



# Tech Commercialization Initiatives Report

---

---

Overview and review of various tech commercialization initiatives, practices and policies deployed at state, regional and international level, and their effectiveness and adaptability

Prepared by

Stayko D. Staykov, of

PR PELLER(Y)<sup>TM</sup>

With cooperation from



**TABLE OF CONTENTS**

**Summary**.....3

**Introduction**.....3

**State Programs Overview and Review**.....4

**Observed Trends**.....19

**Relevant Metrics**.....22

**Other New Strategies and Initiatives**.....23

**Conclusions and Recommendations**.....26

**List of Referenced Programs**.....29

**References**.....30

**About**.....31

## Summary

This Report's main aim and purpose is to explore various region-wide practices, policies, programs and trends as these relate to encouraging, optimizing, assisting and directing tech transfer, tech commercialization, SBIR/STTR application and related innovation goals and objectives.

The analysis involved with the Report will examine and consider metrics and programs executed by institutions, collaborative initiatives, public-private partnerships, state level organizations and regional stakeholders both within the US and internationally.

## Introduction

Prof. Henry Chesbrough, from Haas Business School, UC Berkeley is known for coining the term "open innovation". According to Chesbrough, open innovation focuses on peer production by communities, consumers, lead users, universities or research organizations and partners from other industries (E. Enkel, Gassmann, and Chesbrough, 2009). Though the concept of open innovation is often identified as a principle of "free" sharing of ideas, it goes far beyond that. It is notable, that Prof. Chesbrough's summary of open innovation is encompassing of multiple stakeholders with varying roles and responsibilities. Open Innovation is not simply a matter of free exchange of ideas but rather the movement of new concepts among the different stakeholders in order to optimize these concepts' application and value. As a part of that process, communal support mechanisms ought to augment the experience in a positive and sustainable manner.

**"The key to our success – as it has always been – will be to compete by developing new products, by generating new industries, by maintaining our role as the world's engine of scientific discovery and technological innovation. It's absolutely essential to our future"**

**- President Barack Obama, November 17, 2010**

Tech Commercialization as a focus and priority therefore surpasses the paradigm of "return on invested research dollars" and broadens to a public responsibility to foster innovation, support the creation of business models based on such innovation, and also facilitate active and focused engagement between corporations and researchers. It is critical to realize that such commitment and process has multiple levels of demands, each requiring a tailored approach and long-term programmatic tools.

As you will note from our discussion and conclusions, it is imperative to emphasize that tech commercialization thrives only as a part of a broader ecosystem of innovation, entrepreneurship, talent fostering and community engagement. We therefore submit (and expand herein) that the most valuable, sustainable, measurable and long-term impact is achieved by focusing on business creation stemming from research (as opposed to only licensing), corporate engagement, and financial support for the very early stages of inception and commercialization. Further, we note a trend of creating and/or partnering with initiatives that have a particular industry focus in an attempt to more properly and accurately craft initiatives responding to the strategic objectives of the particular industry.

## State Programs Overview and Review

### *Program Impact Thesis*

Based on our review of various programs and combined with our expertise and continual exposure in the field of tech commercialization, we submit that the overall performance of a given State or Region as it relates to metrics such as SBIR awards and total dollars, STTR awards and total dollars, revenue from licensing activities, revenue from research spin out activities and other related Tech Commercialization indicators, is complexly interconnected and indirectly impacted by successful initiatives that do not (only) address SBIR/STTR application submission, or tech transfer assistance, but more importantly are targeted at the comprehensive effectiveness and connectivity of the ecosystem encompassing corporations and investors on one side and research institutions, researchers and entrepreneurs on the other. With that in mind, as we present State's performances around SBIR/STTR awards and total dollars, we are also diligently highlighting programs and efforts that provide an overall critically positive impact to the curated ecosystem that in turn provides for higher results and better performance as accounted by the metrics.

### *State Matrix Legend and Methodology:*

We have recorded the total number of Awards for both SBIR and STTR, for both Phases, for the referenced state from all issuing agencies for the years 2012, 2013 and 2014. Additionally we have also recorded the total dollar amount of Awards for both SBIR and STTR, for both Phases for the referenced state from all issuing agencies for the years 2012, 2013, and 2014. The recorded information has been gathered from <http://www.sbir.gov> - the official SBIR STTR web site powered by SBA and further being an Official Website of the United States Government.

Then we have shown the Year-over-Year Mean percentage growth or decline for the period (2012-2014) for each recorded value – namely number of Awards and total dollar amount of Awards. The formulas utilized are as follows:

$$\text{YoY}\% \text{ change} = ((\text{Year2} - \text{Year1})/\text{Year1}) * 100$$

$$\text{Mean YoY}\% = (\text{YoY1}\% + \text{YoY2}\%)/2$$

Further in the Matrix we have listed Programs Reviewed in this Report either by means of investigation, personal interviews, surveying and/or the combination thereof. **Note: The listed Programs Reviewed are by no means exhaustive of all relevant initiatives and programs in the referenced State. We do not make a claim that the listed Programs are the primary factors for the results (growth or decline of Year-over-Year growth). We further submit that the performance of each State is connected to many factors directly or indirectly impacted by these and other programs, in combination of other internal and external factors, and other programs that may or may not be of Economic Development nature; as well as legislative initiatives, social initiatives and others.** Rather, the listed Programs Reviewed are programs and/or initiatives that we, through our expertise and analysis, believe to have a positive impact, relevant framework and can be well considered for adaptation and incorporation by other state and/or regional entities.

Further in the Matrix, we have broadly categorized the programs listed to fall into one or few of the categories reviewed in this Report such as: workshops, funding, etc.

Following the Matrix of the referenced State, for ease of reference, we have included the comparative ratios as these relate to the referenced States total number of Awards and total dollars Awarded as compared to the same metrics for the State of Tennessee (aggregate for the 2012-2014 period). For additional reference, the Matrix for the State of Tennessee is incorporated herein below:

<b>State</b>	<b>Tennessee</b>
<b>SBIR/STTR 2012- No. of Awards</b>	29
<b>SBIR/STTR 2012- Total Dollars</b>	\$18,952,100
<b>SBIR/STTR 2013- No. of Awards</b>	23
<b>SBIR/STTR 2013- Total Dollars</b>	\$12,038,637
<b>SBIR/STTR 2014 - No. of Awards</b>	31
<b>SBIR/STTR 2014 - Total Dollars</b>	\$14,347,200
<b>Mean YoY - No. of Awards</b>	<b>7.05%</b>
<b>Mean YoY - Total Dollars</b>	<b>-7.65%</b>

*Rational for Selection of Referenced Programs*

The states reviewed herein (and their referenced programs) are not an extensive list – in the references at the end of this Report you will find some additional Programs that we have not discussed. However, when considering which state to expand upon, we considered the following four factors (either as a stand-alone rationale, or in a combination thereof): (i) the total number of Awards and total Dollar amount awarded for the aggregate period; (ii) the Mean YoY percentages (as discussed and calculated above); (iii) the comparative ratio with the State of Tennessee; and (iv) that type of Programs.

