



STATE OF ARIZONA
OFFICE OF THE
AUDITOR GENERAL

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May 3, 2010

The Honorable Judy Burges, Chair
Joint Legislative Audit Committee

The Honorable Thayer Verschoor, Vice Chair
Joint Legislative Audit Committee

Dear Representative Burges and Senator Verschoor:

Our Office has recently completed an 18-month followup of Arizona's Universities—Technology Transfer Programs regarding the implementation status of the 50 audit recommendations (including sub-parts of the recommendations) presented in the performance audit report released in May 2008 (Auditor General Report No. 08-02). As the attached grid indicates:

- 43 have been implemented, and
- 7 are in the process of being implemented.

Unless otherwise directed by the Joint Legislative Audit Committee, this concludes our follow-up work on the Universities' efforts to implement the recommendations resulting from the May 2008 performance audit report.

Sincerely,

Melanie M. Chesney, Director
Performance Audit Division

MMC:sjs
Attachment

cc: Mr. Joel Sideman, Executive Director
Arizona Board of Regents

Mr. Ernest Calderón, President
Arizona Board of Regents

Dr. Robert N. Shelton, President
University of Arizona

Dr. Michael M. Crow, President
Arizona State University

Dr. John D. Haeger, President
Northern Arizona University

**ARIZONA'S UNIVERSITIES—
TECHNOLOGY TRANSFER PROGRAMS
Auditor General Report No. 08-02
18-Month Follow-Up Report**

Recommendation	Status/Additional Explanation
Finding 1: Although performance varies, universities can take steps to increase commercially viable invention disclosures	
1.1 To increase the level of support researchers receive from their departments, ASU should encourage AzTE to reinstitute the practice of providing quarterly reports to deans and department chairs of research-intensive units to keep them abreast of their units' technology transfer activity.	Implemented at 6 Months
1.2 To encourage more faculty participation in technology transfer, ASU should:	
a. Encourage its research-intensive departments to consider adding participation in technology transfer into their professional evaluation guidelines for faculty promotion and tenure.	Implemented at 6 Months
b. Continue to promote faculty participation in technology transfer by hosting annual recognition ceremonies and awarding university inventors who excel in this process.	Implemented at 18 Months
1.3 To better educate faculty and increase their exposure to the technology transfer process, ASU should:	
a. Identify the departments known for producing commercially viable research and encourage AzTE to conduct workshops for department faculty.	Implemented at 6 Months
b. Encourage research-intensive departments to invite AzTE staff to their meetings on an annual basis.	Implemented at 18 Months
c. Proactively identify new university researchers in disciplines with high commercial potential and notify AzTE of their hiring so that AzTE can make initial contact.	Implemented at 18 Months

Recommendation	Status/Additional Explanation
<p>d. Require AzTE to develop a mechanism for informing university inventors of the university's technology transfer process. One possibility may be in the form of a technology transfer reference pamphlet, CD, or DVD to be distributed to new employees and those inventors conducting research in areas of high commercial potential. Among other things, AzTE should include information about the services that it offers, what is expected of the researcher, intellectual property legal matters, and contact information, and should direct university researchers to AzTE's Web site for further information when required.</p>	<p>Implementation in Process ASU through AzTE has an inventor portal on its Web site that will allow inventors access to the status of their disclosed inventions, background information on AzTE's technology transfer process, and additional AzTE services such as uploading the completed invention disclosure directly into AzTE's database. ASU reported that it completed access to the portal in April 2010. In addition, by the end of fiscal year 2010, ASU reported that AzTE will have finalized its Intellectual Property and Technology Transfer Primer.</p>
<p>1.4 To help ensure that the Office of Technology Transfer can interact with inventors as necessary, UA should evaluate whether its technology transfer program staffing levels are adequate and take steps to increase program resources as needed.</p>	<p>Implemented at 6 Months</p>
<p>1.5 To increase the level of interaction between licensing officials and inventors, UA should encourage appropriate research departments to work with the Office of Technology Transfer to share the expenses of replicating the model used in the Bio5 Institute.</p>	<p>Implemented at 6 Months</p>
<p>1.6 To encourage more faculty participation in technology transfer, UA should:</p> <p>a. Encourage its research-intensive departments to consider adding participation in technology transfer into their professional evaluation guidelines for faculty promotion and tenure.</p> <p>b. Continue to promote faculty participation in technology transfer by hosting annual recognition ceremonies and awarding university inventors who excel in this process.</p>	<p>Implemented at 18 Months</p> <p>.</p> <p>Implemented at 6 Months</p>
<p>1.7 To better educate faculty and increase their exposure to the technology transfer process, UA should:</p> <p>a. Identify the departments known for producing commercially viable research and encourage the Office of Technology Transfer to conduct workshops for department faculty.</p>	<p>Implemented at 6 Months</p>

