

**TECH LAUNCH ARIZONA:
ROADMAP, 2013-2018**



A WORD FROM PRESIDENT ANN WEAVER HART



Dear Friend and Colleague,

At the start of a new millennium, it is clear that scientific discovery and technological innovation will continue to change our world in profound and ever deepening ways. As we meet the challenges presented by these changes, the University of Arizona is in a unique position to shape the terrain on which they will take place by building partnerships between members of the academic and business communities. To do so, the UA must transform itself while remaining committed to the core values of using instruction, research, and creative activity to serve our constituent communities. This strategic transformation will ensure that these values define the technological innovations of the twenty-first century, and that they manifest themselves in tangible benefits for Arizona, the nation, and the world.

At the center of our strategic plan is Tech Launch Arizona (TLA), a new vision through which we will leverage our technology commercialization, industry partnerships and our research parks as a synergistic whole. With TLA, the University will develop its capacity to transfer research into intellectual property, inventions, and technological expertise. In achieving this goal, the UA will inspire, energize, and educate our community, and serve as an economic engine for long-term sustainable growth. This document lays out the pathways through which TLA maximizes the potential of the UA's vibrant research enterprise. The partnerships that we form will create new opportunities for UA students and faculty and leverage the expertise of the University in technological innovation and entrepreneurship. Furthermore, while TLA's primary goal is to produce synergistic relationships between scientific researchers and the technology industry, it also provides a model for similar relationships between other academic disciplines and potential community partners.

The hiring of David N. Allen as Vice President and Executive Director of Tech Launch Arizona marks my investment in the success of the University's transformation. Dr. Allen brings thirty years of experience, knowledge and skills that will be necessary to develop and implement this plan. With his leadership, Tech Launch Arizona will strengthen business and research partnerships. Through this emphasis on industry engagement, TLA expands our capacity for technology commercialization and continues the UA's tradition of research excellence.

I look forward with great excitement to see the promise of TLA unfold with the UA as a recognized national leader in producing knowledge that addresses the social and economic challenges of an ever changing world.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ann Weaver Hart'. The signature is fluid and cursive, with a large initial 'A'.

Ann Weaver Hart
President

TABLE OF CONTENTS

| | |
|----|---|
| 1 | WHAT IS TECH LAUNCH ARIZONA? |
| 2 | VISION, MISSION, AND GOALS |
| 3 | STEPPING UP TO THE CHALLENGE PATHWAYS TO KNOWLEDGE |
| 5 | A NEED FOR A CHANGE BUILDING ON THE ARIZONA UNIVERSITY SYSTEM ENTERPRISE METRICS FOR TECHNOLOGY TRANSFER |
| 6 | SWOT ANALYSIS |
| 8 | PART I: STRATEGIES DIRECTED TO ENHANCING TECHNOLOGY COMMERCIALIZATION |
| 16 | PART II: STRATEGIES DIRECTED TO PROMOTING INDUSTRY-SPONSORED RESEARCH AND COLLABORATION |
| 19 | PART III: STRATEGIES RELATED TO THE UNIVERSITY TECHNOLOGY PARKS' INTEGRATION WITH THE MISSIONS OF THE UNIVERSITY AND GROWTH OF THE UNIVERSITY TECHNOLOGY PARKS |
| 23 | PART IV: STRATEGIES FOR THE OVERALL TLA ENTERPRISE |
| 27 | PART V: FINANCIAL RESOURCES FOR FY 2013–2014 AND FUTURE FINANCIAL PROSPECTS |
| 29 | CONCLUSION |
| 30 | KEY PLAYERS |
| 32 | IMPORTANT CONTACTS |

“We will adopt innovative practices based on transparency and rewarding productivity, effectiveness, and entrepreneurship.”

President Ann Weaver Hart, Inauguration Speech, November 30, 2012

WHAT IS TECH LAUNCH ARIZONA?

Tech Launch Arizona (TLA) is a newly created cabinet-level unit at the University of Arizona (UA) that represents a prioritization, restructuring, and resource enhancement of the UA’s technology commercialization, industry-sponsored research efforts, and the university’s connection with its technology parks. TLA will move knowledge and inventions developed by UA researchers into the market, with the primary goal of unifying UA research and business communities in order to significantly enhance the impact of university research, technological innovation, and technology park assets. TLA will direct the Offices of Technology Transfer (OTT), Corporate and Business Relations (OCBR), and University Research Parks (OURP). Each of these three units will continue their operation under the umbrella of TLA. TLA will have its own resources and employees tasked with adding value and directing these three units to carry out TLA objectives, and ensure these functions meet the goals of the Arizona Board of Regents and the University of Arizona.

VISION

By 2020, the University of Arizona, through Tech Launch Arizona and its family of organizations, will become a recognized national resource for its role in integrating UA-created knowledge into tangible economic and social benefits.

MISSION

TLA will generate greater cohesion between the University of Arizona research enterprise and the technology business community to significantly enhance the impact of UA research, intellectual property (IP), technological innovation and assets of the UA Tech Parks.

GOALS

1. Expedite movement of UA research-derived IP into the commercial sphere to foster the further development of these assets along the appropriate commercial trajectory.

2. Promote engagements with private businesses by ensuring the UA's research, knowledge, IP, and research park assets are fully leveraged for mutually beneficial outcomes.

Achieving these two goals will enhance economic development in Arizona and the nation, generating tangible beneficial outcomes for people and create broad recognition of the UA's excellence in the commercial sector.

JUST IMAGINE ...

Environmental researchers working to detect water contamination collaborate with an optics professor to develop a bench top instrument that prepares and analyzes samples in 1/10 the time, and at half the cost of the conventional approach. They bring the new methods and instrument to the Office of Technology Transfer (OTT) for assistance with commercialization, and the UA files a patent application prepared by external patent counsel. The researchers work with an additional engineering colleague and an instrument industry business advisor to devise specifications for a hand-held device. TLA funds the prototype development of the smaller instrument and analysis to validate performance of that instrument. The advisor decides to retire from his employer with an interest in being the "business driver" of a new company to further develop and eventually commercialize this new instrument. University students working for credit in a class help analyze the sales channels for the device and their work is brought in to augment the business plan.

The Arizona Center for Innovation (AzCI) and TLA provide contacts to advisors who help the business driver refine the business plan. As part of the new company, two of the inventors desire to receive an ownership interest in the company for their service on the Scientific Advisory Board. They disclose this interest to the UA and a plan is put into place to guide their relationship between the UA and the company, and avoid conflicts of interest. With these steps completed, the business driver negotiates a technology license with OTT. Based on expressed interest from experienced private investors, TLA also invests an equal amount of seed funding to the company from the TLA venture capital fund. The company becomes a tenant in AzCI. The company identifies suppliers and contacts manufacturers, and the first generation product is produced with initial sales beginning roughly a year later. Ultimately, the company will create jobs, pay taxes, pay royalties to the University and become a member of the growing Tucson technology business community.

STEPPING UP TO THE CHALLENGE

Technology commercialization is an important aspect of the University of Arizona's fundamental research mission, and is essential from the perspective of the Arizona Board of Regents (ABOR). In response to the university historically underperforming in this arena, ABOR and UA administration have implemented mechanisms to help guide, measure, and promote accountability for technology commercialization and industry-sponsored research performance. **Tech Launch Arizona is the vehicle.**

As a leading public research university, the UA is a hub for learning, knowledge creation and dissemination, and innovation. These principles directly relate to what is known as "technology transfer". The translation and transfer of university-created knowledge to the public occurs in many ways; from classroom instruction, reports, publications, presentations, and evidence-based standards and practices. This pathway of open (non-proprietary) knowledge dissemination typically adds to the body of knowledge in a particular field of study. Others can then build from that body of knowledge, which results in "scientific and technological advancement".

PATHWAYS TO KNOWLEDGE

In order for knowledge created from university research to translate into discrete products and services that benefit the public, different pathways of knowledge transfer must also be pursued. One pathway is called technology commercialization; the other two are industry-sponsored research and the technology parks.

Technology Commercialization

For technology commercialization to be successful, knowledge must be transformed into intellectual property (IP). IP encompasses the broad category of creations of the mind for which rights, such as ownership and disposition, are recognized by law. These creations are legally protected primarily through patents, copyrights, and trademarks. Patents are relevant in the university context because they are legal mechanisms used to protect research-derived inventions and they provide a contractual basis to move ideas to commercial applications.

