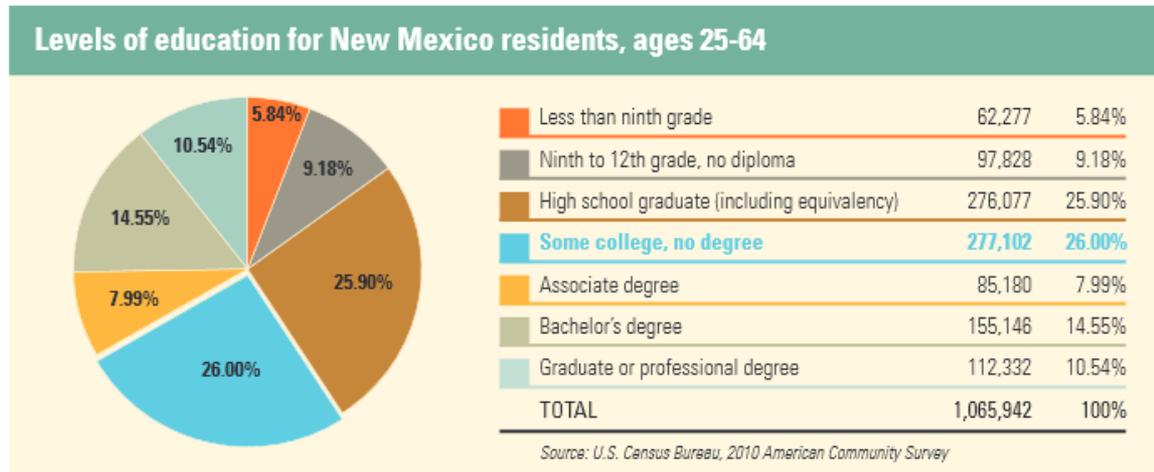
July 10, 2014

New Mexico: From Poverty to Rocket Science

- 🏢 New Mexico is one of the poorest states in the nation:
 - Poverty rates between 25.4% and 40.39%. (U.S. Census Bureau)
 - Over 80% of students qualify for a free lunch program.
 - Schools are majority-minority: 72% to 98% minority (U.S. DOC).
- 🏢 Albuquerque is the largest city in New Mexico
 - 1.8M people live within an hours drive
 - Home to 32% of the state's 2 million residents.
- 🏢 Albuquerque Public Schools (APS) is the largest school district in the state (BBER, 2010).
- 🏢 Albuquerque Public School District is about average within the State of New Mexico for graduation rate
- 🏢 New Mexico has the lowest graduation rates of any of the Southwest states.

New Mexico: From Poverty to Rocket Science

- Education attainment rates in New Mexico are decreasing.
- The higher education attainment rate of young adults — those 25 to 34 years old — is 27.6 percent, lower than that of the adult population as a whole.
- In 2010, more than 277,000 New Mexico adults had gone to college but did not have either a two- or four-year college degree.

