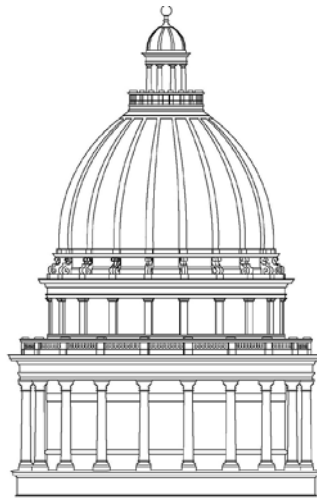


REPORT TO THE
UTAH LEGISLATURE

Number ILR 2016-A



**USTAR Annual Review:
Performance Outcome Reporting
Remains Under Development**

January 2016

Office of the
LEGISLATIVE AUDITOR GENERAL
State of Utah



STATE OF UTAH

Office of the Legislative Auditor General

315 HOUSE BUILDING • PO BOX 145315 • SALT LAKE CITY, UT 84114-5315
(801) 538-1033 • FAX (801) 538-1063

Audit Subcommittee of the Legislative Management Committee
President Wayne L. Niederhauser, Co-Chair • Speaker Gregory H. Hughes, Co-Chair
Senator Gene Davis • Representative Brian S. King

JOHN M. SCHAFF, CIA
AUDITOR GENERAL

January 2016

TO: THE UTAH STATE LEGISLATURE

Transmitted herewith is our report, **USTAR Annual Review: Performance Outcome Reporting Remains Under Development** (Report # ILR 2016-A). The objectives and scope of the audit are explained in the Introduction.

We will be happy to meet with appropriate legislative committees, individual legislators, and other state officials to discuss any item contained in the report in order to facilitate the implementation of the recommendations.

Sincerely,

John M. Schaff, CIA
Auditor General

JMS/lm

REPORT TO THE UTAH LEGISLATURE

Report No. ILR 2016-A

USTAR Annual Review: Performance Outcome Reporting Remains Under Development

January 2016

Audit Performed By:

Audit Manager	Rick Coleman, CPA CIA
Audit Manager	Brian Dean, CIA CFE
Audit Supervisor	Candace Ware

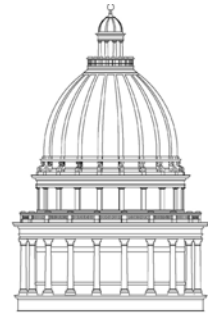
Office of
LEGISLATIVE AUDITOR GENERAL
State of Utah

Report Number ILR 2016-A
January 2016

USTAR Annual Review: Performance Outcome Reporting Remains Under Development

While the Utah Science Technology and Research Initiative (USTAR or the initiative) has made progress in improving its performance outcome reporting in some areas over the prior year, a formal data collection and reporting process still needs to be fully implemented. Also, USTAR reports it has not received from its partners key commercialization and economic impact data, so the metrics remain either unavailable or incomplete in the initiative's fiscal year 2015 annual report. USTAR requires continued improvement in these areas to complete effective tracking and reporting of performance information.

According to statute, commercialization revenue sharing applies to the USTAR activities at the two main research universities: the University of Utah (U of U) and Utah State University (USU). Statute requires USTAR to include an accounting of such commercialization revenues in its annual report. In addition to the commercialization activities at the main research universities, USTAR is also required to report annually other outcomes across all its programs, such as jobs created and state tax revenues generated. USTAR refers to a collection of such metrics as "economic impact" outcomes. This is important as it establishes the structure of this report. Following the introductory section of this report, there are three main sections that detail our audit findings:



USTAR reports that the reporting of key commercialization and economic impact metrics remains either unavailable or incomplete due to a lack of information from the universities.

USTAR needs to strengthen its outcome metric reporting process.

USTAR states a reporting of commercialization metrics is unavailable because the research universities have not agreed on such metrics.

While the magnitude of such occurrences is unknown, our limited test of outreach survey responses revealed a respondent changed their answers and an instance of survey-response bias.

- **USTAR Needs to Strengthen Its Outcome Collection and Reporting Process.** As recommended last year, USTAR should implement a formal and detailed performance metric reporting process. USTAR indicated it now requires the research universities to provide outcome reporting via budget-approval contracts. However, the initiative must take additional steps to ensure outcome information is accurate and reliable. Also, USTAR's internal auditor should develop a routine audit process that collects and reviews a sample of source documentation for performance metrics reported by USTAR's partners.
- **Research University Commercialization Metrics Are Incomplete and Economic Impacts Unavailable.** While early commercialization metrics for the U of U and USU were provided in USTAR's fiscal year 2015 annual report, the initiative was unable to report later commercialization metrics, such as an accounting of actively licensed technologies and their associated revenues and percent-sharing terms. USTAR states that the lack of this data is due to the research universities having not agreed to such metrics. In addition, USTAR reports that negotiations with the universities are still ongoing after nine months to determine when indirect benefits to non-USTAR faculty qualifies the initiative to share in those revenues. Lastly, USTAR states that it did not include estimated economic impact outcomes for the research universities in its annual report because the universities did not provide the data needed to make such estimates.
- **Outreach Economic Impact Outcomes Rely on Self-Reported Data.** The initiative's fiscal year 2015 annual report states that management hired a consultant to complete a new survey of TOIP clients and compile economic impact estimates. USTAR states that this methodology is an industry best practice. We credit USTAR and its consultant for using a conservative approach to estimate economic impacts. We conducted a limited test of the survey responses and found that respondents have difficulty estimating how much of their success should be credited to USTAR. While the magnitude of such occurrences is unknown, our limited review found an instance of changing answers from a respondent and inaccurate answers from another respondent due to survey-response bias.