Adequate protection of IP reinforces the significant investment necessary for university research-derived IP to become commercial products and/or services. Millions of dollars are typically invested beyond the research stage into the development stage for further improvement, refinement, and validation. Predominantly private sector investment is necessary for the University of Arizona IP to be converted into the elements of machines, devices, drugs, software, and related practical products that improve our quality of life and provide a livelihood for large segments of our modern economy. Essentially, without the protection of UA inventions through patents that prevents others from making, using or selling products covered by a patent, there would be virtually no private investment to develop the IP.

Industry-Sponsored Research

Industry-sponsored research is a second university pathway for integrating knowledge into products and services. Even though patents are necessary to support investments in emerging technologies, it is also necessary to integrate knowledge through shared learning experiences between commercial partners and university researchers. Knowledge is integrated when “know-how” in the form of accumulated skills, understanding, information, data, and materials is conveyed from the university to a commercial entity and vice versa. This type of transfer occurs on a cooperative basis through person-to-person and lab-to-lab interaction, primarily based on funding from company sponsors.

Technology Parks

Economic massive impact occurs by companies that occupy the University of Tech Park and a second park is ready for development. One park—the Tech Park— is located on 1,345 acres in southeastern Pima County/Tucson and has been in existence for nearly two decades. The developed portion of the Tech Park is home to more than 50 companies and business organizations employing 7,000 workers. The Tech Park is also home to the Arizona Center for Innovation (AzCI), a technology business incubator that provides support for early-stage technology companies. The second park, the Bio Park, has been recently prepared for development on 65 acres at a more central Tucson location.

Tech Launch Arizona will substantially increase the integration of the technology parks with the UA. This integration will occur at the same time the technology parks are primarily pursuing internal reinvestment strategies to increase their impact by growing and attracting technology companies to Southern Arizona.

JUST IMAGINE ...

For three years, the National Institutes of Health has funded a UA researcher to investigate the molecular cause of an insidious disease. As a result of her work, she thinks of a way to potentially interfere with a protein critically involved in the disease pathway. Working with BIO5’s translational drug discovery and development center, they identify compounds and test them in cell culture and a mouse model of the disease, and witness a regression of the disease. The researchers report this new compound and its activity to the Office of Technology Transfer (OTT), and after discussion and review, OTT engages a patent attorney to file a patent application. The inventors work with OTT and a UA alum, who is a former biotech company R&D executive; together, they devise a small set of translational experiments to explore the potential for the compound as a new drug. TLA works with the BIO5 Institute to provide Proof of Concept (POC) funding for these translational experiments. Based on the data from the POC experiments, the UA alum introduces the researchers and the TLA team to a pharmaceutical company interested in the same disease pathway. A multiyear development and IP licensing agreement between the UA and the company is executed where both parties pursue a common work plan based on their own strengths. After two years of meeting the scientific goals of the collaboration, the lead compound enters the first phase of human clinical trials. Eventually, the drug is approved and marketed as a first line therapy for treating the disease.

A NEED FOR CHANGE

Many forces are driving change in the contemporary research university. High among these forces is the need to demonstrate social and economic impact and make a real difference of impact beyond traditional measures, such as degrees granted and papers published. Much like in 1887 with the passage of the Morrill Act that generated grants of land to establish public universities for instruction in agricultural and industrial arts, today universities are being called upon to convert their skills, knowledge and other scientific and technological assets into tangible, quantifiable value that impacts society. As a university with a proud, historical land grant mission, the UA is on a constant quest to evolve with the times and be an integral part of society. This will entail building meaningful relationships with new partners, and creating new structures and incentives that align the UA with the innovation, entrepreneurial, and commercial sectors of our economy.

The transformation of the University of Arizona through TLA will have differential impacts on the various elements of it. Technology commercialization and industry-sponsored research are not relevant to all aspects of university research and creative endeavors. However, for those parts of the university where they are relevant, we have a duty to understand these forces of change and meet their challenges, or we will gradually fall behind given the fierce competition for a decreasing share of the UA's traditional resource base. We also have a duty to make an impact on regional, state, and national competitiveness.

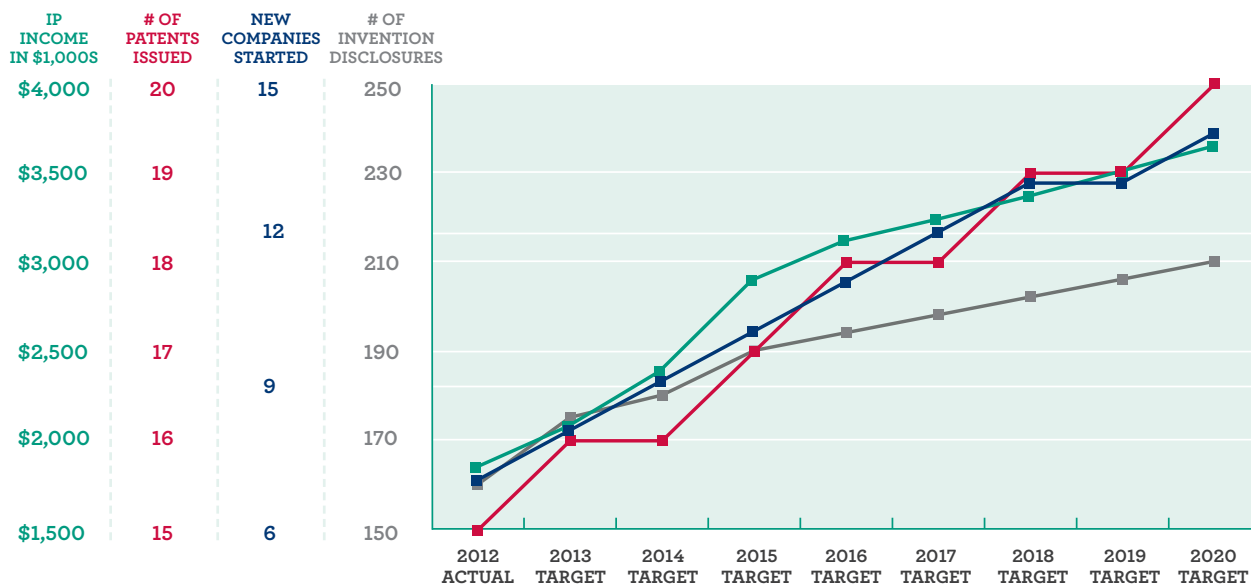
BUILDING ON THE ARIZONA UNIVERSITY SYSTEM ENTERPRISE METRICS FOR TECHNOLOGY TRANSFER

The Arizona Board of Regents has created a broad set of metrics that relate to many aspects of change at Arizona's state universities. Among the set of 32 metrics, four directly relate to technology commercialization. TLA is committed to meeting these targets.

1. ***Invention disclosures*** — *A report from faculty about an invention that serves as an initial starting point for patent analysis and subsequent patent filings.*
2. ***U.S. patents issued (in the name of ABOR for the UA)*** — *From the point of filing a Provisional Patent Application (PPA) to conversion to a Standard (also called Utility) Patent Application to the Issuance as a Letters Patent, the process currently averages between three to five years, with most biomedical patents averaging a year or two longer to issue.*
3. ***Revenue derived from UA IP*** — *As seen in the royalty generated from sales of products that are protected by the licensed IP. Such royalty generation occurs, at the earliest, five to six years after the invention disclosure, with biomedical related IP royalty revenue being realized at nearly double that period due to various regulatory processes.*
4. ***New companies started*** — *Companies created where the licensed UA derived IP serves as the technology foundation for the company.*

These four metrics are best thought of as "base indicators", as they denote activity and a pattern of growth. As part of the TLA strategic planning process, more granular metrics have been designed from these base indicators to provide us with the detail to enable us to manage our progress and ensure the highest quality result.

ARIZONA BOARD OF REGENTS BASE MEASURE TECHNOLOGY TRANSFER ENTERPRISE PERFORMANCE TARGETS FOR THE UNIVERSITY OF ARIZONA



UNIVERSITY OF ARIZONA TECHNOLOGY COMMERCIALIZATION, INDUSTRIAL RELATIONS, AND TECH PARKS' STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS (SWOT) ANALYSIS

Strategic planning entails knowing what you are good at, what can be improved, and the internal and external context for change. The following analysis presents this situation.

Strengths

- Competitive faculty produce diverse, high-quality research, much of which is synergistic with the Arizona technology sector.
- Support and engagement in TLA occurs across all leadership levels at the UA.
- Considerable untapped inventive potential and desire to collaborate with industry exists amongst UA researchers.
- A strong alumni base and influential friends who are keen to support technology commercialization and industrial-sponsored research.
- Quality science and technology students, and relevant entrepreneurial instructional programs already in existence at the UA.
- UA has a strong history of interdisciplinary research.
- The UA Tech Park has a national reputation and is a major contributor to the regional economy.
- The University Tech Park is financially self-sufficient and both the Tech Park and the Bio Park have significant land assets that can be further leveraged.
- The Bio Park is accessible to Interstate 10, UA Main Campus, Downtown, and Tucson International Airport.