In some cases the aggregate total numbers (i) maybe low but if the Mean YoY percentages (ii) are high than we have considered that state with the rationale that it is displaying some significant growth trajectory. In some cases where the Mean YoY percentages (ii) are low (or even negative) but the aggregate total numbers (i) are significant, we have considered that state based on the rationale that regardless of tis trajectory, the state has a strong SBIR/STTR applicants pool and awardees. In most cases, we have selected states that have a comparative ration (iii) significantly higher than the State of Tennessee – from 2:1 ratio all the way to 9:1 ratio. We consider this an important comparative indicator as it allows for comparative modeling of the overall ecosystem.

Lastly, the Programs we have chosen to expand upon (iv) are used as a selection rationale because these are initiatives that continue to validate that it is not only about surface level statistics such as dollars spent on research versus revenue generated through licensing. As we showcase and also expand upon in our conclusions, the true and more accurate level of performance in terms of Tech Commercialization efforts involves many other aspects (namely spin-outs) and their economic impact to the region. These spin-outs are created (and just as importantly continually aided) through programmatic support inclusive of funding options for their focused formation and market feasibility; or they are created as the fruition of an engaged and targeted dialogue between corporation and research institutions (such facilitated dialogue also providing for good licensing outcomes).

## North Carolina

---

<b>State</b>	<b>North Carolina</b>
--------------	-----------------------

---

<b>SBIR/STTR 2012- No. of Awards</b>	109
<b>SBIR/STTR 2012- Total Dollars</b>	\$52,323,776
<b>SBIR/STTR 2013- No. of Awards</b>	119
<b>SBIR/STTR 2013- Total Dollars</b>	\$50,476,396
<b>SBIR/STTR 2014 - No. of Awards</b>	126
<b>SBIR/STTR 2014 - Total Dollars</b>	\$58,181,419

<b>Mean YoY - No. of Awards</b>	<b>7.53%</b>
<b>Mean YoY - Total Dollars</b>	<b>5.87%</b>

<b>Programs Reviewed (Name)</b>	NC COIN NC Biotechnology Center
<b>Programs Reviewed (Type)</b>	membership, events, funding "reverse pitch" facilitation

### Comparative Ratios

Aggregate No. of Awards – North Carolina : Tennessee - **4.27 : 1**

Aggregate Total Dollars - North Carolina : Tennessee – **3.55 : 1**

### Programs

North Carolina Center for Innovation Network (NC COIN) is a membership-based initiative that allows entrepreneurs, corporations of all sizes, research institutions, researchers and students to participate in an ongoing dialogue and connectivity around collaborative commercialization and development of research and ideas. The program has a particular focus on nanobiotechnology and is operated as a 501(c)(3) economic development organization. Membership for faculty and students is free, while tiered fee structure for organizations and companies of different sizes. The initiative is mainly focused on providing events to its membership, inclusive of conferences, educational seminars, show-and-tells and such. Notable Founding Members include: HP, Bayer, and Duke Energy.

North Carolina Biotechnology Center supports biotechnology research, business, education, and strategic policies. It is a private non-profit organization almost entirely supported by public funding (our interview

with Dr. Robert Lindberg revealed that they receive revenue through ROI from their funding initiatives – see below).

In terms of SBIR/STTR support initiatives, Dr. Robert A. Lindberg, Senior Director, Technology Transfer indicated that the organization's most successful and impactful program is a funding programs which issue loans modeled after Phase I of SBIR as well as bridge loans (up to \$ 75,000) to applicants between Phase I and Phase II SBIR funding. The latter being particularly successful because of the discovered need for these companies to secure financing additional to Phase I in order to be operational while applying and awaiting Phase II financing. It is his opinion that the bridge loans allow for more Phase II Awards to be secured in the state.

In terms of Tech Transfer support initiatives, Dr. Lindberg highlighted two particular initiatives: a grant program and tech scout network program. The grant program is available to Tech Transfer offices for any public or private institution in the state. The program offers funds for the development of proof-of-concept or another milestone of an IP asset that the University can demonstrate a level of corporate interest around. The program has rolling base application and the results have seen approximately 50% success rate in the licensing of the IP post completion of the milestone requirement supported by the grant.

The second Tech transfer initiative is a border corporate engagement program, whereas the Center acts as a facilitator of “reverse pitch” dialogue between corporate technology scouts (the Center's staff finds and reaches out to these) and research that may be fitting for the needs outlined by these scouts (the Center staff prepares reports on the suggested “fits” and presents these). To-date, this particular initiative has facilitated over 160 private meetings between corporations and researchers.

Highlights:

- Paid membership. Provides ongoing information exchange and collaboration facilitation with particular industry focus.
- SBIR/STTR – bridge loans facilitating more Phase II applications.
- Tech Transfer – pre-licensing milestone grants.
- Private ongoing facilitation of reverse pitch needs and research fits between corporate scouts and researchers.

*Oregon*

---

<b>State</b>	<b>Oregon</b>
--------------	---------------

---

<b>SBIR/STTR 2012- No. of Awards</b>	96
<b>SBIR/STTR 2012- Total Dollars</b>	\$47,346,078
<b>SBIR/STTR 2013- No. of Awards</b>	59
<b>SBIR/STTR 2013- Total Dollars</b>	\$24,253,254
<b>SBIR/STTR 2014 - No. of Awards</b>	70
<b>SBIR/STTR 2014 - Total Dollars</b>	\$43,549,043

<b>Mean YoY - No. of Awards</b>	<b>-9.95%</b>
<b>Mean YoY - Total Dollars</b>	<b>15.40%</b>

<b>Programs Reviewed (Name)</b>	Oregon BEST
<b>Programs Reviewed (Type)</b>	funding events

**Comparative Ratios**

Aggregate No. of Awards – Oregon : Tennessee - **2.71 : 1**

Aggregate Total Dollars - Oregon : Tennessee – **2.54 : 1**

**Programs**

Oregon Built Environment & Sustainable Technologies Center, Inc. (Oregon BEST) is an independent nonprofit with an industry focus on clean technology and sustainability (though broadly defined). The Initiative has a list of over 200 Member Faculty who are experts in their field and available to consult in the relevant industries. In addition to its Faculty Membership, the Program also manages a university-based network of Labs available for R&D by companies as well as collaborative work among the Member Faculty.

The Program organizes forums in their Agenda Development Series that connects researchers and companies, in order to create focused research agendas; it also holds an annual industry-centric conference showcasing researchers, companies and partners.