Recommendation	Status/Additional Explanation
<ul style="list-style-type: none"> b. Encourage research-intensive departments to invite Office of Technology Transfer staff to their meetings on an annual basis. 	<p>Implemented at 18 Months</p>
<ul style="list-style-type: none"> c. Proactively identify new university researchers in disciplines with high commercial potential and notify the Office of Technology Transfer of their hiring so the Office can make initial contact. 	<p>Implemented at 18 Months</p>
<ul style="list-style-type: none"> d. Require the Office of Technology Transfer to develop a mechanism for informing university inventors of the university's technology transfer process. One possibility may be in the form of a technology transfer reference pamphlet, CD, or DVD to be distributed to new employees and those inventors conducting research in areas of high commercial potential. Among other things, the Office of Technology Transfer should include information on the services that it offers, what is expected of the researcher, intellectual property legal matters, and contact information, and should direct university researchers to the Office's Web site for further information when required. 	<p>Implemented at 18 Months</p>
<p>1.8 To promote disclosure activity by increasing in-person interactions with faculty, NAU should work with AzTE to develop a schedule for AzTE employees to visit NAU's campus periodically throughout the year to meet with NAU inventors. Alternatively, NAU could assign staff to assume some of these technology transfer responsibilities or contract all or some of its technology transfer services to another provider. Any arrangement should ensure that the level of interaction between NAU inventors and technology transfer staff is increased.</p>	<p>Implemented at 12 Months</p>
<p>1.9 To encourage more faculty participation in technology transfer, NAU should consider hosting annual recognition ceremonies for their inventors who have been active in technology transfer.</p>	<p>Implemented at 12 Months</p>
<p>1.10 To better educate faculty, and increase their exposure to the technology transfer process, NAU should:</p> <ul style="list-style-type: none"> a. Identify the departments known for producing commercially viable research and then conduct workshops for department faculty. 	<p>Implemented at 12 Months</p>

Recommendation	Status/Additional Explanation
b. Encourage research-intensive departments to invite the technology transfer provider to their meetings on an annual basis.	Implemented at 12 Months
c. Proactively identify new university researchers in disciplines with high commercial potential and notify its technology transfer provider of their hiring so they can make initial contact.	Implemented at 12 Months
d. Require its technology transfer provider to develop a mechanism for informing university inventors of the university's technology transfer process. One possibility may be in the form of a technology transfer reference pamphlet, CD, or DVD to be distributed to new employees and those inventors conducting research in areas of high commercial potential. Among other things, NAU's technology transfer provider should include information on the services that it offers, what is expected of the researcher, intellectual property legal matters, and contact information, and should direct university researchers to the provider's or NAU's Web site for further information when required.	Implemented at 12 Months

FINDING 2: All three universities—particularly UA—should improve aspects of marketing and all three should review their negotiation practices

2.1 ASU should ensure that AzTE fully rebuilds and strengthens its marketing program in accordance with recommended practices.	Implemented at 6 Months
2.2 As part of its review of sponsored research practices, ASU should take steps to improve its technology transfer-related negotiations with industry by:	
a. Working with industry to identify their concerns and needs regarding technology transfer and to determine how they can more effectively work together;	Implemented at 18 Months
b. Developing specific technology transfer goals related to industry collaboration efforts; and	Implemented at 18 Months
c. Determining how its negotiation process can be improved to meet the goals and evaluating its progress by identifying and collecting data on relevant performance measures.	Implemented at 18 Months