Weaknesses

- A long history of commercialization underperformance and a weak pipeline of royalty producing licenses.
- UA has not effectively leveraged local experts and alumni to assist with commercialization.
- The UA receives much less industry-sponsored research than its than its national research peer universities peer universities.
- Many faculty lack experience and skills concerning IP and commercialization.
- The UA has experienced a long duration of unproductive, opaque and risk averse university practices and procedures; the roadmap is ambiguous for those who want to participate.
- Venture capital is under-developed in Arizona.
- The Tech Park is located 11 miles from the main UA campus; there is a lack of significant UA presence in the Tech Park, and it is not well integrated into the UA commercialization and industry engagement mission.

Opportunities

- Companies are seeking opportunities to augment their dwindling internal product pipelines, and consequently are building R&D relationships with universities.
- Tucson is receiving national recognition for its technology and entrepreneurial business environment.
- A supportive Tucson business community is waiting to engage in TLA's new commercialization processes.
- Federal agencies are increasingly placing importance on innovation and commercialization in grant programs, and some grants require company involvement in research directed to national problems.
- Portions of the Tech Park land holdings that are complementary with park uses can be monetized through sale, lease or co-development.
- The Tech Park is developing testing, evaluation and demonstration programs, and could develop secured research and prototyping facilities for UA and industry use.
- Through greater alignment, the Arizona Center for Innovation (AzCI) could support TLA commercialization and industry engagement objectives.
- Large companies are increasingly seeking a preferred set of universities for broad-based, centrally-managed relationships.

Threats

- The U.S. innovation economy, with the exception of internet-enabled products like social media, is in a protracted period of malaise.
- The venture capital industry exists at approximately half of pre-2008 with little prospects for change in the foreseeable future.
- Federal deficits could reduce university research budgets.
- Continued attempts seek to limit the ownership of UA IP as empowered by the 1980 Bayh Dole Act.
- Patent reform enactment is creating uncertainty as to execution; however, there is a clear need for earlier disclosure of inventions by faculty.

PART I

STRATEGIES DIRECTED TO ENHANCING TECHNOLOGY COMMERCIALIZATION

University research is complex, competitive, expensive, arduous, collaborative, and rewarding. Inventions result from years of research involving investigators working with other faculty, a laboratory team of students, and technicians advancing scientific knowledge. The response to the complex discovery to commercialization process must be met by an equally complex and resource-intensive university technology commercialization infrastructure. To perform at high levels of impact, a university technology commercialization operation must engage an appropriately sized, funded and experienced staff to work in a service-oriented manner with faculty inventors, motivated students, and a committed technology business community. This engagement will create a new culture at the UA that results in IP protection and early-stage development that informs an economic proposition for viable inventions and quickly weeds out non-viable inventions. The university technology commercialization practice will engage a network of people, companies, institutions, and support organizations sharing the common interest of pulling discoveries from university research into development and subsequent commercialization. The following thematic thrusts and consequent objectives will lead the UA to new levels of commercialization impact.

A. Provide a culture of service excellence in the TLA family of organizations. Faculty researchers and inventors are the primary internal customers. The primary external customers are innovative technology adopters (entrepreneurs and companies) and those companies that want to access the mindshare of the UA. In order to inculcate a service culture, actions will be undertaken to promote the following:

1. *Increase the number and quality of faculty invention disclosures by ensuring the disclosure process is user-friendly and matched with a timely response, and by providing greater assistance from dedicated personnel.*

Measurable outcomes and timing:

- a. Revise the invention disclosure form (IDF) to improve user-friendliness by end of 2012.
- b. Provide acknowledgement of IDF having been received within five working days by end of Q1 2013.
- c. Meeting with primary inventor within 20 working days of receiving IDF by Q2 2013.
- d. Provide greater assistance as evidenced by externally conducted surveys to inventors (“Inventor Surveys”); initial survey conducted at the end of Q3 2013.

2. *Develop a best-in-class technology licensing team and provide services to faculty where they work. The UA technology transfer function has been understaffed. Further, to ensure service access, each research-intensive college and major institutes will have “embedded” technology-licensing managers located in the respective college and institute. These “embeds” will be supported by a revitalized administrative*

backbone of IP, finance, marketing, and related professionals. Embedded licensing managers will attend seminars, lab and departmental meetings, spending over half their time in the college or institute, and be part of the research administration of the college or institute.

Measurable outcomes and timing:

- a. Create and execute memorandums of understanding (MOUs) with deans for existing embeds (Optics, Science, CALS and BIO5) by end of Q1 2013.
 - b. Undertake searches for new embed positions in Engineering (by end of 2012) and Medicine, and Eller IT Cluster (by end of Q1 2013).
3. *Ensure that all customers are treated fairly, with respect, engaged in shared decision-making discourse and that each response is clear, concise and advances overall understanding. When mistakes occur, admit them, apologize for any errors in judgment and communication, and take corrective action.*

Measurable outcomes and timing:

- a. Assess performance by Inventor Surveys and surveys of key UA stakeholders by end of Q3 2013.
4. *Ensure consistency in how inventions are evaluated and ensure decisions are objective and data driven, have a clear business rationale and are responsively communicated to faculty inventors.*

Measurable outcomes and timing:

- a. Provide complete responses to inventors about filing a provisional application within four months of receiving IDF by end of Q1 2013.
 - b. Assess performance by Inventor Surveys by end of Q3 2013.
5. *Ensure clear articulation of fundamental interests and intentions of the parties at the beginning of transactions and engagements. These assumptions should be frequently checked for reality.*

Measurable outcomes and timing:

- a. Assess performance by Inventor Surveys and surveys of key UA stakeholders by end of Q3 2013.

B. Ensure that UA policies, procedures, and practices related to technology commercialization are congruent with academic values, business practice and market conditions. Balancing academic values and business practices is an art underpinned by legal fundamentals that define a mere few immutable matters for the UA and company partners. Otherwise, all parties have to practice flexibility to create win-win outcomes that will be the basics of enduring relationships. Policies, procedures, and practices should be guided by the following:

1. *Provide clarity with regard to the process and the objectives of each step along the invention to commercialization path. The process should be understandable even to first-time participants.*

Measurable outcomes and timing:

- a. Establish an OTT practice statement for the process and conditions necessary for a start-up company to receive an exclusive license to University IP by the end of Q1 2013.
- b. Establish an OTT practice statement for the process to be undertaken by existing companies seeking to license University IP by the end of Q2 2013.
- c. Assess performance by Inventor Surveys and surveys of key UA stakeholders by end of Q3 2013.

2. *Demonstrate transparency of status. Participants should receive expectations for staying informed.*

Measurable outcomes and timing:

- a. Assess performance by Inventor Surveys and surveys of key UA stakeholders by end of Q3 2013.
- b. Build an inventor portal with the OTT database so that inventors can query the system in a secure manner and obtain the status of their cases by end of Q3 2013.

3. *Streamline aspects of commercialization processes that involve other governing or UA units. Adequate deliberation is essential, but cycle durations and time in cycle should be as timely as reasonably possible.*

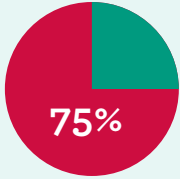
Measurable outcomes and timing:

- a. Work with ABOR, the Arizona Commerce Authority, the Arizona Governor, and State Legislature to devolve the Enabled Disclosure process to the UA level with yearly reporting, to be done by Q2 2013.
- b. Work with Office of Research to prepare communications collateral that provides Conflict of Interest and Commitment compliance process information by end of Q2 2013.
- c. Assess streamlining performance by Inventor Surveys and surveys of key UA stakeholders by end of Q3 2013.

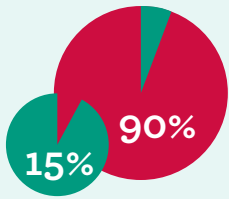
4. *Establish and execute effective practices to ensure equitable and efficient transactions that create inventor participation incentives and are responsive to market conditions. Each transaction involves different assets and interests; unbalanced terms and conditions create disincentives for energetic inventor involvement, and can lead to failed research and business relationships.*

Measurable outcomes and timing:

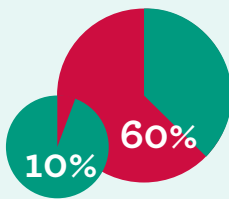
- a. Work with UA's shared governance to revise the existing UA IP policy eliminating the choice inventors have to make about receiving a return on equity to make such policy consistent with best university practices by end of Q3 2013.
- b. Work within the UA's shared governance process to create faculty rewards in promotion and tenure for technology commercialization and industry-sponsored research activity by end of 2013.