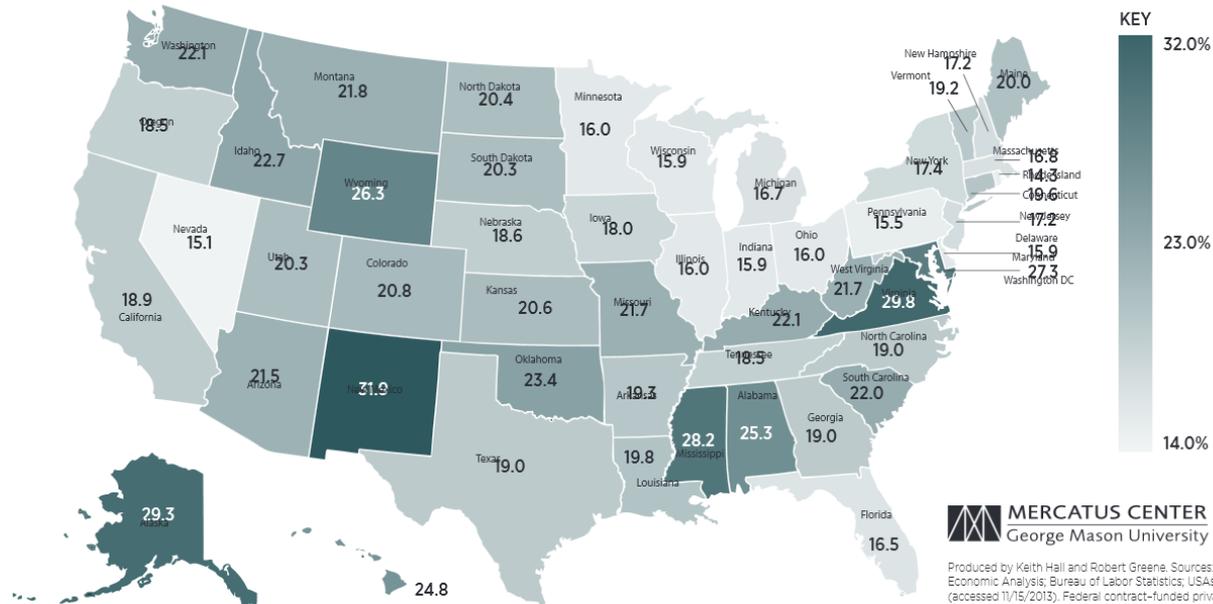


New Mexico Needs to Diversify

New Mexico has the highest amount of public sector and federal jobs in the U.S. as a percentage of the workforce (31.9% of the workforce)

 We need to create more private sector jobs through innovation, creating companies that grow and thrive in NM.

PUBLIC-SECTOR AND FEDERAL-CONTRACT JOBS AS A PERCENTAGE OF TOTAL JOBS



 **MERCATUS CENTER**
George Mason University

Produced by Keith Hall and Robert Greene. Sources: Bureau of Economic Analysis; Bureau of Labor Statistics; USA Spending.gov (accessed 11/15/2013). Federal contract-funded private-sector jobs are estimated by calculating federal-contract spending as a percentage of the sum of federal-contract spending and nonagricultural private-sector GDP and multiplying that percentage by total nonfarm private-sector payroll jobs.



New Mexico: From Poverty to Rocket Science

We have great science in New Mexico.

- 🏢 1st in the nation in per capita Ph.D. scientists and engineers (University of New Mexico Fact Book 2009-2010)
- 🏢 6th in the nation in science and engineering graduate students (University of New Mexico Fact Book 2009-2010)
- 🏢 City of Albuquerque is 7th in the nation for total number of engineers (6,810) and engineers per 1,000 employees (18.7) (Forbes.com)

New Mexico: From Poverty to Rocket Science

Albuquerque has a thriving creative community.

-  In 2010, Albuquerque non-profit arts organizations and their audiences
- Generated \$91.9 million in economic activity
 - Supported 3,674 full-time-equivalent jobs

(Albuquerque 2012 The State of the Creative Economy)

New Mexico: From Poverty to Rocket Science

New Mexico Attracts Talent

We have talented entrepreneurs (local and transplants, attracted due to the “place”).

- Since 1996, entrepreneurs have formed 81 companies based on University of New Mexico technologies (STC.UNM)
- 40% of UNM active start-ups are led by transplant entrepreneurs (STC.UNM)

New Mexico: From Poverty to Rocket Science

We have an “entrepreneurial personality” in New Mexico.

- 📊 New Mexico is 8th in the nation for its entrepreneurial personality profile (Journal of Personality and Social Psychology 2013)
- 📊 The study analyzed personality data collected from more than 600,000 U. S. residents
- 📊 The study looked at a "constellation of Big Five traits" which looks at the person as a whole as a predictor of the entrepreneurial personality:
 1. Higher levels of extraversion to find customers for your product and to convince potential investors to invest.
 2. Higher levels of conscientiousness to manage finances and production.
 3. Higher levels of openness to produce the most innovative products and services.
 4. Lower levels of agreeableness in order to behave in ways that may require nonconformity, critical analysis, or uncompromising negotiation.
 5. Lower levels of neuroticism in order to deal with higher levels of stress, uncertainty, risk and failure associated with new business ventures.