Recommendation	Status/Additional Explanation
<p>2.3 UA should develop and implement an evaluation system to weigh technologies against standard criteria to determine which technologies to focus its marketing resources on. UA should use these criteria to prioritize new disclosures and routinely reassess old ones. The assessments could be performed in-house or by market experts and UA should determine which is suitable based on relative cost and the industry expertise available throughout the university.</p>	<p>Implemented at 6 Months</p>
<p>2.4 UA should increase its marketing efforts for select technologies, identified through an evaluation, by:</p> <ul style="list-style-type: none"> a. Advertising promising technologies through a press release, at trade shows, or through other literature-recommended forums; b. Continuing its efforts to increase market research in strategic industry areas to adequately evaluate technologies and to identify and understand the target companies; c. Increasing personal relationships with industry through face-to-face meetings or networking at industry events; and d. Increasing its efforts to identify and contact potential licensees. 	<p>Implemented at 12 Months</p> <p>Implemented at 6 Months</p> <p>Implemented at 12 Months</p> <p>Implemented at 6 Months</p>
<p>2.5 UA should evaluate whether its technology transfer program staffing levels are adequate and take steps to increase program resources as needed.</p>	<p>Implemented at 6 Months</p>
<p>2.6 As part of its review of sponsored research practices, UA should take steps to improve its technology transfer-related negotiations with industry by:</p> <ul style="list-style-type: none"> a. Working with industry to identify their concerns and needs regarding technology transfer and to determine how they can more effectively work together; b. Developing specific technology transfer goals related to industry collaboration efforts; and c. Determining how its negotiation process can be improved to meet the goals and evaluating its progress by identifying and collecting data on relevant performance measures. 	<p>Implemented at 12 Months</p> <p>Implemented at 12 Months</p> <p>Implemented at 12 Months</p>

Recommendation**Status/Additional Explanation**

2.7 NAU should work with AzTE to take steps to mitigate the disincentive that the university's physical distance creates and ensure that appropriate marketing efforts are pursued. Alternatively, NAU could assign staff to assume some of these technology transfer responsibilities or contract all or some of its technology transfer services to another provider. Any arrangement should ensure that NAU technologies are appropriately evaluated, adequately researched for marketing purposes, and discussed with industry contacts as appropriate.

Implemented at 6 Months

2.8 NAU should take preventative steps to streamline coordination of industry sponsorship among its technology transfer provider, the faculty inventor, and NAU. NAU should also consider developing specific technology transfer goals related to industry collaboration efforts and determining how its negotiation process can be improved to meet the goals. It should evaluate its progress by identifying and collecting data on relevant performance measures.

Implementation in Process

NAU reported that it is working with NACET, its technology transfer provider, to streamline patent negotiations and bridge the gap between the university and potential industry partners. In addition, NAU reported that it is developing internal resources to commercialize inventions, reduce license negotiation time frames, and improve marketing efforts.

FINDING 3: All three universities—particularly UA and NAU—need to better manage conflicts of interest, and the Board should establish minimum standards

3.1 To ensure that the university fully implements conflict-of-interest management plans, ASU's Research Compliance Office should perform follow-up monitoring of conflict management plans annually and as needed. Specifically, plans should be monitored when the inventor reports plan changes, university officials refer a plan for monitoring, and the Compliance Office selects the plan for quarterly random audits.

Implemented at 6 Months

3.2 To help ensure that all conflicts of interest are identified, UA should adopt and implement policies and procedures that require initial and continuous identification of them. Specifically:

a. At a minimum, UA should require all faculty involved in sponsored research to fill out an annual conflict-of-interest disclosure in which they must disclose any substantial interests related to their research or other university responsibilities, to include disclosure to publications when they submit manuscripts; to their audiences when they present research results; to federal agencies according to their guidelines; and in the human participant review process. Further, UA should require disclosure