Of most critical note (and identified as their flagship and most impactful program through our surveying) is the Commercialization Funding Program. This Early Stage Commercialization funding provides up to \$250,000 for projects in which startups partner with a university or researchers to a complete a technical project specifically designed to accelerate the company’s pathway to market. Related to the initiative, Oregon



BEST tracks the number of companies who have received funding from them and then have applied for SBIR award and also the number of awardees, as a measurement of effectiveness and success.



Source: Oregon BEST, <http://oregonbest.org>

As shown in the diagram above, the Initiative aims to provide funding that particularly focuses on very early stage where the target is to partner with university research and transfer it out from the academic space into a product development phase that thus becomes more fundable in the traditional spaces of seed and Series funding. The investments are subject to recommendation by a Commercialization Advisory Board that includes representatives from research institutions, VC community and corporate venture (such as Intel Capital and Autodesk). These recommendations then await final approval by Oregon BEST's Board of Directors.

#### Highlights:

- Tech Transfer – providing funding to enable research move from academia to the startup and commercial product development; additionally tracking the funded startups in terms of SBIR applications and awards.
- Having a Faculty Membership and network of Labs available to companies and collaborative research projects. Creating small event forums that trigger focus researched paired to corporate needs.
- SBIR – the early commercialization funding provides support for startups that can be good candidates for SBIR funding.

<b>State</b>	<b>Wisconsin</b>
--------------	------------------

<b>SBIR/STTR 2012- No. of Awards</b>	63
<b>SBIR/STTR 2012- Total Dollars</b>	\$31,154,828
<b>SBIR/STTR 2013- No. of Awards</b>	57
<b>SBIR/STTR 2013- Total Dollars</b>	\$22,503,712
<b>SBIR/STTR 2014 - No. of Awards</b>	57
<b>SBIR/STTR 2014 - Total Dollars</b>	\$30,690,379

<b>Mean YoY - No. of Awards</b>	<b>-4.76%</b>
<b>Mean YoY - Total Dollars</b>	<b>4.30%</b>

<b>Programs Reviewed (Name)</b>	WI Center for Technology Commercialization
<b>Programs Reviewed (Type)</b>	funding workshops

### Comparative Ratios

Aggregate No. of Awards – Wisconsin : Tennessee - **2.13 : 1**

Aggregate Total Dollars - Wisconsin : Tennessee – **1.86 : 1**

### Programs

The University of Wisconsin-Extension (UWEX), the Wisconsin Economic Development Corporation (WEDC) and the Small Business Administration (SBA) support Wisconsin’s Center for Technology Commercialization. The Center provides workshops and one-on-one assistance in evaluating the business idea and its potential for applying for an SBIR grant; it also helps with business plan creation and proposal drafting. Additionally, the Center maintains a comprehensive list of qualified Service Providers that can assist new businesses wishing to commercialize new technology with strategic business services such as business plans, licensing plans, commercialization plans (needed for Phase II SBIR/STTR) and others. The Center also offers two funding options: SBIR Advance matching Grant and Micro-grants, both of which are of notable interest as they follow the model of funding initiatives observed with other states’ programs while having their own structure and details.

The Center’s micro-grants are up to \$9,000 per business and are administered on behalf of the Wisconsin Economic Development Corporation. The micro-grants can be applied either towards assistance in applying for SBIR/STTR funding or towards retaining a Qualified Service Providers to assist in the strategic preparation of the business. In either use, the micro-grants are staged in tranches based on milestones.

The SBIR Advance Matching Grant program is available for companies with either a current Phase I SBIR/STTR award or a current Phase II SBIR/STTR award. The Phase I Award match grant can be up to \$75,000 or 50% of the Award, and the Phase II Award match grant can be up to \$75,000 per year for up to 2 years of Phase II award. Both types of matching grants will be paid out based on milestone deliverables inclusive of Lean Startup training, approved draft of commercialization plan and successful submission of Phase II application (for Phase I matching grant) or matching outside funding (for Phase II matching grant).

Highlights:

- SBIR/STTR – Two types of funding opportunities; micro-grants provide direct assistance with SBIR/STTR grant preparation and/or business plan preparation.
- List of Qualified Service Providers enables access to third party resources.

State	Maryland
-------	----------

<b>SBIR/STTR 2012- No. of Awards</b>	266
<b>SBIR/STTR 2012- Total Dollars</b>	\$102,038,298
<b>SBIR/STTR 2013- No. of Awards</b>	246
<b>SBIR/STTR 2013- Total Dollars</b>	\$94,812,188
<b>SBIR/STTR 2014 - No. of Awards</b>	264
<b>SBIR/STTR 2014 - Total Dollars</b>	\$110,326,550

<b>Mean YoY - No. of Awards</b>	<b>-0.11%</b>
<b>Mean YoY - Total Dollars</b>	<b>4.64%</b>

<b>Programs Reviewed (Name)</b>	TEDCO BioMaryland MII, MIPS
<b>Programs Reviewed (Type)</b>	funding, grants, matching w/ corps

### Comparative Ratios

Aggregate No. of Awards – Maryland : Tennessee - **9.35 : 1**

Aggregate Total Dollars - Maryland : Tennessee – **6.76 : 1**

### Programs

The Maryland Technology Development Corporation (TEDCO), established by a legislative act has, in addition to general mentoring and networking activities, established and manages two particular funding initiatives that in the area of technology commercialization, namely the Technology Commercialization Fund (TCF) and the Technology Validation Program.

The Technology Commercialization Fund (TCF) provides up to \$ 225,000 per company to startups/small companies that are working on particular projects that advance a technology towards commercialization. The funding is in the form of two investments. The first investment is up to \$ 100,000 and released in tranches based on milestone performance and development, with its purpose targeting product development. The second investment, of up to \$ 125,000, is contingent to a Qualified Investment of \$ 500,000 or more. The companies applying for investment from the TCF must meet two eligibility requirements: the entity must be for-profit and located in Maryland with less than 16 full-time employees; and the entity must be either pre-revenue or has received in aggregate less than \$ 500,000 in equity investments. TCF investments are made in the form of a convertible note bearing 8% interest.

The Technology Validation Program provides small funding in the form of grants to either universities/research facilities in Maryland; or Maryland entrepreneurs considering creating a startup relying on a technology from a Maryland university or research institute. The Program provides funding in two phases. The Market Assessment Phase provides up to \$ 10,000 for a market analysis of the considered technology. The Technical Validation Phase provides up to \$ 40,000 for proof of concept.

The BioMaryland Center (BMC) is an office within the Maryland Department of Business and Economic Development that has broad information and support role as it relates to life science and its advancement in the commercial landscape. In particular, BMC awards companies with funding in the amounts between \$50,000 and \$ 200,000 for life science projects that advance research towards commercialization.