Audit Scope and Objectives

Utah Code 63M-2-401 requires USTAR to produce an annual report that details the initiatives revenues, expenses, and performance outcomes. In conjunction, *Utah Code* 63M-2-402 requires an audit to be conducted of USTAR's annual report by the Office of the Legislative Auditor General or by an independent auditor engaged by our office. The intent of the audit is to verify the accuracy of the information included in USTAR's annual report.

Last year was the first year USTAR was subject to these statutory reporting requirements. Our office conducted, in part, a review of USTAR's key performance metrics for the 2014 fiscal reporting year, as contained in the report: *A Follow-up Review of the Utah Science Technology and Research Initiative (USTAR) (Report Number 2014-14)*. During that prior review, we attempted to collect a sample of source documentation needed to determine the accuracy USTAR's summaries of performance metrics. However, we encountered delays in receiving source documentation from the research universities or received documentation inconsistent with the original metric summaries.

Similarly, this year we selected a limited sample of summary commercialization statistics included in USTAR's fiscal year 2015 annual report and asked staff to gather the relevant source documentation from the U of U and USU in order for us to test the accuracy of the reported outcomes. For economic impact metrics, USTAR reported summary metrics for its outreach program, which were gathered through a new survey method. We received the survey responses, which included respondents' contact information. We then contacted a small sample of respondents to test the validity of their survey answers. USTAR staff stated to us that the research universities did not provide economic impact metrics this year.

USTAR Needs to Strengthen Its Outcome Collection and Reporting Process

As previously mentioned, we completed a follow-up review of USTAR last year that included an assessment of the initiative's fiscal year 2014 performance metrics. During that review, we found that USTAR lacked a rigorous process that could ensure accurate and

USTAR needs to strengthen and formalize its process for outcome metric reporting.

USTAR reports continued difficulty gaining access to source documentation from its partners.

reliable reporting of outcomes. In that report, we recommended that USTAR formalize its metric reporting requirements by:

- Clearly defining metric definitions and count methodologies
- Implementing required reporting forms and formats
- Enacting required reporting time frames
- Requiring its partners to provide access to source documentation

During this review of USTAR's fiscal year 2015 annual report, we found that the prior recommendation has been partially implemented and the initiative still requires improvements to its annual reporting process. Thus, at the end of this report, we reiterate last year's recommendation that improvements in outcome reporting are needed.

For example, USTAR reports that it still encounters significant difficulties gaining access to source documentation of performance metrics. We had hoped that, over the past year, USTAR and its partners would have developed an efficient process to share metric source documentation for performance metrics. However, in its fiscal year 2015 annual report, USTAR indicated continued difficulty obtaining source documentation from its research university partners. Specifically, USTAR management stated the following:

USTAR does not have the authority or the access to the university systems to collect and validate data related to both commercialization related expenses and IP [intellectual property] license agreements, human resources information ... and funding information ... USTAR can request the information and reference documentation from the universities, but we cannot validate the information.

We are concerned with the continued difficulty USTAR faces in gaining access to source documentation from its partners. We do not expect USTAR to be the central repository for all research university or outreach program source documentation for the summary performance metrics it includes in its annual report. However, we believe the initiative's difficulty in obtaining requested source documentation from its partners, as part of the continued lack of a formal reporting process, complicates the preparation of its annual report and its subsequent annual external audit. We recommend that the Legislature consider clarifying USTAR's statutory authority to

access or obtain information and documentation from its partners in higher education for the purpose of reviewing and validating reported outcomes.

USTAR's current annual audit method involves presenting external auditors with summaries of reported performance metrics and requiring the external auditor to obtain source documentation directly from the research universities to validate metric accuracy. We believe this process is inefficient and limits the ability of the external auditor to conduct a timely review of USTAR's annual report.

Instead, we believe USTAR's internal auditor should develop a routine audit process that collects and reviews a sample of source documentation for the summary performance metrics it intends to include in its annual report. This testing process should be conducted throughout the year. This step would accelerate an external auditor's annual review process by allowing for an expedited test of the source documentation previously collected and the validation work previously performed by USTAR's internal audit function.

USTAR's internal auditor should develop a routine process to review a sample of outcome metric source documentation.

Research University Commercialization Metrics Are Incomplete and Economic Impacts Unavailable

Our review of USTAR's fiscal year 2015 annual report found that commercialization metrics are incomplete because USTAR has yet to finalize a full listing of technology license agreements and a complete understanding of agreement terms. USTAR states that the research universities have not agreed on such metrics. We believe this is a symptom of USTAR not yet completing our recommendation to implement a formal reporting process for its partners. Also, USTAR continues to be in negotiations with the research universities regarding when the initiative should be compensated for indirect benefits to non-USTAR researchers. In addition, USTAR did include early commercialization metrics in its annual report, but we noted some accuracy issues during our limited testing of the statistics. Lastly, USTAR staff stated that economic impact estimates are unavailable again this year because university partners did not provide the necessary data.

USTAR's Reporting of Commercialization Revenue Is Incomplete

Agreements that license university technologies to third parties are an avenue through which commercialization revenue is generated on those technologies. USTAR deems these license agreements to be a metric of U of U and USU commercialization progress. USTAR is required by statute to include in its annual report an accounting of commercialization revenue generated under such agreements. However, during our review, we found that a monetary accounting of commercialization revenues in addition to percent share estimates for commercialization potential are unavailable. USTAR states this is due to its inability to gain access to license agreements from university partners.

A Complete List of Active Licensing Agreements Is

Unavailable. USTAR staff indicated that the universities have not provided a full accounting of commercialization revenue and expenses associated with individual licenses for the 2015 fiscal year. They stated to us that while they have been working this past year with the U of U and USU to gather a full listing of active license agreements (old and new) associated with the USTAR initiative, they question the completeness of their current listing due to access limitations.