75% of all patents issued by the end of 2014 must be licensed



Increase external patent counsel involvement in all patent applications from current 15% to 90% by end of Q2 2013



Gradually increase conversion rates of Provisional Patent Applications to Utility Patent Applications from current 10% to 60% by end of 2013

- c. Provide information to the UA and business communities about ranges for standard deal terms for exclusive licenses by end of Q3 2013.

C. Invest to build a portfolio of intellectual property. Resources, time, and expertise are necessary to grow a robust IP portfolio that is selectively matured through continued patent investments and technology development programs that result in meaningful licensing transactions. Three initiatives are:

1. *Increase investment to support development of faculty inventions.*

Measurable outcomes and timing:

- a. Ensure that 75% of all patents issued by the end of 2014 must be licensed.
- b. Increase external patent counsel involvement in all patent applications from current 15% to 90% by end of Q2 2013.
- c. Gradually increase conversion rates of Provisional Patent Applications to Utility Patent Applications from current 10% to 60% by end of 2013.

2. *Define and communicate a clear set of IP portfolio management objectives and IP marketing processes.*

Measurable outcomes and timing:

- a. Prepare an OTT practice statement for process and conditions related to securing and managing the UA patent portfolio by end of Q1 2013.
- b. Establish a robust technology marketing function by the end of Q2 2013.

3. *Create, manage and expand over time a TLA Proof of Concept (POC) program. The purpose of the POC program is to validate the value proposition for individual technologies by aligning technology drivers with market drivers for a “go to market” application of the technology. The intent is to maximize impact on any given technology by focusing on an early and important value inflection point in the development pathway of the technology. The value inflection point is defined as the development step necessary to reduce the technology risk profile of a market application for the next participant in the value chain, such as an entrepreneur, investor or adoptee company.*

Measurable outcomes and timing:

- a. Manage projects selected in the initial \$715k POC program solicitation from fall 2012 and communicate results of POC research by end of Q2 2013.
- b. Starting in 2013, execute a discretionary approach for deploying POC funding to inventions after alignment of the technology and market drivers appears evident (see D1) and can then be validated by a POC award. By the end of Q2 2013 make the information about the POC process widely available. By the end of Q2 2014, deploy \$700k–\$800k in POC program awards to 18 to 22 different POC projects. Continue the program and revise it as necessary to improve impact.

D. Leverage the strengths of different external communities of technology

enterprise interest to help provide assistance and support for University technology commercialization. In geographic areas where technology commercialization flourishes, e.g. Silicon Valley, San Diego, and Boston, many people from different backgrounds and interests constitute an ecosystem that contributes to university commercialization processes.

1. *Create and deploy a technology commercialization ecosystem specific to UA.*

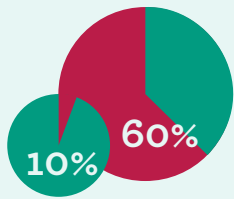
This ecosystem will be built one volunteer at a time and operate on a case by case basis providing support and conducting analysis of how UA inventions align with market drivers and other activities, such as POC plans, in support of UA technology commercialization. The TLA Director for Commercialization Networks and Operations will have primary responsibility for building and managing this ecosystem. The following groups provide the foundation for this ecosystem:

- Subject matter domain experts (business development, sales and marketing, chief technology officers, and technology consultants).
- Sources of investment capital (private angle investors, venture capital, and strategic company investors).
- Corporate leaders and business advancement groups (Southern Arizona Leadership Council, Greater Phoenix Economic Council, and Tucson Regional Economic Opportunities).
- Service providers, in particular law firms and contract development engineering firms.
- Technology associations and advocacy groups (i.e. AZ Tech Council, AZBio, BioIndustry Organization of Southern Arizona, and others).
- Governmental economic development units at state, regional, and local levels (i.e. Arizona Commerce Authority and the cities of Tucson, Phoenix, Oro Valley, and related jurisdictions such as Pima County).
- Alumni and friends of the UA (accessed by working closely with the UA Alumni Association).
- Management teams of current licensee companies.

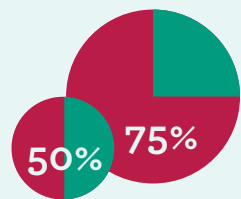
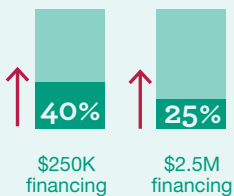
Measurable outcomes and timing:

- a. Create and execute a process for using volunteer support groups to work with inventors to analyze 15 UA inventions and/or assist in building technology development plans by the end of Q3 2013.
- b. Double the number of these activities by end of Q3 2014.

2. *Create and engage a TLA External Advisory Board of technology and entrepreneurial leaders.* This group will provide strategic advice, and connect TLA to key opinion leaders and technology commercialization resources. It is initially being built from Tucson and Phoenix based business leaders. Over time, the expertise base will expand by adding more members primarily from California, the Pacific Northwest, Central Rockies, and others from national technology centers, particularly those people with UA connections. The group will be chaired by the Eller College of Management Dean.



Execute 60% of exclusive options and licenses to Arizona based companies by the end of FY 2014



Increase the percentage of all post FY 2013 start-ups that maintain operations past 5 years to 50% by the end of FY 2018, increase that rate 5% annually, until a threshold of 75%

Measurable outcomes and timing:

- a. Conduct first meeting by end of 2012.
- b. Conduct three meetings a year.
- c. Expand this group by end of Q2 2013.

E. Create and measure sets of commercialization metrics that reflect quality, impact and context.

Activity metrics measure the quantity of activities. Performance metrics measure the quality and impact of activities. For example, on one hand, non-exclusive licenses are designed to exploit IP such as software and biomaterials that have auxiliary value as development tools or service applications. On the other hand, exclusive licenses best advance the value of UA's most foundational and transformative technologies; exclusive licenses require investment for further development into new products, creating in many cases new companies and jobs. All metrics should be relevant to the university context.

1. *Enhance the limitations of the four ABOR technology transfer metrics by adding commercialization performance measures.*

Measurable outcomes and timing:

- a. Execute 35 exclusive options and licenses by end of FY 2014, an increase of nine over FY 2012. Increase the rate of these exclusive agreements by one per \$20M increase of University-sponsored research expenditures.
- b. License UA IP to 10 start-up companies by the end of FY 2014 and increase by one start-up annually each successive year.
- c. Execute 60% of exclusive licensees and options to Arizona based companies by the end of FY 2014, an increase of 10 % over FY 2012. Increase the rate of in-state exclusive licenses and options 5% annually, until a threshold of 70% and maintain that threshold thereafter.
- d. Increase the percentage of all post FY 2013 start-ups that obtain at least \$250k follow-on financing two years post execution of UA license to 40% by end of FY 2015, and increase the percentage that obtain at least \$2.5M in follow-on financing three years post license execution to 25% by the end of 2016.
- e. Increase the above follow-on financing rates 5% annually, until a threshold of 60% and 45% respectively, and maintain those thresholds thereafter.
- f. Increase the percentage of all post FY 2013 start-ups that maintain operations past five years to 50% by the end of FY 2018, and increase that rate 5% annually, until a threshold of 75% and maintain that threshold thereafter.

F. Increase the exposure of the UA research and student communities to technology commercialization.

Most researchers have not received formal training in IP and commercialization matters; it has simply not been a part of scientific preparation curriculums. Involving students is a win-win proposition; students apply classroom learning, engage in creative processes, and technology commercialization cases with proper oversight and direction will receive the benefit of student energy and perspective.

1. *Design and execute technology commercialization and IP domain specific seminars, workshops and forums jointly sponsored by TLA and UA units and external organizations and companies.*

Measurable outcomes and timing:

- a. Conduct at least one seminar per month by end of Q2 2013 and at least three by end of Q1 2014.
- b. Ensure that at least one-third of the seminar topics are on IP domain specific topics (e.g. patent strategies in optics, new issues in molecular diagnostic patenting and protection strategies relevant to IT).
- c. Continue to support "Innovation Day at UA" to be held each spring.

2. *Engage college and institute advisory boards to help with commercialization in their respective units. Typically, many of these individuals have extensive business experience and contacts, and by the very nature of their service, are UA supporters.*

Measurable outcomes and timing:

- a. Work with college deans to arrange TLA presentations to these advisory boards at least one session each during 2013.
- b. Introduce these advisors to the TLA commercialization ecosystem concept and involve at least one advisor from each college in a case per year by Q3 2013.