Maryland Innovation Initiative (MII) is administered through TEDCO and was created as a partnership between the State and five Maryland academic research institutions. The Initiative has as a goal to foster collaboration while advancing technology from the institutions to commercialization through technology validation, market assessment, and the creation of spin-outs. MII provides awards up to \$215,000 per project in aggregate of three Phases. The participating Universities themselves apply for Phase I of the funding, while faculty or entrepreneurs (interested in creating a spin-out based on an university technology) can apply for Phase II. Phase III is for created university spin-outs that have licensed technologies from the participating Universities. An eligibility requirement is for each applicant to work with a “Site Miner” – these are individuals selected by the MII program to assist the applicants with the process of applying for an award.

The Maryland Industrial Partnerships (MIPS) has been recognized by the U.S. Small Business Administration as a model program for best practices in transferring technology out of academic and research institutions into the commercial space. The Program has existed for over 27 years and has “matched” and funded 411 faculty researchers and 541 Maryland companies. MIPS matches funding provided by the participating company for university-based research that aids new product development for the company. The companies initiate projects, while MIPS provides these companies with information on faculty members working in the technical area of interest. The awards can be up to \$100,000 per year for large and small companies and \$90,000 for startups. The funds are applied towards the university’s research expenses.

#### Highlights:

- Small grants to create proof-of concept for potential spin-outs.
- Funding (with matching component) for tech commercialization startups.
- Vertical-focused funding with support of individuals selected by the program as facilitators (based at each participating University).
- Research/Corporation partnership funding as part of nationally recognized program that also provides list of faculty by technical areas to expertise and facilitates “matching” between researchers and corporations.

State	Connecticut
-------	-------------

<b>SBIR/STTR 2012- No. of Awards</b>	66
<b>SBIR/STTR 2012- Total Dollars</b>	\$24,720,465
<b>SBIR/STTR 2013- No. of Awards</b>	74
<b>SBIR/STTR 2013- Total Dollars</b>	\$26,232,878
<b>SBIR/STTR 2014 - No. of Awards</b>	71
<b>SBIR/STTR 2014 - Total Dollars</b>	\$31,341,026

<b>Mean YoY - No. of Awards</b>	<b>4.04%</b>
<b>Mean YoY - Total Dollars</b>	<b>12.80%</b>

<b>Programs Reviewed (Name)</b>	CT Innovations BioInnovation CT
<b>Programs Reviewed (Type)</b>	grants; funding on-site meetings

### Comparative Ratios

Aggregate No. of Awards – Connecticut : Tennessee - **2.54 : 1**

Aggregate Total Dollars - Connecticut : Tennessee – **1.82: 1**

### Programs

Connecticut Innovations (CI) was formed by the Connecticut State Legislature as an initiative to aid the growth of CT technology companies. Later, CI merged with the Connecticut Development Authority – the state’s lender. As part of their Small Business Innovation Team, CI offers corporations guided assistance in identifying R&D resources for solving technology challenges, as well as assistance with SBIR and Federal Leveraging Programs.

The Small Business Innovation Team also manages the SBIR Acceleration and Commercialization Program. The Program offers grants and funding in three Phases with the purpose of increasing the number of applicants for SBIR/STTR awards and to also support and increase the chances of success for CT-based SBIR/STTR projects. Phase Zero of the funding Program is in a form of a grant applied as reimbursements for services related to SBIR application – such as reimbursements for attending a national SBIR conference, accounting and budgeting support, and application reviews and strategy. The Phase I Support part of the funding offers grants for up to \$ 100,000 to companies that have been awarded Phase I federal grants as an effort to increase the commercialization success and the chance of Phase II federal award being received. The

Phase II Support funding is designated for companies that have been awarded Phase II SBIR/STTR award. The amount of funding in that Phase can be up to \$ 200,000 with a required 50% external match.

When surveyed, CI indicated that this funding program (SBIR Acceleration and Commercialization Program) was the top most positive impact program in the State. As a second effective initiative the SBI Team listed their office hours at universities throughout the state – an effort to increase engagement and effectiveness with its stakeholders and provide ease of access to its resources.

BioInnovation Connecticut is an initiative managed by Connecticut Innovations and responsible for the two funds applied strictly in the field of commercialization of healthcare breakthroughs – CT Bioscience Innovation Fund and Regenerative Medicine Fund. The CT Bioscience Innovation Fund can award up to \$500,000 to qualifying applicants, inclusive of entrepreneurs, researchers, startups and universities. The Regenerative Medicine Fund is focused primarily on stem cell research and its award amount varies greatly based on the stage of research.

Highlights:

- Multi-stage funding program that: 1. Assists with SBIR/STTR application; 2. Provides state funds for Awardees of Phase I grants; and 3. Provides state funds for Awardees of Phase II grants with external matching investment.
- University stakeholder engagement through regular on-site office hours of the team at universities.
- Industry-focused (healthcare) funding program aimed at rapid commercialization of discoveries.

<b>State</b>	<b>Florida</b>
--------------	----------------

<b>SBIR/STTR 2012- No. of Awards</b>	159
<b>SBIR/STTR 2012- Total Dollars</b>	\$58,250,281
<b>SBIR/STTR 2013- No. of Awards</b>	131
<b>SBIR/STTR 2013- Total Dollars</b>	\$58,000,568
<b>SBIR/STTR 2014 - No. of Awards</b>	148
<b>SBIR/STTR 2014 - Total Dollars</b>	\$53,731,593

<b>Mean YoY - No. of Awards</b>	<b>-2.32%</b>
<b>Mean YoY - Total Dollars</b>	<b>-3.90%</b>

<b>Programs Reviewed (Name)</b>	EFI Phase "0" Program
<b>Programs Reviewed (Type)</b>	grants supporting SBIR/STTR submissions

### Comparative Ratios

Aggregate No. of Awards – Florida : Tennessee - **5.28 : 1**

Aggregate Total Dollars - Florida : Tennessee – **3.75 : 1**

### Programs

Enterprise Florida Inc. is the official Economic Development Organization for the state of Florida. As part of its services for Small Business constituents, EFI runs the “Phase 0” Program. The Program is a partnership between EFI and TTOs, Incubators, other ED organizations and Small Business Development centers throughout the state. The Program provides grants and services associated with submission of SBIR/STTR applications. The awards can be up to \$ 3,000 in two installments. Applicants pay a non-refundable fee to EFI and their concept/application are independently evaluated by a contractor of the program, inclusive of an analysis and assessment of the technology fit and innovativeness. This independent analysis is the basis of determination by the Program’s Steering Committee as to whether to award a grant to the applicant. Fifty percent of the award is given upon awarding the grant and the other half is given upon documentation of proposal delivery to the appropriate federal agency. The total amount of the award and approved use of proceeds are based on a submitted budget comprised of qualified/allowed expenses associated with the preparation of the SBIR/STTR application.

### Highlights:

- Grants awarded to aid successful application for SBIR/STTR programs. Awarding of these grants is based on the independent assessment performed by a third party contracted by the Program.