The Rainforest Model for Innovation Systems (Hwang, Horowitz)

- ✎ A Rainforest is a human ecosystem in which human creativity, business acumen, scientific discovery, investment capital, and other elements come together in a special recipe that nurtures budding ideas so they can grow into flourishing and sustainable enterprises.



Contrasting Models

Agricultural Model

Top down planning
(cluster theory)

Geographic barriers
matter greatly
(mountains,
oceans)

Planning



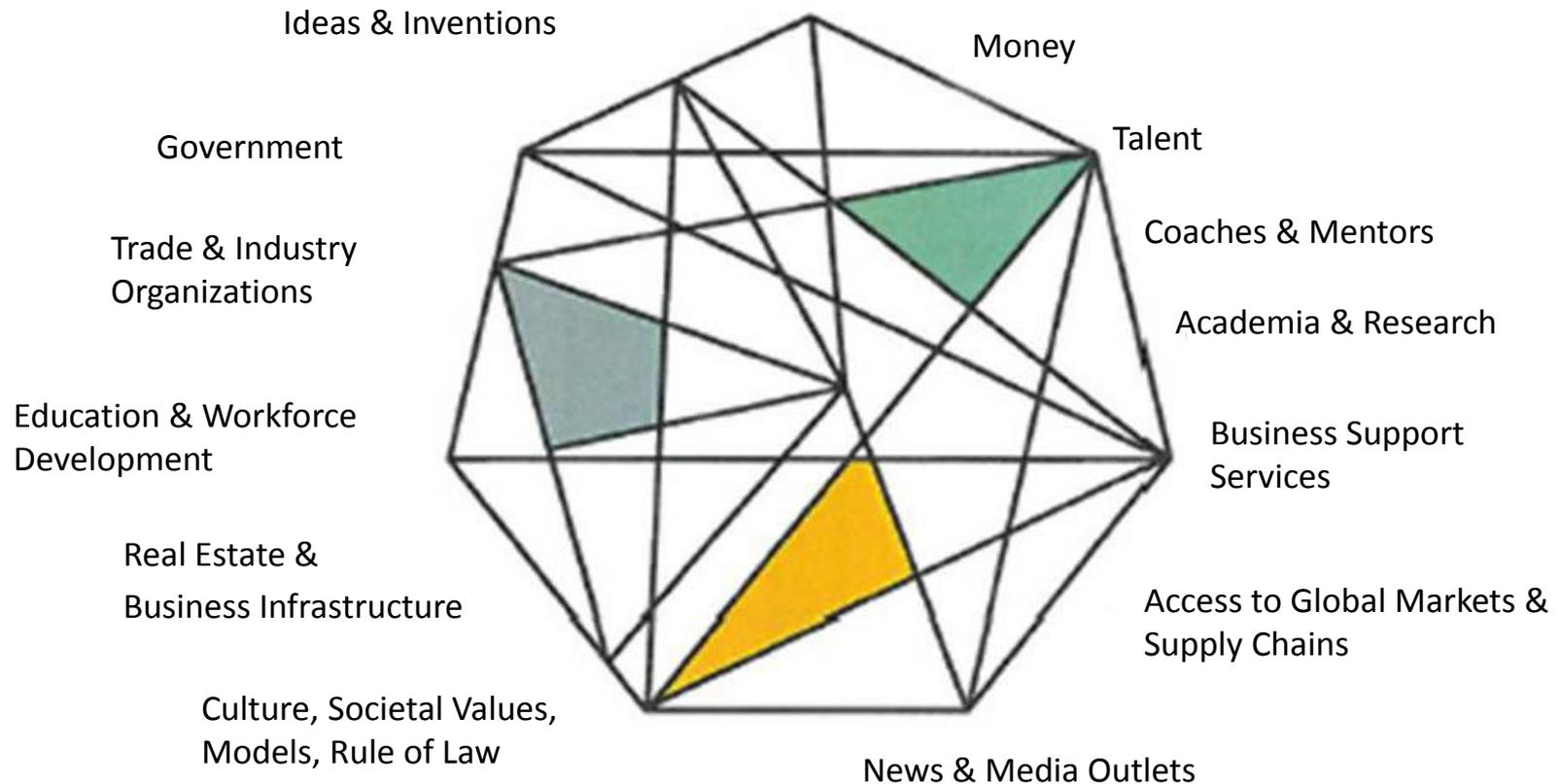
Rainforest Model

Bottom up growth
(Innovation thrives)