3. *Increase the number of classes and focus the engagement of students in colleges across UA, and actively manage the process.*

Measurable outcomes and timing:

- a. Establish a process to coordinate information on UA faculty and departmental preferences for experiential technology commercialization learning activities. Integrate this information into two classroom opportunities in fall semester 2013 and increase this to five classes per semester by fall 2014.
- b. Increase integration of the Innovation Law Lab and Mock Law Firm Program in the College of Law to increase availability and frequency of interaction with UA technologies and researchers. Ensure integration of TLA with Mock Law Firm and Innovation Law Lab Practitioners by fall semester 2013.
- c. Offer a 500 level Eller College of Management Technology Commercialization Class to be taught by TLA professionals at least one semester per year, engaging 25 students from management, science, engineering, law, and other areas directly in the commercial exploration of university technology. The first class is being taught spring semester 2013.
- d. Arrange participation of TLA professionals in classes taught in the Eller College of Management Ph.D. entrepreneurship certificate starting fall semester 2013.
- e. Hire UA students through work-study and paid internships in the TLA family of organizations. Exclusive of the Tech Parks, target 10 students for summer session 2013 and eight students for fall and spring sessions, and increase these levels by one until the end of FY 2015.
- f. Request that TLA professionals participate in technology-related classes broadly taught across campus. For academic year 2014, target instruction in 20 such classes.
- g. Establish a Technology Commercialization Workshop with specific attention on Graduate Research Assistants and Post-Doctoral Fellows to work on IP and

technology commercialization issues related to the scientific projects they are pursuing in the labs of their Primary Investigators. Determine the framework for the Workshop by end of Q2 2013. Soon thereafter, begin recruitment for initial sessions in fall semester 2013.

G. Create an early-stage funding mechanism to participate in UA start-up investment rounds by providing capital alongside other professional investors. The general approach is used in many communities and is known as “venture philanthropy”, the use of venture capital principles and processes for philanthropic purposes. The working name is the Catapult Fund (or “Cat Fund”), and its purpose would be to direct selective investments in start-up companies that have licensed UA IP. Investment liquidations would be first directed to ensure a continuous pool of future investment funds, and second, to support the management of the fund along with the vast majority of investment proceeds distributed on a donor pro rata basis to designated UA operating units (e.g., departments, centers and/or faculty endowments), per the contributor’s or donor’s agreement with the Fund. In addition to the Cat Fund, a crowd sourcing approach presents new funding opportunities.

1. *Continue to assess interest and feasibility of the Cat Fund and crowd sourcing approaches.*

Measurable outcomes and timing:

- a. Prepare a business plan for the Cat Fund with financial projections by the end of Q2 2013 and soon thereafter make a “go-no go” decision to begin raising money from donors with the assistance of the UA Foundation to capitalize such a fund.
- b. Analyze the feasibility of a UA crowd-sourcing fund by the end of Q4 2013.



PART II

STRATEGIES DIRECTED TO PROMOTING INDUSTRY-SPONSORED RESEARCH AND COLLABORATION

Over the past few decades, many corporate research labs have been substantially reduced and in some cases eliminated through R&D outsourcing. Due to this decline and the increasing pace of global technological competition, in recent years, the growth of corporate-sponsored research at universities has increased. However, even with recent aggregate increases, industry's sponsored research only constitutes on average seven percent of overall U.S. university research expenditures. Given expectations of flat or decreasing federal research resources, nearly all research universities are seeking a greater share of the growing industry-sponsored research expenditures.

Much like technology commercialization discussed above, UA has underperformed in industrial research relative to national norms. Although the timing is excellent for expanding collaborations between UA and industry partners, this underperforming situation will not change by happenstance; it will take a concerted strategic effort to overcome this history.

The Office of Corporate and Business Relations (OCBR) has become an integrated part of TLA. OCBR is refining its focus and augmenting resources to increase UA's stature with industry partners by becoming a more visible and active single point-of-contact for companies seeking a connection to UA's research, mind share and technology innovation assets. To significantly advance corporate partnerships with the UA and develop a win/win approach, the following strategic thrusts will be pursued.

A. Prospect, develop, and sustain high impact, high value, and multidisciplinary strategic relationships with companies that match to UA assets. Such relationships are built around a research core and including a broad range of mutually beneficial collaborations. UA will continue to build and strengthen its strong collaborative culture to gain competitiveness with industry programs offered by other universities, and to ultimately make the UA a well known, in-demand research partner to corporations in Arizona and beyond.

1. *Work with a preferred set of mainly, but not exclusively, Arizona-based strategic company partners to identify their high-priority needs and structure innovative programs and major collaborative initiatives that can provide multi-year research commitments and other types of mutual value to UA and the participant companies.*

Measurable outcomes and timing:

- a. Establish a "Company Engagement Team" with R&D principals from technology intensive colleges and units to: 1) identify barriers and ways to overcome them, 2) leverage and expand relationships with existing partners; 3) develop strategies for cultivating new partners; and 4) continue strengthening the University's collaborative culture. Conduct quarterly meetings with this group starting the end of Q2 2013.

- b. Comprehensively collect data regarding all industry-sponsored research conducted at the UA. This includes sponsored projects, UA Foundation data (for research), and relevant college/unit research expenditure data. Report such data by end of Q2 2013.
- c. Involve college/unit business or research development partners in building a portfolio of 10 active strategic relationships by Q4 2013.
- d. Prospect and cultivate two new strategic company partners per year for the next three years starting end of Q1 2014.
- e. Increase the UA's industry-sponsored research relative to the UA's total research expenditures currently at 3% to 4% by Q2 2014, and increase by 1% per year into the foreseeable future.

2. *Maximize industry-sponsored research opportunities by working collaboratively and by identifying each strategic partner's research needs and priorities, and matching them with a strong and scalable faculty research core.*

Measurable outcomes and timing:

- a. By the end of Q3 2013, start R&D matchmaking sessions (such as the "Industry Days" approach developed by the College of Engineering) for three strategic partners in each of the next three years, aligning each company's needs and priorities with UA faculty research expertise. Include multiple college/unit representatives in these meetings whenever appropriate to help inspire interdisciplinary research collaborations.
- b. By the end of Q2 2014, secure funding for at least two projects from each company that participated in R&D matchmaking sessions and with a desire to collaborate with UA.

3. *Increase the number of joint pursuits with company partners for federal research proposals.*

Measurable outcomes and timing:

- a. By the end of Q3 2014, increase the output of joint federal funding pursuits by 10% per year over the foreseeable future—some with the UA taking the lead, others with company partners leading the proposal development process.

4. *Partner TLA resources with a key interdisciplinary research field to create new industry partnerships in that field.*

Measurable outcomes and timing:

- a. Select a field and establish a meaningful partnership with that unit by end of Q4 2013 and select a second domain by end of Q4 2014.
- b. Create action plans including key measures of performance within six months of initiating each new strategic partnership.

B. Refine the UA's industry contracting processes to provide competitive, foundational agreements for companies on track to become strategic partners. These agreements must be competitive with what other universities offer, inspire the highest levels of productive activity and be congruent with the state, ABOR, and UA policies and practices.

1. *Continue to build business and operational procedures and practices, such as master sponsored research agreements, that support the UA's industry partnering strategy and objectives.*

2. *Working with other Office Research units to ensure contracting and IP terms are fair, transparent, competitive, and consistently applied.*
3. *Working with other Office Research units to simplify and accelerate small, transactional, and first-time engagements with companies including emerging technology companies.*

Measurable outcomes and timing:

- a. Prepare a practice statement on IP terms in industry-sponsored research agreements by end of Q2 2013.
 - b. Conduct analysis to understand the opportunities and barriers for UA to be more engaged with emerging technology companies and ways the barriers can be overcome by end of Q4 2013. Share this analysis with UA/TLA stakeholders to develop or refine strategies and tactics.
 - c. Starting at the end of 2013, conduct annual satisfaction surveys with strategic company partners (and others) by the end of the calendar year for the next three years, achieving improvement in scores each successive year.
4. *Expand the capacity of OCBR and work with other Office of Research units to increase production of agreements and when challenging issues are encountered, ensure creative, fair, successful resolutions, and outcomes.*

Measurable outcomes and timing:

- a. Increase the number of professionals in OCBR by one person beginning Q2 2013 and each year thereafter until 2016 based on overall performance.
- b. Increase the number of students engaged in OCBR by one intern starting Q2 2013, and continue to add one intern in subsequent years until 2016 based on overall performance.
- c. By Q3 2013, ensure full integration of TLA management staff and embed technology commercialization managers with OCBR relative to IP issues in industrial agreements.
- d. Contact company representatives within four months of concluding difficult negotiations to understand problems and obstacles that emerged during the negotiation or completing master sponsored research agreements. Develop and utilize a standardized set of questions to compile and analyze responses to measure effectiveness in problem resolution and to insure customer-servicing satisfaction. By the end of Q4 2013 report findings bi-annually to the Company Engagement Team and discuss with UA units to continually improve practices.