In addition to annually reporting actual commercialization revenues in dollar terms, statute requires USTAR to report a list of intellectual property assets generated through the initiative; "...including a reasonable estimate of the USTAR initiative's percentage share of potential commercialization revenue...." USTAR staff stated they do not believe it is possible to estimate a percentage share of commercialization potential. Staff stated they are in the process of hiring outside counsel with expertise in intellectual property to help them summarize the complex terms of the license agreements from the research universities.

Thus, because of the currently unreliable listing of license agreements and the continued work needed to fully understand agreement terms, USTAR believes it is premature to attempt a monetary accounting of commercialization outcomes for fiscal year 2015. We believe a clear accounting and understanding of license agreements is a foundational element for USTAR to protect the state's interest in the initiative's activities. We believe USTAR should

An accounting of commercialization revenue is unavailable as USTAR reports difficulty accessing university license agreements.

We believe an accounting of license agreements is foundational for USTAR to protect the state's interests and that USTAR should expedite the completion of this work with the full cooperation of the universities.

expedite the completion of this work with the full cooperation of the research universities.

Negotiations Concerning Indirect Benefits to Non-USTAR Faculty Are Ongoing. In addition to commercialization revenues generated through license agreements of technologies created by USTAR-funded researchers, it is possible that non-USTAR-funded university researchers will produce some commercialization revenue for USTAR. This can occur when a non-USTAR-funded researcher receives an indirect benefit from the USTAR program by receiving services or access to USTAR-owned university facilities and equipment. However, in its fiscal year 2015 annual report, USTAR indicated that the terms for commercialization revenue sharing from indirect benefits to faculty are still being negotiated. USTAR's annual report states the following:

Negotiations are ongoing since March between USTAR and the two research universities to define what constitutes "material support" from USTAR and therefore qualify the IP [intellectual property] generated for a return on the revenue to the state.

USTAR stated to us that finalized memoranda of agreements were provided to the two research universities during June and July of 2015 but the universities have not yet executed the documents. USTAR also reports it has withheld all payments in fiscal year 2016 to the research universities pending execution of these agreements and data reporting. We are concerned that after nine months of negotiations, USTAR and the research universities have not yet been able to come to an understanding on this issue. We recommend that USTAR and the research universities complete these negotiations so that a clear understanding is reached on when indirect benefits to non-USTAR researchers qualifies USTAR for a share in potential commercialization revenues from the related research work.

We Noted a Few Errors During Our Limited Testing Of USTAR's Early Commercialization Metrics

For the 2015 reporting fiscal year, USTAR included a set of what we call early commercialization metrics in its annual report. These metrics are reported for USTAR-funded researchers. They include outside funding, invention disclosures, patents filed, patents issued, and technology license agreements. Figure 1 shows the early

We are concerned that after nine months, USTAR is still in negotiations with research universities regarding indirect benefits to non-USTAR faculty.

commercialization outcomes that USTAR included in its annual report.

Figure 1 Research University Early Commercialization Metrics for Fiscal Year 2015. In its annual report, USTAR provided an accounting of early commercialization outcomes from USTAR-funded university researchers.

Institution	Outside Funding	Invention Disclosures FY15	Patents Filed FY15	Patents Issued FY15	Active License Agreements Entered into in FY15
University of Utah	\$23,836,935*	27	36	6	4
Utah State University	\$8,617,815**	8	35	3	6

Source: USTAR's fiscal year 2015 annual report

* FY 2015 totals for each USTAR researcher

** Expenditures in FY 2015 for all grant activity from a USTAR researcher

As previously mentioned, USTAR management did not receive source documentation from the U of U and USU along with summary early commercialization statistics. Therefore, we provided USTAR with a small sample of the summary statistics for which we wanted source documentation to review. The results of this review process are discussed in the next five subsections.

Outside Funding Reported By the Universities Is Still Inconsistent. During our fiscal year 2014 review of USTAR, we noted inconsistent university reporting methods for outside funding awards. Specifically, the U of U reported awards by annual installments while USU reported awards by total award value.

This year's reporting for fiscal year 2015 shows some improvement in outside funding reporting, but we again noted inconsistent reporting methods. Specifically, the U of U again reported awards by annual installments, but USU reported the awards by annual expenditures on the awarded funds.

We consulted USTAR staff to learn the correct reporting method and were told that USTAR had instructed universities for fiscal year 2015 to report outside funding awards by the annual expenditures on those awards. By this criteria, USU reported the awards correctly

We again found inconsistent reporting methods for the outside funding metric from the U of U and USU.

while the U of U did not. However, when asked for the source documentation needed to validate USU's expenditures on the awards, the university's expenditure documentation was not readily available for our review.

We Successfully Validated a Sample of Reported Invention Disclosures. From USTAR's invention disclosures reported for fiscal year 2015, we took a limited sample and requested university source documentation. All seven invention disclosures we reviewed were successfully validated by U of U and USU-provided source documentation.

Patents Filed Needs an Explicit Count Methodology. From USTAR's reported patents filed for fiscal year 2015, we took a limited sample and requested university source documentation. Of the patents filed from the U of U, three of the four sampled were successfully validated with source documentation. Source documentation for one patent filed did not include a cover page like the others that records important information such as the filing date to ensure it is reported in the correct fiscal year. Of the patents filed from USU, we were able to validate all four in our sample with university source documentation. However, we noted that some filed patents were for the same technology but that they were filed in multiple countries.

For example, USU's Wave technology with the same tech identification number is listed as being filed for patents in Brazil, Mexico, the European Union, Korea, Japan, and China. This may explain why USU reports count of patents filed similar to the U of U's count, even though USU reports fewer disclosures, as shown in Figure 1. Overall, while USU reports 35 total patents filed during the 2015 fiscal year, the number would be only 19 patents filed if all the duplicate technology identification numbers were removed.