Barriers that prevent
innovations from
working together are
shifting from physical
to interpersonal

Outcomes cannot
be “engineered”

How to Build Innovation Ecosystems



Source: *The Rainforest: The Secret to Building the Next Silicon Valley*

What is an Innovation District?

- ⌘ A innovation district creates a mutually supportive relationship between a scientific institution and a concentration of technology businesses.
- ⌘ The most successful districts are first and foremost centers of innovative science.
- ⌘ However, innovation is not only a product of the lab.
- ⌘ Innovation is driven by people and the ability of people to share and develop ideas together.
- ⌘ An innovation district brings the pieces together.

Innovation Districts

- “Innovation districts cluster and connect leading-edge anchor institutions and cutting-edge innovative firms with supporting and spin-off companies, business incubators, mixed-use housing, office and retail, and twenty-first-century amenities and transport.”
- “This is organic place making as jigsaw puzzle, assembled through the simultaneous and iterative actions of dozens of players. In all cases, however, innovation districts are being driven from the ground up, primarily through the actions of local actors. There is no federal or state program or multinational corporation stamping out innovation districts across the country. Rather, the federal and state governments are followers, serving rather than setting the vision of renewal.”
- “The proximity effect can be staggering: Gerry Carlino has found that the number of patents per capita increases, on average, by 20 to 30 percent for every doubling of employment density, with the greatest increases expected within the most densely populated portions of a metropolitan area.”
- “Innovation districts require juggling multiple, compartmentalized public, private, and civic financing sources. In some respects, that is a natural product of the breadth of discrete and separate activities that take place within the districts.”

UNM Start-ups are spread throughout Albuquerque



- Comet Solutions** (2155 Louisiana Blvd NE – 2,500 sqft)
- Intellicyt** (9620 San Mateo Park Blvd NE – 8,000 sqft)
- NanoMR** (5741 Midway Park Blvd – 19,000 sqft)
- Eta Diagnostics** (near Menaul and Carlisle– 13,000 sqft)
- K&A Wireless** (2617 Juan Tabo Blvd NE)
- Pucara Engineering and Logistics, LLC** (Tijeras, NM)
- Exagen Diagnostics** (800 Bradbury Drive SE Suite 108)

Technology Ventures Corporation (TVC)

- **Dynamic Photonics, Ecopesticides International** (1155 University Blvd. SE Shared-office – 225 sqft)