PART III

STRATEGIES RELATED TO THE UNIVERSITY TECHNOLOGY PARKS' INTEGRATION WITH THE MISSIONS OF THE UNIVERSITY AND GROWTH OF THE UNIVERSITY TECHNOLOGY PARKS

University research and technology parks and business incubators have become integral components of the 21st century public research university. There are 175 university research and technology parks in the U.S. and Canada. Technology parks are associated with 11 of the UA's 15 ABOR-designated peer national research institutions. The two UA tech parks (collectively known as "the Parks") are owned by the UA under State of Arizona statutory and ABOR authority. One park has been in existence for nearly two decades—the Tech Park, located on 1,345 acres in southeastern Pima County/Tucson, and the other is a new park—the Bio Park, is located on 65 acres at a more central Tucson location. The Parks contribute to state and regional economic development by utilizing facilities, space and programs to support the development, growth and attraction of technology companies in Southern Arizona.

The developed portion of the Tech Park includes two million square feet of office, laboratory and production space. The Tech Park is home to over 50 companies and business organizations employing 7,000 workers. The Tech Park is also home to Vail Academy and High School, a K-12 school operated by the Vail School District and UA South, an extension campus of the UA serving non-traditional students. Over 650 students from kindergarten through college attend class on-site. The Bio Park is located on space ready for development; the roads and utility infrastructure are in place.

The Parks are governed by the Campus Research Corporation (CRC), an Arizona 501c3 non-profit corporation with an 11-person Board of Directors, of which three are appointed by the UA President, two are appointed by the ABOR Chair, and the remainder self-appointed by the CRC Board. All major decisions require the approval of the CRC Board of Directors and the written consent of the UA president. Additionally, the Arizona Research Park Authority (ARPA) is an ABOR-appointed board with the authority to issue bonds and incur debt on behalf of the Parks. UA holds title to the land managed by the Parks, and the Parks exist for the benefit of UA. The Parks are managed by a team of professionals lead by the Associate Vice President for University Research Parks who has a dual report to the CRC Board and the Executive Director of TLA, given the UA Office of University Research Parks (OURP) is a recently reorganized component of TLA.

The Arizona Center for Innovation (AzCI) is a business incubator that provides support for early-stage technology companies, many of which are commercializing UA technologies. AzCI provides support through its Mentored Launch program, a series of targeted workshops, interactive mentor sessions, and resources designed to help entrepreneurs turn their ideas into successful and sustainable business ventures. AzCI is located at the UA Tech Park and offers full-service office and meeting space, along with wet and dry lab facilities and equipment. Since opening in 2003, AzCI has served over 70 companies.

As regional growth continues, the Parks face many challenges, and the challenges will be met in an interdependent fashion as addressed in the two following strategic thrusts:

A. The Parks will provide greater focus on development undertakings that are synergistic to UA activities and interests.

1. *TLA will ensure that the Parks' and UA's missions are increasingly becoming more synergistic.*

Measurable outcomes and timing:

- a. TLA executives, starting in January 2013, will meet monthly to explore opportunities for greater collaboration concerning shared objectives of TLA, the Parks and AzCI.
- b. Selected Park managers and Board members and senior representatives from various UA administrative units (Finance, University Counsel, Academic Affairs and Regional Development and TLA) will continue the meetings begun in the fall of 2012 and commit to meet three times a year to exchange perspectives, plans and updates on activities.
- c. TLA and the Parks will coordinate communications to build better connection of the Parks to the University community and disseminate a report on Tech Parks-TLA coordination at the end of 2013 and every year thereafter.

2. *The Parks will prioritize establishing and managing programs, facilities and citing companies that are engaged in and/or related to the research and commercialization enterprises of the UA.*

Measurable outcomes and timing:

- a. The Parks will support and showcase UA commercialization activities during Innovation Day and at least three trade shows and industry meetings per year.
- b. The Parks will expand the testing, evaluation, and demonstration programs related to UA research, such as Solar Zone and Border Technology Evaluation Center (Border TEC).
- c. The Parks will conduct a feasibility analysis of the potential for secured research and prototyping facilities for University and industry use by end of Q4 2013.
- d. Working with TLA management, the Parks will conduct a feasibility analysis of an investment fund that supports Park tenants working to commercialize UA technologies by end of Q3 2013.
- e. The Parks will ensure the citing of businesses and entities in the Bio Park that will be directly related to UA programs and needs.

3. *The AzCI incubator will be a key contributor to TLA programs to create and grow companies from UA research.*

Measurable outcomes and timing:

- a. AzCI will work to continuously add to the pool of subject matter domain experts that are part of TLA's commercialization network.
- b. AzCI will provide up to 12 months of Mentored Launch incubation services at no cost to at least five UA technology licensee start-up companies per year starting Q2 2013. This includes: advisor team

The UA Bio Park

- Launched in 2012
- 65 acres

The UA Tech Park

- Nearly 20 years old
- 1,345 acres
- Over 50 companies
- 7,000 workers

development; individual mentoring; facilitated work sessions; market and customer validation; investor presentation practice; business development and execution; and networking.

c. AzCI activities will be included in the annual Tech Parks-TLA coordination report.

B. The Parks will continue to address the problems and opportunities of managing their facilities and programs to ensure they are valuable contributors to Southern Arizona economic development.

1. *The Parks will explore new development opportunities.*

- a. The Parks will continue to develop the Tucson Tech Corridor in partnership with Pima County, City of Tucson, Vail community, Imagine Greater Tucson and area companies and land owners.
- b. The Parks will participate in the development and execution of the aerospace and defense initiative with the UA and various state and local partners.
- c. The Parks will develop a Regional YMCA and County library complex at the UA Tech Park in partnership with the Tucson Metro YMCA and Pima County.

2. *Based on portions of the Tech Park land holdings that are complementary with park uses, the Tech Park will seek monetization opportunities through sale, lease, and/or co-development.*

Measurable outcomes and timing:

- a. Pursue discussions during 2013 regarding the sale of 95 acres of land at the UA Tech Park for development as a regional retail center.
- b. Pursue discussions during 2013 regarding the sale of 15 acres of land at the UA Tech Park for development of a rental residential project.
- c. Pursue discussions during 2014 regarding the sale of 60 acres of land at the UA Tech Park for development of single-family residential projects.
- d. Pursue discussions regarding the sale of six acres of land at the UA Tech Park for the development of an extended stay hotel (2014) and a full service hotel (2015).
- e. Pursue discussions during 2013–2014 regarding the sale of five acres of land at the UA Bio Park for development of a full-service hotel and conference center.

3. *The Parks will ensure stability of operations by establishing an adequate financial reserve.*

Measurable outcomes and timing:

- a. Establish the funding for an operating/capital reserve on an annual basis equal to six months' operating expenses.
- b. Retire the Campus Research Corporation debt to the University by the end of Q2 2014.



PHOTOGRAPH COURTESY OF JACOB CHINN

PART IV

STRATEGIES FOR THE OVERALL TLA ENTERPRISE

As the TLA mission becomes woven into UA culture, TLA will represent more than just the sum of the three components that comprise the major TLA programs – technology licensing, industry relations, and the tech parks – it will obtain meaning and relevance in its own right. To achieve this awareness of TLA, it will take broad-based but focused commitment, engagement across many parts of the UA and the community, and dogged persistence. In order to knit TLA into UA life, the following strategies will be pursued:

A. Within the changing vision and culture of the UA, create a TLA brand identity and recognition based on key values and fundamental messages that invite others from different backgrounds and perspectives to partner with the UA in research and technology commercialization endeavors.

1. *Build TLA vision, message, and accomplishments into UA communications.*

Measurable outcomes and timing:

- a. Enhance coordination with UA Communications on press releases through national media outlets and specifically directed to industry and trade outlets relevant to the technology discussed in the story. Deliver one UA-wide press placement per month by end of Q2 2013 and two per month by end of Q2 2014.
- b. Work with various UA colleges, institutes/centers, programs and related units to place TLA themed stories in their communications to constituents and stakeholders. Deliver at least one such story in each relevant outlet by end of Q4 2013 and double that by end of Q4 2014.
- c. Continue to work with President Hart as she heralds the necessity for crosscutting innovation, partnership, creative disruption, measurable impact, and the role of TLA in her calls for action.