<b>State</b>	<b>Colorado</b>
--------------	-----------------

<b>SBIR/STTR 2012- No. of Awards</b>	223
<b>SBIR/STTR 2012- Total Dollars</b>	\$86,901,380
<b>SBIR/STTR 2013- No. of Awards</b>	215
<b>SBIR/STTR 2013- Total Dollars</b>	\$68,276,795
<b>SBIR/STTR 2014 - No. of Awards</b>	244
<b>SBIR/STTR 2014 - Total Dollars</b>	\$94,735,828

<b>Mean YoY - No. of Awards</b>	<b>4.95%</b>
<b>Mean YoY - Total Dollars</b>	<b>8.66%</b>

<b>Programs Reviewed (Name)</b>	Colorado AIA Programs BioScience Association
<b>Programs Reviewed (Type)</b>	funding, directory of experts templated documentation

### Comparative Ratios

Aggregate No. of Awards – Colorado : Tennessee - **8.22 : 1**

Aggregate Total Dollars - Colorado : Tennessee – **5.51 : 1**

### Programs

The Colorado Advanced Industries Accelerator Programs (AIA) are executed and managed directly through the Office of Economic Development and International Trade. The Programs are directed towards seven advanced industries – advanced manufacturing, aerospace, bioscience, electronics, energy and natural resources, infrastructure engineering and technology and information. The AIA runs three funding programs in addition to maintaining a network of consultants with broad expertise, inclusive of international trade and exports.

The Proof-of-Concept Grant program is dedicated for research institution and preference is given to collaborative projects. The award can be up to \$ 150,000. The Early-Stage Capital and Retention Grant program is for Colorado-based companies with less than \$ 10 million in annual revenues and less than \$ 20 million in investments. The award can be up to \$ 250,000 and it is a 1:2 match with third party investments. The Infrastructure Funding program can award up to \$ 500,000 and gives preference to projects that involve more than one research institution, or projects that involve a research institution and an industry stakeholder (and thus encouraging research/corporation engagements).

Colorado BioScience Association is focused on biomedical, pharmaceutical, medical devices and diagnostic verticals. In its goal to promote and encourage tech transfer and spin-outs, the member universities have agreed and provided templates of commonly used transactional document, inclusive of Non-Disclosure Agreement, Materials Transfer Agreement, and Service Agreement. Companies that utilize these agreements in their process with the universities will receive a much-expedited review and approval and thus advancing the tech transfer process significantly.

Highlights:

- Multiple levels of grant funding programs – from Proof of Concept to Growth.
- Industry specific organization providing templates transaction documents for ease of the transfer processes.

## **Observed Trends**

### *Workshops and Training Support*

The relevance of SBIR/STTR as a federal resource that is advantageous to the economic development of a state has been well established and therefore most states have created at least basic support structures/incentives to encourage applicants from within the state. Such support is most often found in the form of workshops and advice assistance with the application process. While support centers, workshops and training are a component of most states' SBIR/STTR support initiatives, some initiatives have more advanced programs than others. Such programs including funding support for the application process, directories of external advisors that can aid with business plan creation, regular and dedicated office hour at universities and others. Further, with the exception of the State of Colorado, these workshops and application support initiatives are limited to the SBIR and STTR programs and do not address any other federal funding opportunities (such as the NSF I-Corps program referenced in this Report – *see Other New Strategies and Initiatives*).

### *Programmatic Funding*

The vast majority of the Programs reviewed herein as well as initiatives in other states omitted in this Report have a successful and very impactful funding component. The form and structure of such funding initiatives varies greatly in size, in purpose and in instrument utilization.

In terms of programmatic funding that more directly relates and affects SBIR/STTR support, application, and awards, some of the observed options can be curated as follows:

- Grants to offset costs associated with application process, inclusive of attendance of SBIR conferences and seminars, legal costs, accounting costs, approved expertise counsel and such;
- Awards matching Phase I award and/or Phase II award in pre-determined match ratio in an effort to provide more financial backing and likelihood of success for the project, as well as an incentive to actually apply for Phase I and/or Phase II awards;
- Bridge financing between Phase I and Phase II, with the goal to aid projects/companies that have traction but are falling short of completion of Phase I milestones in order to apply for Phase II award. The North Carolina Biotechnology Center indicated that they see this funding program as their most effective tool in increasing the total number of award dollars to state applicants due to the significant increase in the percentage of Phase I awardees that get to apply and receive Phase II award as well.

In terms of programmatic funding that more directly relates and affect tech transfer activities, inclusive of licensing, spin-outs and corporate-directed research, some of the observed options can be curated as follows:

- Grants for proof-of-concept of market feasibility, which such programs structured differently whereas in some instances the grants are only available to universities (and thus universities select qualifying projects), or whereas these are more broadly available to entrepreneurs and/or researchers interested in utilizing IP for a commercial application and spin-out;
- Milestones multi-tranche funding for creating a spin-out based on university research/IP;

- Matched funding specifically for spin-outs utilizing university research/IP that have third party qualified investments;
- Matched funding for corporate research projects – whereas the program offset some of the cost that corporations have to pay to the universities for conducting focused research that results in commercial application (through licensing or spin-out).

### *Industry/Vertical Focus*

It is evident that in a given State there can be multiple public and/or private-public stakeholders that promote and aid tech commercialization. Of note is the observation that in a large number of cases these organizations (or the specific programs) are industry/vertical specific (i.e. bioscience, life science, advance manufacturing, etc.). The rationale behind such focus is the ability to more accurately and effectively serve the various stakeholders of these industry ecosystems. It allows for membership-driven programs, focused resource directory tools, and for less generic templates (in the case of master agreements and other transactional documents).

### *Corporate Engagement and “Matchmaking”*

In a Forbes article, contributor Rebecca O. Bagley describes that one of the biggest challenges in strengthening the link between industry and university research is the actual matchmaking – “universities often don’t know where to look for companies that need certain technologies.” (Bagley, 2012). Some of the most impactful programs (“impactful” either as a self-assessment or via recognition – *see MIPS Program*) have strong focus and elements of corporate engagement with the goal being one of alignment of institutional research with corporate strategic needs and technology priorities. Functionally, these program have elements of actively attracting and engaging corporate technology scouts and directing these to the appropriate researchers based on vetting; providing matching funding to offset research cost for the corporation; providing opportunities for corporations to learn of new technology breakthroughs, or setting up event-like and/or one-on-one focused “matching” meetings between corporations and researchers.

### *Membership Initiatives*

Congruent with the Corporate Engagement and “Matchmaking” efforts are observed trends in commercialization the ecosystems resources (IP, intellect and talent) by channeling the availability and curating of these resources through membership programs. North Carolina Center for Innovation Network is an adequate example for such initiatives on state level, while the Oxford Innovation Society (*see Corporate Engagement Membership*) is an adaptive model for one or more institutions. Typically these membership initiatives are comprised of diverse stakeholders as members allows for the dual exchange of information – new ideas, new needs) as well as exposure of innovative resources, collaboration and other programs.