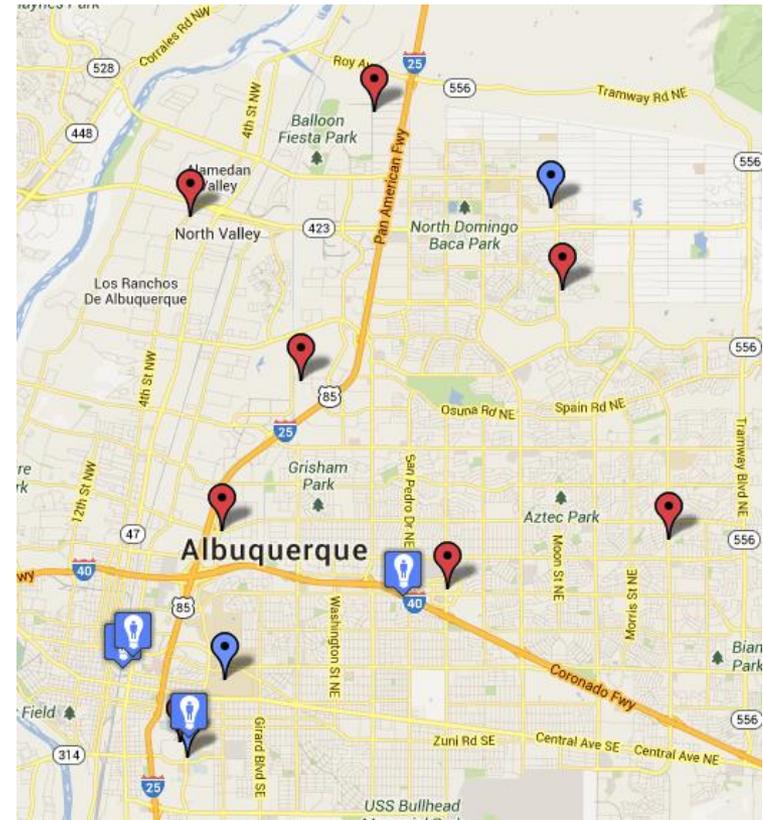
Incubator Space

- **BioScience Center (5901 Indian School Rd NE)**
 - 19,500 sqft building; 2500 sqft lab space
 - **Biophagy**
 - **Oligocide** (1000 sqft lab and office)
 - **Avisa Pharma, Inc.**
 - **Azano Health**
 - **AgilVax**
 - **InLight Solutions, Inc.**
 - **Respira**
- **UNM STP & Cecchi Venture Lab (University & Bradbury)**
 - **SKInfrared** (2000 sqft)
 - **Lumidigm**
 - **Tyrosine Pharmaceuticals**
- **Verge Building (317 Commercial St. NE)**
 - **TruTouch**
 - **Pajarito Powder** (200 sqft office; 2000 sqft manufacturing)
- **WESST Enterprise Center (609 Broadway Blvd. NE)**



No designated office space

- **Accelera Diagnostics**
- **PanMuse**
- **Quatros**
- **Transmix Safe Lock, Inc.** (36 sqft desk space)
- **ThermoDynamics Films, LLC** (100 sqft of kitchen)
- **Batterade, LLC**
- **Wedge Health Communications**
- **Alpine Biosciences**
- **Nanocrystal LLC**
- **First Photonics**
- **truSecSys**
- **VisionQuest Biomedical**



Of the 45 active start-up companies based on UNM Technology that STC has helped to spin-off, 36 of them are located throughout the Albuquerque area, with no geographic proximity. We have no synergy of place.



Innovate ABQsm is...

A Highly-Connected Community Where People Live, Work, Play

- 🏢 Leveraging the research power of the University of New Mexico and the workforce development engine of Central New Mexico Community College
- 🏢 Engaging the City of Albuquerque, the County of Bernalillo, and the State of New Mexico
- 🏢 Connecting with the Albuquerque's Entrepreneurial and Established Business Community

To create new companies, grow existing ones and attract more out-of-state business and individuals who will expand our ecosystem.



The Mission

Innovate ABQsm is envisioned to:

- 🏢 Strengthen the economic base of the mid Rio Grande region and the State of New Mexico through the advancement of **knowledge worker jobs** (knowledge worker jobs create other jobs).
- 🏢 Create opportunities for the knowledge workers graduating from our educational institutions and those experienced workers in the community.
- 🏢 Provide entrepreneurial training and support at many levels.

Innovate ABQsm

Possible Elements

-  Incubator/Co-working/Acceleration Space
-  Living community for Students (Innovation Academy program)
-  Learning Space
-  Office Space
-  Apartments
-  Lab space
-  Restaurants, coffee shops
-  Retail

Innovate ABQsm Student Entrepreneurial Engagement Options



Attend entrepreneur events



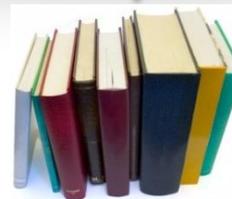
Start a company in Incubator



Co-working spaces



Random collisions



Innovation Minor at UNM
Innovation Academy



Internships at
NewCos
leading to jobs



Meet Corporate tenants
in incubator/separate
office space
(internships, jobs,
opportunities)