Therefore, is it appropriate to count a single technology multiple times if it is patented in multiple countries? Or should such instances be treated as a duplication of counts? USTAR staff indicated that initiative management did not explicitly define how to count the same technology patented multiple times in different countries. However, USTAR stated that the patenting of a technology in different patent jurisdictions is an indication of the commercial potential and should be counted as independent. This count methodology should be explicitly defined in USTAR's metric count policies and procedures.

We successfully validated a sample of seven invention disclosures with university source documentation.

USTAR should explicitly define the appropriate count method for patents filed in multiple countries.

We Successfully Validated All Reported Patents Issued. We were able to review all patents issued as disclosed in USTAR's fiscal year 2015 annual report because the documentation was available online. We independently validated all nine reported patents issued to the U of U and USU by utilizing the United States Patent and Trademark Office's website. However, in the future, if some patents reported are issued by countries other than the United States, we would likely need to rely on university source documentation to validate their existence if internet documentation is unavailable.

Two Errors Were Made in the Count of Active License Agreements. As mentioned previously, a complete count of all university license agreements related to USTAR is still in process. However, USTAR elected to report a count of active license agreements deemed new in fiscal year 2015. With university source documentation, we confirmed that the three U of U agreements in our sample were new in fiscal year 2015. However, two of the three USU agreements in our sample did not originate in fiscal year 2015; one of which had actually expired. We believe an error was made in counting USU's new licenses agreements for fiscal year 2015 and USTAR did not fully clarify the count during the limited timeframe for our review.

USTAR's Economic Impact Estimates for The Research Universities Are Unavailable

To address prior audit concerns about the reporting of the initiative's estimated economic impacts, USTAR hired a consultant during the 2015 fiscal year to develop a new survey methodology to gather information on such impacts. However, during our review of USTAR's fiscal year 2015 annual report, initiative staff indicated that the results of the research university survey were incomplete at the time of completion of the annual report. This means that accurate economic impact metrics such as new jobs created and state tax revenue are not available from research university reporting again this year. USTAR staff stated to us they understand the importance of capturing this information and have developed a methodology to collect and report it in future years. However, we recommend that USTAR complete the implementation of a process that is able to annually produce accurate economic impact estimates for its research university activities and that the universities cooperate with USTAR in providing the necessary information.

Our sample showed two errors were made in the USU count of new active license agreements.

USTAR reports that economic impact estimates from the research universities are unavailable again this year.

Outreach Economic Impact Outcomes Rely on Self-Reported Data

While economic impacts for the research universities were unavailable this year, USTAR included such outcomes for its outreach program in its fiscal year 2015 annual report, which were collected through a new client survey process. USTAR reports that such a methodology to estimate economic impacts is an industry best practice. We note, along with USTAR's consultant, that risks for survey bias are inherent in a self-reported survey. We credit USTAR and its consultant for responding to those risks by not projecting reported outcomes onto the portion of the initiative's clients that did not respond to the survey. We conducted a limited sample of survey responses from outreach program clients and noted that some survey respondents report difficulty in estimating the influence of USTAR in their successes, which can lead to changes in answers. We also noted an instance of survey response bias.

USTAR Implemented a New Survey Process To Estimate Outreach Economic Impact

As previously mentioned, to address prior audit concerns regarding the reporting of estimated economic impacts of the initiative, USTAR hired a consultant during the 2015 fiscal year to develop a new methodology. The process consists of conducting an online survey of individuals and entities that received some level of USTAR support through the outreach centers (funding or non-monetary assistance) and then using the responses to estimate economic impacts. USTAR stated to us that such a methodology is an industry best practice for economic impact reporting. Figure 2 shows USTAR's reported estimated economic impacts for its outreach program for the 2015 fiscal year.

During fiscal year 2015, USTAR hired a consultant to develop a survey method to estimate economic impacts for the outreach program.

Figure 2 USTAR's Estimated Economic Impacts for Its Outreach Program in Fiscal Year 2015. In its annual report, USTAR provided statistics across these six economic impact measures.

Economic Impact Metric	Reported Impact
Total follow-on investment	\$26 million
2015 sales from a recently commercialized product or service	\$6 million
Full-time and part-time employees	51 full-time, 63 part-time
High-quality jobs	14 full-time
2015 wages	\$5 million
2015 tax revenue	\$0.5 million

Source: USTAR's fiscal year 2015 annual report

The survey questions that produced the metrics in Figure 2 attempt to capture the respondents' views of the extent to which USTAR contributed to their success in securing new funding (referred to as follow-on investment), hiring employees, and selling their products or services. See Appendix A for a complete listing of the current survey questions that were provided to outreach program clients by USTAR's consultant.

USTAR Took Steps to Limit Survey-Response Bias Inherent In Self-Reported Survey Data

In addition to the actual outreach survey response data, USTAR's consultant also provided us with a copy of their written report titled *Measuring the Impact of USTAR's Technology Outreach Innovation Program: Baseline Impact and Methodology, August 14, 2015*. While we did not validate every aspect of it or all calculations in the consultant's report because of time constraints, we conducted a limited test of the survey response data to help us assess the new methodology's relative strengths and weaknesses.

One important thing to point out regarding the survey is that as it is primarily conducted through an internet survey tool, it requires respondents to self-type estimated performance outcomes. Specifically, 88 of the 94 survey respondents completed the survey over the internet, while the remaining 6 respondents' answers were obtained over the phone by USTAR's consultant. The online, self-reported nature of the survey reduces concern that outside bias was injected into the process.