### *Curation of resources*

Yet another observed recurring trend is the investment by different programs in curated lists of resources and the maintenance and accessibility of such lists – of service providers, advisers, experts, researchers, etc.

*Focus on spin-outs*

For FY2013 in its annual Licensing Activity Survey, the Association of University Technology Managers (AUTM) introduced for first time new measures to quantify the scope of startup spin out activity in recognition of the impact of spin out as it relates to tech transfer. The Survey reported an increase of 16% of spin-outs over the prior year. An interesting and relevant statistic, as it pertains to measurement of tech transfer activities impact on a state or region, is that almost 75% of the spin-outs remain local (in the same state as the licensing institution).

Our research also supports the relevance of spin-out startups (and therefore the need for initiatives to support the creating and maturation of these spin-outs) as it relates to tech transfer success and improvement.

The North Carolina Biotechnology Center reported (interview) that about 66% of its successful tech transfer transactions is accounted through spin-out formation. Oregon BEST reported (survey) that its transaction events are largely spin-outs based. The Montana Governor's Office of Economic Development reported (survey) that while the number of transactions ratio between licensing and spin-outs is relatively equal, the ratio in terms of revenue is largely contributed to spin-outs.

## **Relevant Metrics**

During the course of our investigation of various programs and with the aid of phone interviews and online survey forms, we inquired as to the top three metrics utilized by programs in measuring the effectiveness of their SBIR/STTR support initiatives and their Tech Transfer support initiatives respectively. The complete list of Metrics received as responses is as follows (Note: xX denotes that this metrics was submitted by X number of respondents):

### SBIR/STTR Metrics

- Number of applicants (that have received support)
- Number of companies (that have received support)
- Number of companies reached via outreach events
- Total amount of dollars leveraged from other funding (x2)
- Jobs created
- Number of commercialized projects (x2)
- Number of Phase I awards

### Tech Transfer Metrics

- Follow-on funding for spin-outs
- Jobs created and/or retained by the spin-outs (x3)
- Revenue growth of spin-outs
- Total amount of dollars leveraged from other funding (x2)
- Number of people reached
- Number of spin-outs
- Growth/sustainability of spin-outs
- Number of technologies commercialized (licensing and/or spin-outs)
- Number of one-on-one “matchmaking” meeting facilitated between corporations and researchers

In addition to this list, we submit that the metric referenced by the Association of University Technology Managers in their Survey (*see Focus on spin-outs, p.21*), tracking the number or percentage of spin-outs that are headquartered and operate within the state where the invention was researched is a good indicator of the overall economic development impact of tech transfer efforts, especially when combined with some of the other spin-out centric metrics listed above.

As we see tech commercialization efforts affecting and pivotal not only for research institutions but for the overall ecosystem of entrepreneurs, we believe that relevant metrics can also focus on startups and SMEs – in particular the number of startups and SMEs with IP in the state and their growth metrics (jobs created, revenue growth, funding and investment leveraged).

## **Other New Strategies and Initiatives**

In addition to the programs reviewed above, there are a number of other initiatives or recent trends that may be adaptable to programmatic efforts by a state or a region as it relates to broader support initiatives around innovation and tech commercialization, inclusive of licensing (patent funds), support for grant awards (other federal sources), positioning of IP assets in the private and research sectors for licensing or product development (IP audit tools), sourcing and matching corporate R&D project needs (sources for corporate needs identification), and monetizing corporate engagement (corporate engagement membership).

### *Sovereign Patent Funds and Patent Pooling*

Though Sovereign Patent Funds (SPFs) are national level programs initiated by countries like France, Taiwan, Japan and others, their principal and discerned benefit can be applied to ecosystems such as states. SPFs are government vehicles that acquire patent assets on behalf of the country and then create commercialization opportunities around these assets (in addition to providing defensive mechanism for companies within its ecosystem). The means of acquisition can vary from purchasing through dedicated funds, “donation”, and/or licensing revenue participation. These policy models are intended to spur investment in R&D as well as facilitate the growth and success of companies within the ecosystem. (Clarke, 2014).

In the example of France, its Brevets Fund does not directly acquire the IP assets, rather they invest their capital in building the patent portfolio of its partners (public and private companies, universities), and in licensing campaigns, with the ownership remaining with the inventors and the revenue proceeds shared between the inventors and the Fund. Specifically as it relates to universities and research institutions, the Fund supports the build out and licensing of patent portfolios suitable for standardization. According to Pascal Asselot, Head of Business Development, the Fund has one of its objectives the building of fair return for public and private research and fostering tech transfer.

“SPFs may act to increase patent utilization by purchasing dormant patents and bundling them into larger patent clusters.” (Clarke, 2014). Programs in the form of SPF for any region can facilitate the monetization of patents held by SMEs and/or public research institutions through providing valuation, creating licensing campaigns and clustering assets that otherwise reside in independent sources. Japan’s fund – the Innovation Network Corporation (INCJ) has established a dedicated fund to acquire dormant patents. Through establishing patent clusters (or pools) around particular technologies and verticals, these types of initiatives can significantly reduce time to commercialization and costs for corporations and thus create additional revenue sources (licensing) for the region. This form of licensing (through clustering) also exists as a model in the private sector. TAEUS is a Colorado-based IP firm that has launched its PatentBooks™ product that aggregates patents by verticals (with its first one being around LCD technology) and then provides blanket licenses to all assets in the “book” with the revenues then distribute according to formula to the various patent owners (the formula accounts for number of assets as well as strength of assets based on accepted valuation model).

### *Other Federal Commercialization Sources*

The I-Corps program is a private-public partnership initiative ran by the National Science Foundation (NSF) with the purpose of preparing scientists and engineers to focus beyond the academia and laboratory. Anticipated outcomes of the program are new spin-out startups based on the research, license out opportunities and revenue, SBIR proposal applications, and gaining entrepreneurial skills. The program is

open to projects that have active NFS research funding. In addition to researchers and students applying to be part of an I-Corps team (around a certain project), institutions have the opportunity to apply for becoming an I-Corps Site with appropriate funding.

This is an example of a federal program that directly impacts the number of SBIR applicants and their readiness level. There are other federal opportunities both curriculum-wise as well as funding-centric. As states and regions contemplate improvement in their grant support initiatives, it is important to broaden the focus beyond SBIR/STTR and provide awareness, application assistance and post-graduate support for potential applicants in programs such as I-Corps and others.

#### *IP Audit Tools*

Though the initiatives around tech commercialization primarily focus on supporting tech transfer or spin-out based on research from an university or a research institution, tech commercialization can be a very beneficial process when initiated among small and medium enterprises (SMEs).