Living/Learning in
Entrepreneur Dorm

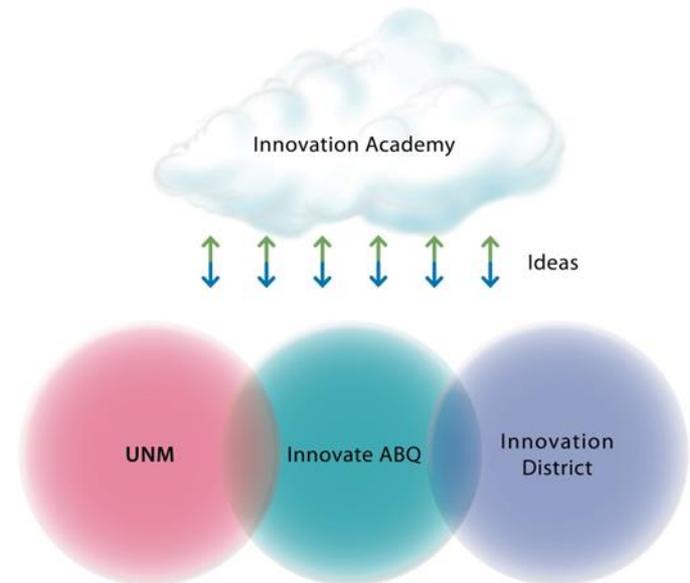


Innovate ABQsm

Innovation Academy Concept

- Innovation Academy may include courses in entrepreneurship, making ethical decisions and fostering innovation through leadership.
- Deliberate mission to foster interdisciplinary exchange and collaboration
- Co-curricular experiences – speaker series, internships with start-up companies, living learning community, service learning, networking with entrepreneurs
- Focus on helping students develop businesses of their own

Relationships Among the Partners



Envisioned UNM Program Examples

Innovation Design Clinic

- ✎ A new senior capstone course taught by a season industry engineer who has a passion for teaching.
- ✎ Covers two semesters and students were required to address a real-world problem that needed a multidisciplinary approach.
- ✎ The Innovative Design Clinic brings together a mix of students from diverse disciplines across the UNM campus to work as a team on a design element for a new product based on an idea submitted by a project sponsor or by a student.
- ✎ Students learn about all phases of the design process, including project management, architecture and design theory, implementation, testing, documentation, and professional ethics.
- ✎ The course is organized to transition the students from a classroom-oriented academic environment to a performance-oriented professional environment.
- ✎ Can be the central pillar of the Innovation Academy's entrepreneurial training program



Envisioned UNM Program Examples

Innovate Web App Competition

- 🏗️ This competition is an opportunity for students to take their newly acquired skills to the next level by building an app for an idea or business that you think has licensing or start-up company potential.
- 🏗️ Students complete the Web Application Architectures course before entering competition
- 🏗️ Interested students will form teams to work on app projects. The projects will be judged by fellow students who will vote for the top three projects during Demo Week at the end of the course
- 🏗️ Local successful serial investors/entrepreneurs experienced in funding IT start-ups and licensing IT technology, will judge entries for their commercial appeal.



Envisioned UNM Program Examples

Student Entrepreneurial

Innovate ABQ Student Entrepreneur Pilot Program

- Provide support to 6 teams of students within all university disciplines to move forward or launch ventures
- \$2,500 in funding
- 4-months of office space
- Training and mentorship
- Give the students the ability to successfully execute their business models and create local jobs.
- If funded, we would do a call for proposals and have an evaluation committee that consists of STC board members.