2. *Collaborate with political and civic leadership at the local, regional, state, and national levels to communicate the change and accomplishments driven by TLA.*

Measurable outcomes and timing:

- a. Develop and execute a coordinated TLA agenda with the UA offices that reach and inform political and civic leadership at different jurisdictional levels. Present to the President's Cabinet this agenda by end of Q2 2013 and broadly distribute this agenda.
- b. Work closely with the Vice President, Regional Development, Outreach and Global Initiatives and Dean, Outreach College to develop a joint plan that provides clarity about UA roles and arrangements in economic development. Establish these domains of management in a clearly articulated statement by end of Q2 2013.

3. *Create and distribute frequent communications about UA commercialization activities and interests broadly distributed to the UA community and interested external parties.*

Measurable outcomes and timing:

- a. Engage a cost-effective service to help distribute a TLA newsletter every other month by the end of Q2 2013 and go monthly by end of Q2 2014.
 - b. Prepare and widely distribute a TLA Update Report for FY 2013 by the end of Q3 2013 and an annual report every year thereafter by the end of Q3 in the respective year.
 - c. Develop and disseminate clear and concise information bulletins and process statements on a wide variety of technology commercialization topics beginning every other month by Q2 2013 and do this monthly by end of Q1 2014.
4. *Create a dynamic and user-friendly TLA website containing rich and inviting content for TLA customers and stakeholders, and platforms for social media networking.*

Measurable outcomes and timing:

- a. Develop, test and deploy the new website by end of Q1 2013.
 - b. Add social media capacity and a broad range of media content by end of Q2 2013.
5. *Participate in relevant industry and support organization trade shows and technology showcase events.*

Measurable outcomes and timing:

- a. Create flexible TLA presentation equipment that can be scaled to the requirements of the event by the end of Q3 2013.
- b. Participate in four such events by the end of Q3 2014.

B. Intensify the base of support for the TLA mission by defining and ensuring that UA leaders and key stakeholders execute roles for engagement; this will enable technology commercialization to be woven into the fabric of the UA. Building from the position of the TLA Executive Director as a direct report to the President and a member of the President's cabinet, key participants in the UA administration agree to the following roles:

1. **President:** *Chief spokesperson for TLA as evidenced by TLA stories in speeches, attending key TLA functions and maintaining TLA as a UA priority area.*
2. **Provost:** *Support for TLA vision and objectives in faculty communications and establishing technology commercialization and industry-sponsored research criteria for evaluation of deans in technology related colleges.*
3. **Vice President for Research:** *TLA partnership involvement in research program development and management and continual streamlining, timely response and process clarity in industrial research contracts. Similarly, apply these features to conflict of interest and commitment and other compliance matters related to technology commercialization.*
4. **Legal Affairs:** *Timely and effective support from subject matter legal experts on TLA related issues.*

5. **Communications and External Relations:** *Timely and responsive support for TLA press releases and involving TLA in stories placed in UA messaging and communications.*
6. **Business Affairs and Finance:** *Timely and effective support from subject matter experts as concerns TLA-related issues.*
7. **Deans of Research Intensive Colleges:** *Demonstrated support for embedded Technology Licensing Managers, willingness to collaborate across the campus, establishing technology commercialization and industry-sponsored research criteria in departmental assessments and support of such activities in faculty performance assessments.*
8. **Research Institute and Center Leadership:** *TLA partnership involvement in research program development and management.*
9. **UA Foundation:** *Support for TLA fundraising objectives as evident in UA priorities.*
Vice President, Regional Development, Outreach and Global Initiatives and Dean, Outreach College: *Clear delineation of regional development and technology commercialization domains and collaboration on issues relevant to both.*

C. Work with key UA leaders to address issues presented in this strategic plan and report progress.

1. *Involve key deans and institute directors in key TLA decisions.*
 - a. Meet with key deans and institute directors as an internal advisory board at least three times a year with the group chaired by the Eller College of Management Dean.
 - b. Meet with individual deans and institute directors at least once a semester.
2. *Engage key UA opinion leaders and members of faculty governance committee for guidance and support.*
 - a. Meet with the Committee of 11 by the end of Q1 2013 and at least once a year or upon their request.
 - b. Meet with faculty governance leadership by the end of Q1 2013 and at least once a year and be responsive to their requests to present TLA issues and progress to faculty governance groups.

D. Continue to build the TLA team and provide to them the tools and incentives necessary to execute this Strategic Plan.

1. *Build out the initial core TLA team and add to the team as new functions and activities are pursued under this plan and to the extent funds are available.*

Measurable outcomes and timing:

- a. TLA Director for Commercialization Networks and Operations hired as of November 15, 2012.

- b. TLA Communications and Marketing Manager hired as of January 2013.
- c. OTT Director hired as of March 1, 2013.
- d. OTT Intellectual Property Manager search completed early Q2 2013.
- e. OTT Assistant Director for Biomedical Licensing search initiated by end of Q1 2013.
- f. Complete the other personnel changes necessary to effect the reorganization of TLA by the end of Q2 2013.

2. *Deliver to the TLA team the information technology and research tools that will enable them to execute this strategic plan.*

Measurable outcomes and timing:

- a. Upgrade the IT system by end of Q1 2013.
- b. Expand capacity of the IP and licensing database to become a decision support system for TLA users by Q2 2013.

3. *Provide suitable working space for TLA staff.*

Measurable outcomes and timing:

- a. Fully occupy the new space provided to TLA offices by the UA by end of Q1 2013.
- b. Work on an ongoing basis with UA planning and fundraising offices to create a future central campus base office for TLA.

4. *Change the name of the Office of Technology Transfer to Technology Licensing Office to better reflect the core duties of that office.*

Measurable outcomes and timing:

- a. Make necessary revisions in all documents by Q2 2013.

5. *Create an incentive pay plan for the family of TLA employees. The incentive pay plan will not exceed 10% of total individual salary, rewarding both team (5% maximum) and exceptional individual (5% maximum) performance.*

Measurable outcome and timing:

- a. Design and apply plan to TLA organizations by the end of Q2 2013 applicable to FY 2014 performance.

6. *Working with BIO5 and others, address the special case of the BIO5 facility in Oro Valley.*

Measurable outcomes and timing:

- a. Engage a select group of UA and community leaders to perform an assessment of the fit of this facility to UA, BIO5, and TLA objectives by end of Q3 2013.
- b. Based on that assessment create a business plan for the facility that best represents its potential to advance UA, BIO5, and TLA objectives by Q4 2013.

PART V

FINANCIAL RESOURCES FOR FY 2013–2014 AND FUTURE FINANCIAL PROSPECTS

TLA's resources are sufficient to execute base aspirations of this plan. TLA is its own administrative unit and reports directly to the President of the University of Arizona. TLA has responsibility for three UA administrative units which report to TLA's Executive Director: 1) the Office of Technology Transfer (OTT), 2) Corporate & Business Relations (OCBR), and 3) the Office of University Research Parks (OURP). Excluding the Tech Parks' self-generated rent and related real estate revenues, TLA's budget of approximately \$5.3 million (FY 2013–14) comes from four basic sources discussed in more detail below.

1. Technology Research Initiative Fund (TRIF): a special higher education investment created through the passage of an Arizona voter-approved initiative in 2000, Proposition 301. TRIF funds of \$2.2 million are derived from a portion of state sales tax administered by ABOR and directed to the state's public universities.
2. UA-administered research grants: approximately \$1.7 million is allocated to TLA from UA-administered research grants and their indirect cost recoveries to TLA.
3. Licensing revenue and patent cost reimbursements: approximately \$1 million is generated from a 15% licensing fee, UA royalties, and patent cost recovery.
4. University allocation of state funds and other sources: the UA allocates about \$300,000 to the Tech Park from state general funds, and TLA receives about \$100,000 from other sources.

Approximately \$3.1 million of TLA's FY 2013–14 funding is directed to personnel and employee benefit costs. This represents nearly a doubling of personnel under OTT, OCBR, and OURP from the prior fiscal year. Much of the increase is due to new embedded technology licensing managers whose costs are shared with UA colleges, and new TLA administrative staff to support operations. The second major expenditure item is the OTT intellectual property budget of \$1.1 million. These funds will be used to significantly increase the number of provisional patent applications converted to full patent applications—from 10% to 60%. Additionally, funding will be used to support a Proof of Concept program (POC). The POC budget for FY 2013–14 is over \$650,000 and supports a handful of high opportunity technologies that require conceptual development prior to realizing their full potential. The remaining funds will be used for operations of TLA and its constituent units.