A study carried out on behalf of the UK Intellectual Property Office found that only half of SMEs check the trademark registry before advancing with the name of their business or product, only 6% of SMEs seek a patent for their invention and only 14% of companies with less than 50 employees recognize that publishing their invention will prevent them from obtaining a patent. . In response to the need for startups and SMEs to better understand IP and prepare their companies to be competitive and attractive to investors, the UK IPO offers the online IP Healthcheck as a free online tool to help any business conduct a basic assessment of its IP. The assessment covers important topics such as licensing IP, confidential information and trade secrets and, most recently introduced, franchising. Further, the Office provides “IP Audits” through subsidy (of up to £ 3,000) and matching with a proper IP Adviser (qualified and approved by the office) that prepares and establishes the startup or SMEs as an IP-ready business.



In a more limited but nonetheless relevant way, the IdeaSphere free online assessment tool is provided by Nashville-based IdeaShares in an effort to aid inventors test their ideas relevancy, impact and market potential and educating them on next steps in terms of protection and commercialization.

#### *Sources for corporate needs identification*

NineSigma is a company providing innovation-sourcing services for corporation, whereas its platform allows for corporations to post research, technical and project needs that are then pushed out to NineSigma’s network of researchers, experts, solution providers and general subscribers. In March of 2015, the Metro Atlanta Chamber of Commerce announced a partnership with NineSigma that allows companies in the metro Atlanta areas to have access at a reduced price to services such as posting Needs Statements, outreach to solution providers, and matchmaking with relevant experts.



Venture Grove is a Nashville, TN/San Jose, CA – based company that provides similar SaaS platform enabling corporations to profile their strategic needs and then matching these through its proprietary algorithms with the solution providers, IP assets, entrepreneurs and experts in a given ecosystem. (Disclosure Note: Venture Grove assisted with the research phase of this Report, and the author, Stayko D. Staykov maintains equity ownership position in Venture Grove).



In an industry specific way, AutoHarvest is yet another online portal that serves as an un-curated collaboration and marketplace platform. The platform allows for automotive industry related inventions and research to be posted by institutional members for corporate members to review and consider.

Platform like NineSigma, Venture Grove and AutoHarvest provide state and regional programs with tools to improve corporate engagement and increase matchmaking between industry needs and research capacity and focus.

#### *Corporate Engagement Membership*

Innovation assets, research capability and subject matter expertise are valuable commodities within an ecosystem and globally. The ability to monetize these and create an engagement opportunities leveraging these assets can be a very valuable and profitable components of any programmatic approach to technology commercialization.

As a way of successful example, Isis Innovation Ltd. is a long-standing wholly owned subsidiary of the University of Oxford that is charged with managing the university's tech transfer and academic consulting activities. The subsidiary has created and manages the Oxford Innovation Society (OIS). The purpose of OIS is to bring together, in a collaborative spirit, researchers from the university, investors, large multinational companies and domestic entrepreneurs. OIS is a membership-based initiative with annual membership fees of £ 6,800. The Society has more than 150 members. The fees provide for certain member benefits, inclusive of 30 days advance notice of new technologies available for licensing, attendance of annual events, focused seminar participation with technology road-mapping and others.

## Conclusions and Recommendations



The Tennessee flag icon denotes resources available in the State of Tennessee adaptable for initiatives and programmatic tools.

Tech Commercialization as a focus and a topic has become an integral part of the economic development efforts of a region. It is also a critical development and positioning effort for research institutions and their relevance. The programs and initiatives developed to support tech commercialization serve a diverse range of interdependent stakeholders, inclusive of corporations, entrepreneurs, research institutions, the researchers themselves, and of course, the economic development interests of the region.

While some metrics and results related to tech commercialization efforts are more readily assessable as in the case of number of SBIR and/or STTR awards, others are more long-term, such as multi-year licensing agreements, corporate partnerships, and growth of spin-outs, and still others are rather indirect and not quantifiable as stand-alone metrics, such as the level of tech talent attracted, jobs created and regional subject matters expertise. This complexity of effects observed, coupled with the relatively recent push of more comprehensive initiatives (beyond the typical workshops model) challenges any conclusive or accurate “measurement” of the type of programs that are most effective and the degree of such effectiveness. Nevertheless, certain trends and broad types have emerged as having traction and positive impact.

There are primarily two “verticals” or “categories” as it relates to the type of efforts and programs around tech commercialization. Broadly, these would be described as programmatic funding and as corporate engagement.

Before exploring some summary thoughts on these two verticals, it is critically relevant to reference a third “category” – the indirect initiatives that aim to support and promote entrepreneurship, and also corporate engagement as these relate to the ecosystem in its entirety. The Association of University Technology Managers notes the relevance of both in its annual survey – “Collaboration between academia and industry has increasingly become a critical component of an efficient national innovation ecosystem.”, and also “Startup companies can be an effective mechanism for transferring nascent technology from the university research environment to the marketplace.” The inherent relevance of spin-outs identified by well developed programs is also evidenced through the number of metrics related to the performance of such spin-outs. Though the overall economic impact of tech commercialization efforts realized through the creation of new startups based on research is a longer term outcome, it is also arguably the sustainable outcome with the potential for most positive spillover effects.

Tech commercialization efforts in their core are business creation and development activities. Thus, it is only natural to observe programmatic funding as an integral component of such efforts and processes. Even more so, the business opportunities created through tech commercialization have certain additional challenges to overcome such as the “translation” or adaptation of academic research into commercially viable opportunities, which often requires additional expertise, market insights and staged support. Therefore, the programmatic funding component of tech commercialization programs is observed as supportive and with

particular purpose in each stage of development – from idea testing and proof-of-concept, through application and awarding of federal grants, and to sustainability and milestone performance.

The challenge of forming revenue-generating opportunities from research and academic work is also addressed through the creation of a focused and relevant research demand fueled through corporate engagement and dialogue. This type of engagement effort is of a foundational and fundamental nature as it involves a very early-on investigative stage during which programs actively procure and identify the ever-changing strategic priorities and pain points of the corporate world. It also involves a recurring and ongoing positioning and curation of the research and intellectual assets developed within the region in a manner that is synergistic with the focus and current vocabulary of the corporate ecosystem.

#### *A word on metrics...*

Though we have listed some relevant metrics that can establish the impact of tech commercialization support efforts and programs, the field of commercializing innovation has a very intangible characteristic as its foundation. Due to this, we are noting a trend towards measuring the impact of tech commercialization through the consideration of the “human factor”. In other words, instead of looking at statistics, focusing on the particular stories that truly better the condition of the human race (such as the creation of HIV medicine at Emory University, or the 3D prosthetic printing at Tennessee Tech, and so on) and thus connect back with the fundamental purpose of research and innovation – to better.

#### *Other Recommendations*

**Recommendation:** Provide visibility of corporate technology bid programs to researchers (such as Shell’s GameChanger, NinaSigma’s portal and others).

**Recommendation:** Actively engage technology and corporate scouts, in order to understand corporate needs and pain points and more accurately position the region’s IP assets for licensing, collaboration and/or development.