Implemented at 18 Months

Recommendation	Status/Additional Explanation
<p>of relevant changes to previous disclosures.</p> <p>b. UA should determine what UA office or entity will be responsible for ensuring that employees submit the annual disclosures, reviewing the disclosures, and, if necessary, forwarding them to the Institutional Review Committee for review.</p>	<p>Implemented at 18 Months</p>
<p>3.3 To help ensure that UA is consistently managing its inventor conflicts of interest, UA should develop and implement conflict-of-interest policies and procedures that include criteria for when to recommend a conflict-of-interest management plan and guidelines for areas that should be included in the plan.</p>	<p>Implemented at 18 Months</p>
<p>3.4 To ensure its policies are followed, UA should:</p> <p>a. Assign responsibility for what office or entity will be responsible for implementation and monitoring of management plans.</p> <p>b. Coordinate university-wide conflict-of-interest management among the various offices involved, including Sponsored Projects Services, the Office of Research and Contract Analysis, the institutional review board, the Office of Technology Transfer, the Office of the Vice President for Research, and the UA inventor's dean or department chair. In particular, the UA offices that help inventors to obtain research funds and license technologies, Sponsored Projects Services and the Office of Technology Transfer, should identify inventors with potential conflicts of interest and forward this information to the committee responsible for their management.</p> <p>c. Ensure that it informs all faculty involved in research of these policies, procedures, and sanctions for noncompliance.</p>	<p>Implemented at 18 Months</p> <p>Implemented at 18 Months</p> <p>Implemented at 18 Months</p>
<p>3.5 To address outstanding conflicts as of March 2008, UA should establish and implement an immediate short-term plan to identify and manage potential conflicts of interest for inventors actively participating in sponsored research.</p>	<p>Implemented at 12 Months</p>
<p>3.6 To help ensure that all conflicts of interest are identified, NAU should adopt and implement more comprehensive policies and procedures that require</p>	

Recommendation

Status/Additional Explanation

initial and continuous identification of conflicts of interest. Specifically:

a. At a minimum, NAU should require all faculty and staff involved in sponsored research to fill out an annual conflict-of-interest disclosure in which they are asked if they have any substantial interests related to their research or other university responsibilities. Further, NAU should require disclosure of relevant changes to previous disclosures.

b. NAU should determine what NAU office or entity will be responsible for ensuring that employees submit the annual disclosures, reviewing the disclosures, and, if necessary, forwarding them to a committee or other university official for review.

3.7 To help ensure that NAU is consistently managing NAU inventor conflicts of interest, NAU should develop and implement conflict-of-interest policies and procedures that include criteria for when to recommend a conflict-of-interest management plan and what the plan should include.

3.8 To ensure clear responsibility for conflict-of-interest management, NAU should:

a. Determine what NAU university offices or entities will be responsible for implementing and monitoring conflict-of-interest management plans.

b. Ensure university-wide coordination on conflict-of-interest management among the various offices involved, including the Office of the Vice President for Research, Sponsored Project Services, the Office of Grants and Contracts, the institutional review board, and the office that manages NAU's intellectual property.

Implementation in Process

Effective September 15, 2009, NAU established an interim conflict-of-interest (COI) policy that requires a disclosure of conflicts of interest annually, and prior to or during research if a potential conflict should arise. The policy requires that if an actual or potential conflict of interest exists, the university's Intellectual Property Committee must develop, and the Vice-President of Research must implement, a conflict management plan. The policy further defines management plan requirements. The policy applies to all investigators participating or planning to participate in sponsored research at the university. NAU reported that it expects to continue to refine this policy, as needed, in the 2010-2011 academic year.

Implementation in Process

NAU has assigned responsibility to its Office of Grant and Contract Services for the policy described in the explanation for 3.6a, which is still under review.

Implementation in Process

As of April 2010, NAU reported that it is still developing changes to its interim COI policy described in the explanation for 3.6a. It plans to include better defined criteria for when to recommend a COI management plan and what to include in it.

Implementation in Process

NAU has assigned responsibility to the Vice-President of Research to implement and the Intellectual Property Committee to monitor the COI management plan in the policy described in the explanation for 3.6a.

Implementation in Process

NAU has assigned responsibility for university-wide coordination on COI management among the various offices involved to its Intellectual Property Committee in the policy described in the explanation for 3.6a. In addition, as of April 2010, NAU reported that its President is appointing an institutional Conflict of Interest Committee to assume these responsibilities

Recommendation**Status/Additional Explanation**

beginning with the 2010-2011 academic year. Further, by May 2011, NAU anticipates the completion of a university-wide, Web-based format to share policy education and the conflict disclosure/management process.

3.9 To help ensure effective technology transfer-related conflict-of-interest management at all universities, the Board should establish minimum standards for universities' conflict-of-interest policies and procedures, including standards for initial and continuous identification of conflicts of interest and standards for restrictions to manage conflicts of interest, and enforcement of those restrictions.

Implemented at 18 Months

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