However, other concerns of bias remain based on the very nature of data collected through a self-reported survey. USTAR's consultant rightly acknowledges such concerns in their report, saying:

Achieving credible impact estimates from a survey can be challenging given the likelihood of survey response bias. For example, those companies that perceive they benefited more from their participation in the program may be more likely to take the time to respond to the survey, or it may be that more successful companies are less likely to respond because they are busier.

In response to such known potential survey biases, we credit USTAR and the consultant in choosing a conservative estimate approach that does not project the reported outcomes beyond its 25 percent survey response rate. Specifically, impacts are estimated only from direct survey responses instead of also extrapolating the reported impacts to the portion of USTAR's clients that did not respond to the survey. We also credit the consultant for including their analysis methodologies in their report which enhances overall reporting transparency.

Our Limited Sample of Outreach Survey Responses Identified Some Concerns

While we are encouraged by the work of USTAR's consultant and note that the vast majority of survey responses come directly from outreach clients, we attempted to contact eleven respondents by phone to validate their answers and successfully held discussions with six of them. This test revealed two issues, of unknown magnitude, that should be considered regarding the nature of information obtained through surveys of USTAR's clients. These two issues are addressed in the next two subsections.

Respondents Report Difficulty Estimating USTAR's Contributions to Their Successes. During our phone conversations with six outreach program survey respondents, we reviewed their reported answers with them, including questions concerning:

USTAR took steps to limit survey-response bias from data collected through self-reported surveys.

In response to survey-bias risks, USTAR's consultant utilized a conservative direct-estimate methodology.

- Follow-on funding received after assistance from USTAR
- Annual product or service sales following help from USTAR
- The number of jobs created due to USTAR (full-time and part-time)
- The average annual salary of those jobs

While most individuals we contacted confirmed their answers to the survey questions, we repeatedly were told that it was very difficult for them to quantify the share of their success that should be reported as attributable to USTAR's assistance; especially when the assistance was not financial in nature. Instead, they simply were able to provide a best guess of the follow-on funding they have received or the employees they have hired that are related to the help they have been given through USTAR's outreach centers.

These best guesses can lead to changing answers if further review is conducted. For example, one individual we contacted that originally reported two full time and two part-time employees hired due to USTAR's help, said he/she would now only report the two part-time employees if asked today. This person indicated he/she is unclear about his/her thought process when they originally reported, a few months prior, the two full-time jobs created.

A Desire to Report Positive Impacts from USTAR's Contributions Can Bias Respondent Answers. While the potential for survey response bias was previously mentioned in this report, this specific example is important to note. During our review of USTAR's outreach survey responses, we encountered an instance where a reported outcome appeared to not have been attributable to USTAR.

An individual responded during the survey that follow-on funding had been received but also commented that it was received before beginning a relationship with USTAR. We contacted this individual and confirmed that the outside funding was not actually received in conjunction with USTAR's help. While we understand the individual's desire to praise USTAR for the subsequent assistance that he/she finds valuable, we do not believe it is accurate to report non-USTAR-related outcomes as USTAR-caused impacts.

One respondent contacted was unable to confirm his/her prior survey answer.

One respondent credited USTAR with outcomes achieved before starting a relationship with the initiative.

Recommendations

1. We recommend that USTAR continue to strengthen its formal metric reporting requirements in administrative rule or contracts with funding recipients by fully implementing:
 - a. Clear definitions and count methodologies of metrics
 - b. Required reporting forms and formats
 - c. Required reporting time frames
 - d. Required access to source documentation
2. We recommend that the Legislature consider clarifying USTAR's statutory authority to access or obtain information and documentation from its partners in higher education for the purpose of reviewing and validating reported outcomes.
3. We recommend that USTAR's internal auditor develop a routine audit process to assess the validity of summary outcomes reported by the initiative's partners by collecting and reviewing a sample of source documentation throughout the year.
4. We recommend that USTAR continue to improve its process to monitor active technology license agreements to ensure that counts are accurate and terms are understood so that commercialization revenue accounting and percent share estimates can be included in the initiative's annual report.
5. We recommend that USTAR continue to work with the research universities to complete negotiations concerning when indirect benefits to non-USTAR researchers qualify USTAR for a share in commercialization revenues from the related research work.
6. We recommend that USTAR make explicit its methodology for intellectual property assets that may trigger a duplicate count, such as when a single technology is patented in multiple countries.

7. We recommend that USTAR complete the implementation of a process that is able to annually produce accurate economic impact estimates for its research university activities.

Appendix

This Page Left Blank Intentionally

Appendix A

This Page Left Blank Intentionally

USTAR Technology Outreach Innovation Program (TOIP) Client Company Survey

Introduction

You have received this survey because you (or your company) have received assistance from USTAR's Technology Outreach Innovation Program (TOIP) in the last few years. SRI International, a not-for-profit research center, is conducting this survey as part of an independent study to evaluate the impacts of the TOIP program to comply with legislative reporting requirements. Your input will help us to better understand how the program impacts client companies like yours.

- This survey is short, with only 10 questions, and should take 5-10 minutes of your time to complete.

- Your responses to this survey are confidential.

- Your Survey is only accessible through the unique web address that you were given.

- Survey results will be analyzed and reported only in the aggregate: for example, "On average, TOIP client companies reported \$XX of follow-on investment."

Your participation in this survey is voluntary. No personal information will be collected and no one will be identified in any published reports. By continuing with this survey you are giving your consent.

Thank you!