Site

Innovate ABQsm (Central – Broadway)

- ± 7 acre site along historic Route 66
- Existing buildings on former Baptist Church site could be reused in near and/or long term phasing of project
- Leverage existing neighborhood amenities
- Proximity to a large supply of small parcels and buildings that can be adapted incrementally to support Innovate ABQsm
- Adjacent to Rail Station and Rail Yards
- Proximity to WESST, Tricore, Verge Incubator (ABQid), FatPipe ABQ
- Metropolitan Redevelopment Area, Tax incentives, TIDD
- Zoning: SU-3 Special Center Zone

Innovate ABQsm Site Images



Innovate ABQsm Partners

STC.UNM
UNM

City
County
Business Community



Entrepreneurs
Investors
Incubators/Accelerators
Neighborhood Associations
Business community

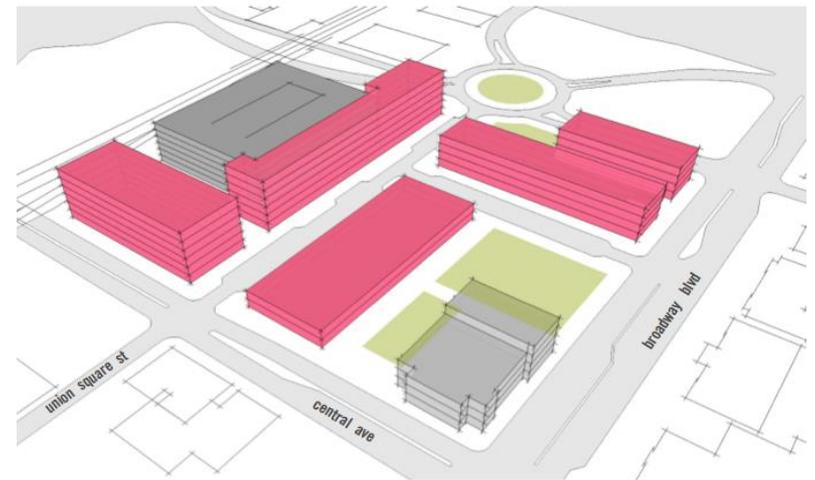
UNM Faculty &
Students



Funding partners

-  In November 2013, the City of Albuquerque's \$2 million funding for Innovate ABQsm was approved by the voters.
-  In November, the New Mexico Educators Federal Credit Union pledged \$3 million to the project.
-  In November, the EDA grant to STC was approved for Innovate ABQ for \$1.5 million.
-  In December , the UNM Regents voted to move forward with the purchase of the Central/Broadway site and approved \$7.3 million in funding which includes funds for closing costs and master planning.
-  In February, Bernalillo County Commission approved \$1 million in funding for Innovate ABQsm, with clawback provisions and other conditions.

Early, Conceptual Innovate ABQsm Site Drawings



	Type	Height	Square Feet	Employees
Phase I				
Building 1a	Innovation	Two	50,000	182
Building 1b	Residential	Four	64,800	162
Building 1c	Residential	Four	38,400	96
Phase II				
Building 2a	Office	Six	99,000	360
Building 2b	Residential	Six	102,000	255
Building 2c	Parking	Six	688 Spaces	0



Master Planning Process and Team

-  Team: Perkins & Will, Dekker Perich Sabatini along with Roger Schlunz from UNM will develop a Master Plan for the site, will work in partnership with AVP Andrew Cullen on process.
-  Constituents including neighborhood associations and community groups will be involved in planning.
-  Anticipate start date is close of property and complete within 3-4 months.

Statewide Vision

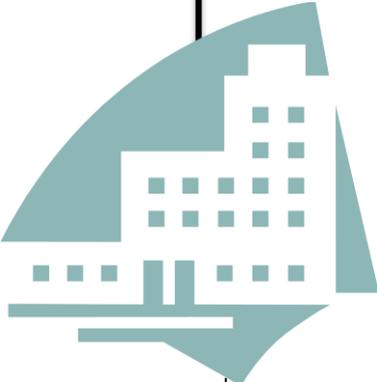
Innovate New Mexicosm



Innovate
Los Alamos



Innovate
Gallup



Headquarters Site
Innovate ABQsm



Innovate
Taos



Innovate
Valencia



Innovate
West



Innovate _____



Connected by a statewide network sharing affiliated programming and resources.