TLA revenue growth up to 3–5% per year in the short run (one to three years) is expected from licensing revenue, and to a lesser extent, TRIF. In the intermediate period (four to eight years), revenue growth up to 10% is expected from licensing revenue, sales of Tech Park real estate, and initial liquidations from the proposed venture capital "Cat Fund". It is unknown whether TRIF funds will remain as a constant source of funding for TLA during the latter part of this growth period; this depends on renewal of Proposition 301.

The overall intent of the strategic plan is to concurrently grow the TLA enterprise along with the commercialization activity. Given the six-to-eight year interval between initial IP protection and prospects for licensing and related revenue, the majority of near and intermediate term TLA funding will come from non-self-generated sources. The commercialization interval is approximately 25% to 50% longer for highly regulated technologies, such as human therapeutics due to a more rigorous, regulatory review process. Furthermore, the experience of all universities has been that a few technologies (typically one to three) eventually constitute the vast majority (90% plus) of the licensing revenue. However, at the time of initial protection, it is virtually impossible to determine which technologies will be winners and which will fall to the wayside. Therefore, it is important to give each technology its best chance for success and to maintain a robust pipeline of technologies.



IN CONCLUSION: **CHALLENGE AND COMMITMENT TO THE UA AND ITS COMMUNITIES**

The process of technological innovation, conceived of as the transformation of knowledge into products, processes, systems and services, is undeniably a driving force for business formation and growth, wealth creation and social well-being across the world. TLA represents new ways of pursuing knowledge translation and commercialization. TLA is grounded in principles of service excellence to customers, Presidential level visibility and commitment, authenticity over grandiose rhetoric, disciplined approaches executed by capable people, partnership and leverage to extend the base of resources, transparency as the foundation for accountability, coordination with the communities the UA serves and experiential learning opportunities to enhance students' instructional experiences. These features will enable TLA to become greater than the sum of its parts, and they will be instrumental for TLA activities being woven into the fabric of the future UA.

In order to have major impact, TLA has chosen to be bold and confident in its approach and its objectives, but not commanding. In response, the UA and Tucson community should take a developmental approach to the timing necessary to deliver the desired impacts. Given the embryonic nature of research derived pre-commercial assets and the multitude of risks to be overcome before some assets mature into commercial outcomes, major successes will be few and not occurring for many years. However, early indicators of performance are represented in the measurable process and performance outcomes and timing contained in this plan, and change will be evident (or not) in a few short years.

This strategic plan is a roadmap for UA translation of research-based knowledge to social and economic benefit at a level not previously witnessed by the UA. In the end, judgments and planning to achieve what is possible are necessary, but not sufficient to achieve success. Eventual success will be due to skillful execution, dogged persistence and unrelenting zeal to perform. Undoubtedly, flexibility will be necessary due to detours and paths to opportunities yet unseen — to paraphrase Louis Pasteur “Luck is not a strategy, but opportunity favors the prepared mind”. With a clear sense of direction, reasonable expectations, adequate human, physical and financial resources, and widespread committed support, TLA is now prepared to execute this plan.

KEY PLAYERS



David N. Allen

David N. Allen came to the University of Arizona (UA) in September, 2012, as Executive Director of Tech Launch Arizona (TLA). Dave reports to the President and is a member of her Cabinet Leadership team. Previous to UA, Dave was at the University of Colorado from February 2002 to August 2012, as CU's Associate Vice President (AVP) for Technology Transfer. During that time he led the effort that resulted in an underperforming technology transfer operation becoming a nationally prominent program. Before Colorado, Dave was the AVP for Technology Partnerships at the Ohio State University. Before coming to Ohio State in 1997, Dave was AVP for Technology and Economic Development, and Director of the Edison Biotechnology Institute at Ohio University in Athens. Prior to Ohio University, he was a Professor at Pennsylvania State University, University Park. He earned a Ph.D. from Indiana University, Bloomington, in Political Science, with a specialization in Political Economy in 1980. His Ph.D. chairperson, the late Elinor Ostrom, was a co-recipient of the 2010 Nobel Prize for Economics.



Sherry Hoskinson

Sherry Hoskinson joined Tech Launch Arizona late in 2012 as the Director of Commercialization Networks and Operations. Her primary role is the development of a robust network of domain experts and resources to work alongside University of Arizona faculty and TLA staff to explore the commercial potential of the university's technologies. Sherry joined TLA from the University of Arizona's highly acclaimed McGuire Center for Entrepreneurship. During her time at McGuire, Sherry served as associate of outreach and development, and as director. During her time there, the center enjoyed consistent national and international rankings and raised over \$20M in external funding. Sherry has, or currently holds, executive leadership positions in numerous organizations including the United States Association for Small Business and Entrepreneurship and the Global Consortium for Entrepreneurship Centers.



Nancy Smith

Nancy Smith is Director of Corporate and Business Relations at Tech Launch Arizona. Immediately before joining the UA, Nancy was Vice President for Strategic Planning for Tucson Regional Economic Opportunities (TREO) where she headed the development of the Economic Blueprint. Prior to TREO, Nancy had a multi-dimensional career as a corporate executive, consultant, educator/trainer, economic developer, author, and strategic planner. For two decades, Nancy held senior executive positions in sales, marketing, strategic planning, and general management for music/audio electronics manufacturers in California and Connecticut. During the decade following her corporate career, Nancy had a consulting practice developing business plans and product launch strategies for technology companies. During this time she was also a mentor in the McGuire Entrepreneurship program and a course developer and trainer for the American Management Association who published her course, "Selling to Senior Executives". Nancy has a Bachelor of Music degree from the UA and an MBA from Pepperdine University in California.



Douglas Hockstad

Douglas Hockstad joined Tech Launch Arizona as Director of the Office of Technology Transfer in February 2013. Doug came to the UA after having served as Associate Director, Software & Engineering Licensing in the University of Michigan's Office of Technology Transfer. In this role, his primary responsibility was managing software and other copyright-related intellectual property created across the entire U of M campus. He also managed the office's information technology requirements and served as the liaison between OTT and the College of Engineering. Doug has over 20 years of product management, marketing, and sales experience in high-tech markets, working predominantly with software companies. His accomplishments prior to joining the University of Michigan include managing the creation and rollout of a multi-million dollar new software product line, working in marketing to revitalize brand awareness, and developing new sales channels. He spent the last eleven years building Michigan's software licensing portfolio and program, the last six of which have been as a member of the executive management team. Doug has a Bachelor of Science degree in Engineering (Computer Engineering) from the University of Michigan in Ann Arbor.



Bruce A. Wright

Bruce A. Wright has been Associate Vice President for University Research Parks since 2008. He is responsible for the development and operation of UA Tech Park, UA Bio Park and Arizona Center for Innovation. During his 25 years at the UA, he has served in several different capacities including Associate Vice President for Economic Development, 1997-2008; Assistant to the President and Senior Officer for Economic Development and Community Affairs, 1994-1997; and Director of Community and Public Service, 1987 to 1994. Prior to joining the UA, Wright was Chief-of- Staff to US Rep, Morris Udall, and Staff Consultant to the U.S. House Committee on Interior and Insular Affairs from 1981-1986. Wright is a graduate Willamette University where earned a BA with distinction in political science. He participated in the Executive Leadership Program at Harvard University's John F. Kennedy School of Government. Wright served as president of the Association of University Research Parks from 2003 to 2004.

IMPORTANT CONTACTS

TECH LAUNCH ARIZONA
 University Services Annex
 220 W. Sixth Street
 PO Box 210300, 4th Floor
 Tucson, AZ 85721-0300
techlaunch.arizona.edu

**OFFICE OF UNIVERSITY
 RESEARCH PARKS**
 9070 South Rita Road, Suite 1750
 Tucson, AZ 85747
 Main Phone: 621-4088
ourparks.arizona.edu

| NAME | TITLE | PHONE | EMAIL |
|-------------------|--|----------|-----------------------------|
| Allen, David N. | Vice President and Executive Director, Tech Launch Arizona | 626-4606 | DavidA@tla.arizona.edu |
| Hockstad, Doug | Director of Office of Technology Transfer | 626-1720 | DouglasH@tla.arizona.edu |
| | Office of Technology Transfer | 621-5000 | web: <i>ott.arizona.edu</i> |
| Hoskinson, Sherry | Director of Commercialization Networks & Operations | 626-2451 | SherryH@tla.arizona.edu |
| Smith, Nancy | Director, Corporate & Business Relations | 626-4467 | NancyS@tla.arizona.edu |
| Wright, Bruce | Associate Vice President for University Research Parks | 626-4843 | WrightB@u.arizona.edu |

SUGGESTED CITATION

Allen, David N. (2013) Tech Launch Arizona Roadmap 2013-2018. Tech Launch Arizona, University of Arizona, Tucson, Arizona.