About Your Company and Assistance Received

*** 1. Please select the USTAR TOIP Centers with which you have interacted and/or received services.**

Check any that apply

- ☐ USTAR North (Farmington, Weber State University)
- ☐ USTAR East/Energy (EGI at U of U and BEERC & CEIC at USU)
- ☐ USTAR South (St. George)
- ☐ USTAR Central (Orem)
- ☐ SBIR-STTR Assistance Center (Sandy)
- ☐ BioInnovations Gateway (South Salt Lake)

*** 2. Did your Utah-based company receive its Employer Identification Number (Tax Identification Number) during or after receiving services from USTAR TOIP?**

☒ Yes ☐ No

*** 2a. Was USTAR TOIP assistance critical to establishing your company?**

☐ Yes ☐ No

3. Does your company license technology from any of the following?

Check any that apply

- ☐ Company
- ☐ University
- ☐ Government
- ☐ None

*** 4. In what year(s) did your company receive services from USTAR TOIP?**

Check any that apply

- ☐ 2015
- ☐ 2014
- ☐ 2013

- ☐ 2012
☐ 2011
☐ 2010
☐ 2009
☐ 2008
☐ Never received assistance from USTAR TOIP

5. What type of assistance did you receive from USTAR TOIP?

Investment Capital Assistance (check any that apply):

- ☐ Go-To-Market funding
☐ GOED Technology Commercialization Innovation Program funding
☐ Technology Commercialization Grants (2009-2011 only)
☐ Assistance identifying a potential funding source
☐ Assistance preparing an SBIR/STTR proposal
☐ Investor pitch preparation

Business Assistance (check any that apply):

- ☐ Entrepreneurship training (e.g., Lean Launchpad, Nail It then Scale It, NEXT)
☐ Business coaching or mentoring
☐ Network of professional contacts
☐ Connection to student interns (e.g., high school, college, etc.)
☐ Mentoring or assistance from other client companies

Technical Assistance (check any that apply):

- ☐ Access to equipment, laboratory, clean room, office or meeting space, etc.
☐ Prototyping or design assistance
☐ Network of professional contacts (e.g., subject matter experts)
☐ Assistance protecting intellectual property

Other (please specify)

Financing

* 6. Do you think USTAR services (including financial assistance) contributed to your company's ability to obtain non-USTAR funding?

☒ Yes ☐ No

6a. Please indicate the amount of non-USTAR funding received by your company.

Commercial lending institutions – Amount (\$):

Private investors (e.g., angel investors) – Amount (\$):

Strategic partners (other companies, etc.) – Amount (\$):

Institutionally managed venture capital – Amount (\$):

Federal SBIR/STTR award – Amount (\$):

Other Federal grants or contracts –
Amount (\$):

Other Utah programs – Amount (\$):

Other (please describe) – Amount (\$):

Innovation

*** 7. Do you think USTAR services (including financial assistance) contributed to your company's ability to introduce any new products or services into the marketplace?**

☒ Yes ☐ No

7a. Please provide a date and description for these products or services.

7b. What are your total annual sales from these products or services? (\$)

Employment

8a. Please provide the current number of employees at your company.
Only numbers may be entered in these fields.

Full-time employees

Part-time employees, including consultants

Interns

8b. Do you think USTAR services (including financial assistance) contributed to your company's ability to hire some or all of these employees? If yes, how many?
Only numbers may be entered in these fields.

Full-time employees

Part-time employees, including consultants

8c. What is the average annual salary of the employees identified in 8b?
Only numbers may be entered in these fields.

Full-time employees - Average Salary (\$):

Part-time employees, including consultants - Average
Salary (\$):

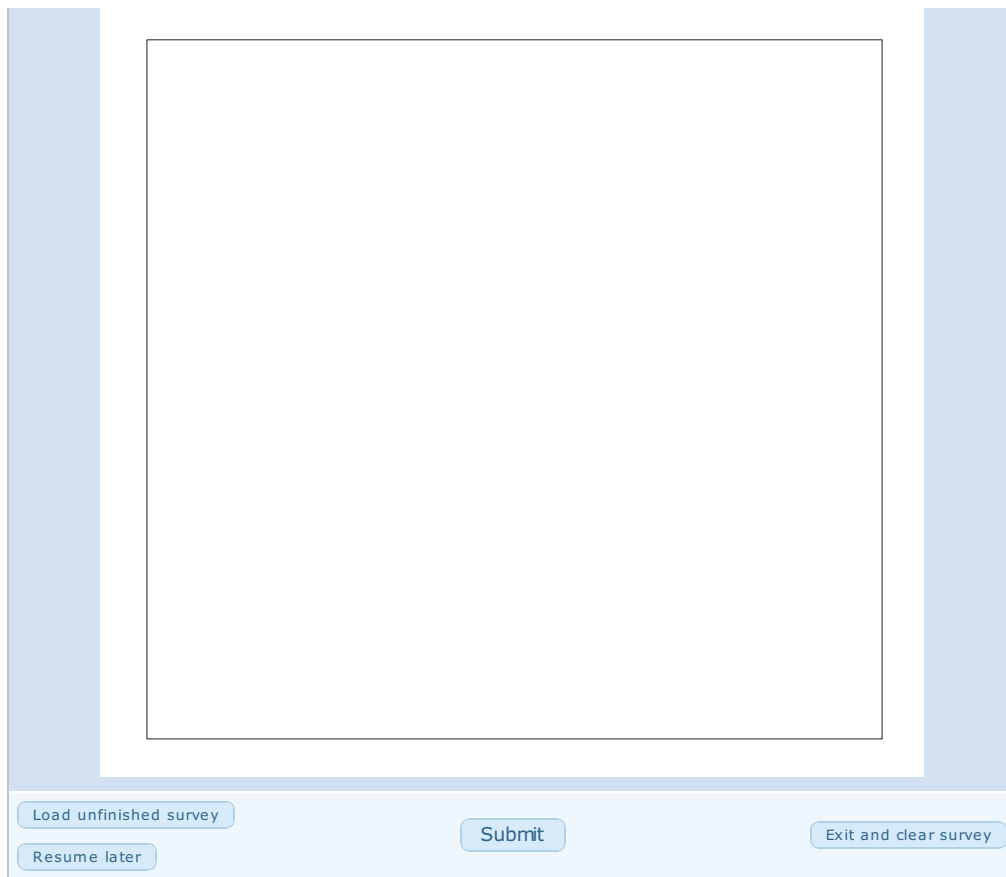
Revenue

9. Please provide total annual revenue for your company.
Choose one of the following answers

Please choose... 