**Recommendation:** Expand LTN’s *innovation\_connection* to a membership-based program with benefits to corporations, inclusive of advance notice for new inventions, opportunity to hear researchers, opportunity to present technology research needs, facilitation of one-on-one matchmaking meetings and recurring annual events.

**Recommendation:** Utilize a technology platform that allows for corporate needs and pain points to be matched with state resources, IP, and talent.



**Recommendation:** Enable initiatives like LifeScience TN to provide tech commercialization support services such as IP audit, template agreements, and possibly funding for spin-outs as well as funding for corporate/university projects in the particular vertical.

**Recommendation:** Enhance workshops and training for potential SBIR/STTR applicants through offering on-site office hours at universities.

**Recommendation:** Expand workshops and training for federal programs by providing education and assistance for other programs (such as NSF’s I-Corps).

**Recommendation:** Investigate and adapt a model for a statewide patent fund and/or patent pooling with components of: large corporations “donating” IP (as a tax-write-off), research institutions providing IP for revenue participation; then that IP being pooled/bundled by application/industry and blanket licensing being offered with revenues distributed back to owners of the IP based on a weighted formula. Potentially provide such blanket licensing at a significant discount to state-based startups.

**Recommendation:** Provide grants for offsetting the cost for SBIR/STTR application.

**Recommendation:** Provide programmatic funding as a bridge between SBIR/STTR Phase I and Phase II to Phase I awardees.



**Recommendation:** Dedicate a portion of the INCITE fund to only fund spin-outs.

**Recommendation:** Provide grants to offset market feasibility and strength of IP valuation studies for IP considered for commercialization.

**Recommendation:** Maintain active directory of IP-related resources, qualified experts, etc.



**Recommendation:** Provide “IP Audit” services for startups that can add that to their portfolio and business plan as they are approaching investors. Further, such IP Audit service can become a qualifier for co-investment by INCITE.

### **List of Referenced Programs (in order of mention)**

North Carolina Center for Innovation Network (NC COIN) – <http://nccoin.org>

North Carolina Biotechnology Center – <http://www.ncbiotech.org>

Oregon BEST – <http://oregonbest.org>

Wisconsin Center for Technology Commercialization – <http://wisconsinsbir.org>

Maryland Technology Development Corporation (TEDCO) – <http://tedco.md>

BioMaryland Center – <http://bio.maryland.gov>

The Maryland Innovation Initiative (MII) - <http://tedco.md/program/the-maryland-innovation-initiative-mii/>

Maryland Industrial Partnerships Program (MIPS) - <http://www.mips.umd.edu>

Connecticut Innovations - <http://ctinnovations.com/about>

BioInnovation Connecticut - <http://www.bioinnovationct.com>

Enterprise Florida Inc., Phase “0” Program - <http://www.enterpriseflorida.com/small-business/sbirsttr-phase-0-pilot-program/>

Colorado Advanced Industries Accelerator Program - <http://www.advancecolorado.com/funding-incentives/financing/advanced-industries-accelerator-programs>

Colorado BioScience Association - <http://www.cobioscience.com>

France Brevets Fund - <http://www.francebrevets.com/en>

Innovation Network Corporation of Japan - <http://www.incj.co.jp/english/>

TAEUS PatentBooks™ - <http://patentbooksinc.com>

NSF I-Corps - [http://www.nsf.gov/news/special\\_reports/i-corps/](http://www.nsf.gov/news/special_reports/i-corps/)

UK IPO IP Healthcheck - <http://www.ipo.gov.uk/whyuse/business/iphealthcheck.htm>

UK Intellectual Property Audit – <http://www.ipo.gov.uk>

NineSigma, Inc. - <http://www.ninesigma.com>

Venture Grove, LLC – <http://www.venturegrove.com>

Isis Innovation, Ltd. - <http://isis-innovation.com>

AutoHarvest - <http://autoharvest.org>

IdeaShares, LLC - <https://www.ideashares.com>

## **References**

SBIR STTR America's Seed Fund™ . <https://www.sbir.gov>

Association of University Technology Managers® . *Highlights of AUTM's U.S. Licensing Activity Survey, FY2013.*

[https://www.autm.net/AM/Template.cfm?Section=FY\\_2013\\_Licensing\\_Activity\\_Survey&Template=/CM/ContentDisplay.cfm&ContentID=13870](https://www.autm.net/AM/Template.cfm?Section=FY_2013_Licensing_Activity_Survey&Template=/CM/ContentDisplay.cfm&ContentID=13870)

Clarke, Warren, Dr., DEEP Centre. September 2014. *The Rise of Sovereign Patent Funds: Insights and Implications.*

[http://deepcentre.com/wordpress/wp-content/uploads/2014/09/DEEP-Centre-The-Rise-of-Sovereign-Patent-Funds\\_SEPT-2014.pdf](http://deepcentre.com/wordpress/wp-content/uploads/2014/09/DEEP-Centre-The-Rise-of-Sovereign-Patent-Funds_SEPT-2014.pdf)

Asselot, Pascal. 2012. *France Brevets, patents and aggregation.* <http://www.oecd.org/sti/inno/workshop-patent-practice-and-innovation-Asselot.pdf>

Metro Atlanta Chamber. March, 2015. *NineSigma and Metro Atlanta Chamber launch New Open Innovation Forum.*

<http://www.metroatlantachamber.com/news/items/2015/03/11/ninesigma-and-metro-atlanta-chamber-launch-new-open-innovation-forum>

Bagley, Rebecca O. July 16, 2012, *Strengthening the Link Between Industry and University Research.*

<http://www.forbes.com/sites/rebeccabagley/2012/07/16/strengthening-the-link-between-industry-and-university-research/>

## **About**

Stayko D. Staykov has over fifteen years of experience in entrepreneurship, strategic asset management and advising in the areas of Strategy Development, Mergers & Acquisitions, Intellectual Property, Technology Licensing, and Leadership Development. Among other responsibilities and holdings, Mr. Staykov currently leads a global advisory firm experienced in addressing complex issues and tasks related to Strategy, Innovation and Intellectual Property assets. He also advises on initiatives and projects around IP commercialization, Innovation programs or Strategic growth.

The Propeller(y)<sup>TM</sup> targets the opportunities and challenges in the technology commercialization process and through the balanced combination of diverse expertise, business acumen, application of best practices and proprietary modeling and valuation, provides an effective solution that allows for the corporate and financial world to capitalize on the opportunities within research.

Venture Grove provides data aggregation toolsets and advanced analytics for Accelerators and regional Economic Development teams to track the effectiveness of their programs at a detailed level. Innovation data ingestion toolsets gather hundreds of data points from Entrepreneurs, Startup Companies, Universities, Accelerators and Investment Firms, enabling them to create corporate engagement programs to increase public awareness and capital movement. The ability to present up-to-date innovation activities, details on IP assets and expertise clusters becomes an invaluable component for the region's overall strategic goals.