Comments

10. Please provide any specific comments or suggestions you have regarding any aspect of your interaction with USTAR TOIP, including any changes USTAR could make to better meet your needs in the future.



A survey form interface. It features a large, empty rectangular box for entering answers, centered within a light blue border. Below this box, there is a horizontal bar containing four buttons: "Load unfinished survey", "Resume later", "Submit", and "Exit and clear survey".

Agency Response

This Page Left Blank Intentionally



January 11, 2016

John Schaff, Auditor General
Office of the Legislative Auditor General
State of Utah
W315 Utah State Capitol Complex, PO Box 145315
Salt Lake City, UT 84114-5315

Dear Mr. Schaff,

The Utah Science Technology and Research (USTAR) Governing Authority (GA) appreciates the opportunity to respond to the audit entitled **USTAR ANNUAL REVIEW: PERFORMANCE OUTCOME REPORTING REMAINS UNDER DEVELOPMENT** (Report No. ILR2016-A). This audit recognizes the progress that USTAR has made in meeting the statutory reporting requirements for its annual report and the challenges that remain in identifying, collecting and validating the data from USTAR partners and companies served by USTAR.

The USTAR GA is resolutely committed to providing transparency, accountability and responsibility to the citizens of Utah through accurate and reliable outcome and fiscal reporting. Over the past 18 months USTAR has implemented extensive changes in governing practices, policies, organizational structure and staff. In addition, it has worked aggressively to align its practices and procedures to industry best practices. To this end, USTAR hired an independent, internationally-recognized consultant, SRI International, to conduct a thorough and extensive study of the Utah technology ecosystem to identify gaps, and make recommends for programmatic changes to address these gaps and to conduct an extensive examination of best practices for measuring the economic impact of science and technology economic development programs for USTAR.

Based on this study, USTAR is working with members of the Legislature and executive branch staff to (1) ensure the programs, metrics and reporting for USTAR are designed and implemented to fill its mission to stimulate invention and development and sale of technology in the market gaps in Utah's technology economy and (2) ensure that statutorily-required metrics are measurable and meaningful. We appreciate the support of the Legislature in engaging with USTAR to address these challenges by, among other things, amending USTAR's governing statutes.



USTAR responds to the specific recommendations of the audit in the following pages. We look forward to responding to additional questions and suggestions as the audit is presented to legislative committees.

Sincerely,

Greg Bell, Chairman
USTAR Governing Authority

USTAR responses to specific audit recommendations

1. ***We recommend that USTAR continue to strengthen and formalize metric reporting requirements in administrative rule or contracts with funding recipients by fully implementing:***
 - ***Clear definitions and count methodologies of metrics***
 - ***Required forms and formats***
 - ***Required reporting time frames***
 - ***Required access to source documentations***

USTAR agrees with the importance of establishing formalized metrics and reporting requirements and believes that it has demonstrated a commitment to implementing a rigorous reporting process by its actions in the past year. Specific examples of USTAR's efforts include:

- a. Completing a comprehensive review of statutory reporting requirements with the research universities.
- b. Providing definitions of terms relevant to USTAR's transactions with comprehensive reporting forms for the research universities.
- c. Executing new contracts that require university partners to provide statutorily required metrics.
- d. Requiring ongoing reporting by contract.



- e. Making initial highly specific requests for annual report data several months prior to the audit.
- f. Hiring an independent third-party (SRI) to assist in collecting and evaluating key performance metrics, which resulted in a comprehensive written evaluation, report and recommendations.
- g. Engaging a company to develop a database to collect and store university reported data.
- h. Providing input and feedback to the Legislature for future legislation to clarify the reporting responsibilities of USTAR and its stakeholders.

USTAR will continue to work diligently to ensure audit recommendations are fully implemented as the agency works to develop a metric reporting process that fulfills statutory requirements, is consistent with industry best practices, and provides accurate and useful information to the Legislature and the public.

2. We recommend that the Legislature consider clarifying USTAR's statutory authority to access or obtain information and documentation from its partners in higher education for the purpose of reviewing and validating reported outcomes.

USTAR appreciates the recommendation for the Legislature to consider clarifying USTAR's authority to obtain and validate information from its partners in higher education.

3. We recommend that USTAR's internal auditor develop a routine audit process to assess the validity of summary outcomes reported by the initiative's partners by collecting and reviewing a sample of source documentation throughout the year.

USTAR agrees that it is necessary to establish a routine audit process to verify information reported by agency partners. USTAR also agrees that a fundamental component of the audit process involves reviewing samples of source documentation to verify reported data throughout the year. To this end, USTAR has taken the following steps that it believes will enable the agency to fully implement this recommendation:

- a. Worked with a third-party consultant (SRI) to evaluate and determine best practices for reporting outcome metrics that are auditable and verifiable (see letter from SRI).
- b. Executed contracts with new terms requiring university partners to provide routine reporting of and to certify the accuracy of reported data, and maintain auditable supporting documentation of all reported information.
- c. Implemented a new budget process that requires all expenditures invoiced by initiative partners to be reconciled with source documentation prior to reimbursement.
- d. Engaged a company to develop a database which will be used to collect and store reported data and source documentation, enabling validation to be done in real time.



USTAR is committed to continuing to improve its internal audit processes and will ensure processes are in place to appropriately validate reported information

- 4. *We recommend that USTAR continue to improve its process to monitor active technology license agreements to ensure that counts are accurate and terms are understood so that commercialization revenue accounting and percent share estimates can be included in the initiative's annual report.***

USTAR agrees with the Auditor's recommendation and that it is important to continue monitoring all active licensing agreements and to ensure the terms of such agreements are understood and accurately reported. USTAR has taken significant actions along these lines including the following:

- a. Where possible, collected and reviewed licensing agreements provided by the research universities.
- b. Hired an independent third-party (SRI) to conduct a survey of licensees and produce an impact assessment.
- c. Worked with the Attorney General's office to hire an intellectual property attorney who will assist in reviewing licensing agreements.
- d. Formed a commercialization sub-committee of the USTAR Governing Authority to perform periodic in-depth reviews of licensing agreements.

USTAR will continue to collect information on for all licensing agreement entered into in connection with USTAR related technology.

- 5. *We recommend that USTAR continue to work with the research universities to complete negotiations concerning when indirect benefits to non-USTAR researchers qualify USTAR for a share in commercialization revenues from the related research work.***

USTAR agrees that it is important to come to an agreement on what rights USTAR has regarding commercialization revenue attributable to non-USTAR researchers. As the Audit points out, in June and July of 2015, USTAR provided the research universities with proposed Memoranda of Agreement, drafted by the Utah Attorney General's office, addressing the concerns underlying this recommendation. Since the conclusion of the audit, Utah State University has signed the Memoranda of Agreement. USTAR will continue to work closely with the research universities and legislature to ensure that the Legislative intent behind the formation of USTAR can be fulfilled.

- 6. *We recommend that USTAR make explicit its methodology for intellectual property assets that may trigger a duplicate count, such as when a single technology is patented in multiple countries.***

USTAR agrees that methods for collecting and reporting metrics related to intellectual property assets should be designed in such a way as to minimize the risk of using an over-inclusive count methodology that could result in reporting imprecise performance metrics.



Regarding the issue of a “single technology” that is patented in multiple countries, it is important to note that the statute does not provide guidance on how to address this issue.

For this reason USTAR, and as noted in the audit report, for the FY2015 annual report *USTAR chose to employ a count methodology whereby each patent filed was counted once as one filed patent*. USTAR believes this is a reasonable interpretation of the statute and that by providing the raw data in the annual report, any potential confusion about the meaning of the reported metric has been reasonably mitigated.

7. *We recommend that USTAR complete the implementation of a process that is able to annually produce accurate economic impact estimates for its research university activities.*

In response to the second paragraph of the Annual Review (page 1) and other references to “incomplete” economic impact metrics for the universities, USTAR is concerned that the Office of Legislative Auditor General is holding USTAR to a higher standard than the Legislature requires. Utah Code § 63M-2-401(2)(f)&(i) states:

(2) *For each project, operation, activity, program, or service related to the USTAR initiative or overseen or funded through the USTAR governing authority, the annual report shall include: . . .*

(f) the number of jobs and the corresponding salary ranges created by the USTAR initiative, including the number of jobs where the employee is expected to be employed for at least one year and earns at least 125% of the prevailing wage of the county where the employee works;

. . .

(i) the tax revenue generated as a result of the USTAR initiative, with actual revenue generated clearly separated from potential revenue;

Utah Code § 63M-2-401(2)(f)&(i) (emphasis added).

In consultation with counsel from the Attorney General’s Office, USTAR determined that the agency functions described in subsection (2) do not include so-called “spin out” companies that license university intellectual property (“IP”). USTAR takes this position for a number of legal and pragmatic reasons.

First, such companies are completely separate from USTAR: they come into existence and develop independently. They subsequently opt to license particular technologies from the Research Universities. The only nexus to USTAR is that, in some cases, these licensed technologies were developed, in whole or in part, by USTAR researchers, with USTAR funds and/or at USTAR facilities. Thus, spin-out companies themselves are not part of a USTAR-administered “project, operation, activity, program, or service.”



USTAR's connection can be great to very small, and thus accurate tracking becomes impossible. The Legislature understood this when drafting the statute as shown by their use of the phraseology "overseen or funded" as a catch-all for any other USTAR-related functions not otherwise listed. In this case, spin-out companies are not overseen by USTAR as USTAR is not a party to the licensing agreements governing their use of university IP (the two-party agreements are between the university and the company). In addition to lacking legal authority to require the companies to provide data regarding jobs and tax revenues, USTAR lacks statutory authority to independently access their tax information through State databases. Furthermore, the spin-out companies are not funded by USTAR; rather, the companies themselves pay to use USTAR IP. Finally, even if the companies were willing to voluntarily provide the data, USTAR would be unable to validate it, making the efforts to collect both impracticable and inefficient.

For these reasons, in the 2015 Annual Report, USTAR outlined its position as follows:

Jobs created by the USTAR initiative include [those] created by USTAR directly funding positions, those created at the Universities paid for by USTAR funding or by federal funding received by USTAR researchers and jobs created by companies that worked with the USTAR outreach program. USTAR can only validate data for USTAR employees and the amounts paid by USTAR to researchers at the universities.

...

In USTAR's interactions with the Office of Legislative Auditor General there has been some discussion about whether or not USTAR's interpretation aligns with the 2005 USTAR Prospectus projections. Since 2005, the USTAR statute has undergone multiple, significant organizational and statute changes. There is consensus that the 2005 prospectus was developed with assumptions that did not hold through the great recession. Additionally, current Utah Code defines the requirements for USTAR reporting and this differs significantly from the measures in the Prospectus.

In summary, USTAR believes that it has adopted the most reasonable interpretation of its statutory reporting obligations under Utah Code § 63M-2-401(2)(f)&(i).