CIT
CENTER FOR INNOVATIVE TECHNOLOGY

July 15, 2015

Mr. Daniel Timberlake
Director
Department of Planning and Budget
1111 East Broad Street, Room 5040
Richmond, Virginia 23219-3418

Dear Mr. Timberlake:

I am pleased to submit the Center for Innovative Technology's (CIT) Fiscal Year 2016 Operating Plan, which was approved by the CIT Board of Directors on May 20, 2015.

For 2016, CIT will continue programs that support its mission of "accelerating the next generation of technology solutions, companies and employment". Doing this enables us to position Virginia as the nexus of technology innovation in the increasingly competitive national and global economies.

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On behalf of the entire CIT organization, we would like to express our gratitude for the ability to serve the Commonwealth by building its future economic engines.

Please feel free to call me at 703-689-3000 if you have any questions.

Respectfully,

Peter Jobse
President & CEO
The Center for Innovative Technology

cc: Ms. Emily Grimes, Senior Budget Analyst, Department of Planning and Budget
The Honorable S. Chris Jones, Chairman, House Appropriations Committee
Mr. Robert P. Vaughn, Staff Director, House Appropriations Committee
The Honorable Walter A. Stosch, Co-Chairman, Senate Finance Committee
The Honorable Charles J. Colgan, Co-Chairman, Senate Finance Committee
Ms. Betsey Daley, Staff Director, Senate Finance Committee
Mr. David Lucien, CIT Chairman of the Board
Mr. Hooks Johnston, CIT Vice Chairman of the Board
Ms. Karen Jackson, Secretary of Technology

Enclosure

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July 15, 2014

Ms. Emily Grimes
Senior Budget Analyst
Department of Planning and Budget
1111 East Broad Street, Room 5040
Richmond, Virginia 23219-3418

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The Honorable S. Chris Jones
Chairman, House Appropriations Committee
General Assembly Building
P.O. Box 406
Richmond, Virginia 23218

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Staff Director, House Appropriations Committee
General Assembly Building
P.O. Box 406
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July 15, 2015

The Honorable Walter A. Stosch
Co-Chairman, Senate Finance Committee
Senate of Virginia
P.O. Box 396
Richmond, Virginia 23218

Dear Chairman Stosch:

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July 15, 2015

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Co-Chairman, Senate Finance Committee
Senate of Virginia
P.O. Box 396
Richmond, Virginia 23218

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July 15, 2015

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Staff Director, Senate Finance Committee
Senate of Virginia
P.O. Box 396
Richmond, Virginia 23218

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CIT Chairman of the Board
DCL Associates
18261 Mullfield Village Terrace
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July 15, 2015

Mr. Hooks Johnston
CIT Vice Chairman of the Board
Valhalla Partners
8000 Towers Crescent Drive, Suite 1050
Vienna, Virginia 22182

Dear Mr. Johnston:

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July 15, 2015

Ms. Karen R. Jackson
Secretary of Technology
Patrick Henry Building
1111 East Broad Street, 4th Floor
Richmond, Virginia 23219

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July 15, 2015

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Director
Department of Planning and Budget
1111 East Broad Street, Room 5040
Richmond, Virginia 23219-3418

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The Honorable S. Chris Jones, Chairman, House Appropriations Committee
Mr. Robert P. Vaughn, Staff Director, House Appropriations Committee
The Honorable Walter A. Stosch, Co-Chairman, Senate Finance Committee
The Honorable Charles J. Colgan, Co-Chairman, Senate Finance Committee
Ms. Betsey Daley, Staff Director, Senate Finance Committee
Mr. Hooks Johnston, CIT Vice Chairman of the Board
Ms. Karen Jackson, Secretary of Technology

Enclosure

2214 Rock Hill Road
Suite 600
Herndon, VA 20170-4228
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CIT
CENTER FOR INNOVATIVE TECHNOLOGY

July 15, 2015

Mr. Hooks Johnston
CIT Vice Chairman of the Board
Valhalla Partners
8000 Towers Crescent Drive, Suite 1050
Vienna, Virginia 22182

Dear Mr. Johnston:

I am pleased to submit the Center for Innovative Technology's (CIT) Fiscal Year 2016 Operating Plan, which was approved by the CIT Board of Directors on May 20, 2015.

For 2016, CIT will continue programs that support its mission of "accelerating the next generation of technology solutions, companies and employment". Doing this enables us to position Virginia as the nexus of technology innovation in the increasingly competitive national and global economies.

Similar to the 2015 plan, CIT will continue to secure federal and private sector funded services that support our mission and objective.

On behalf of the entire CIT organization, we would like to express our gratitude for the ability to serve the Commonwealth by building its future economic engines.

Please feel free to call me at 703-689-3000 if you have any questions.

Respectfully,

Peter Jobse
President & CEO
The Center for Innovative Technology

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CIT
CENTER FOR INNOVATIVE TECHNOLOGY

July 15, 2015

Ms. Karen R. Jackson
Secretary of Technology
Patrick Henry Building
1111 East Broad Street, 4th Floor
Richmond, Virginia 23219

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CIT
CENTER FOR INNOVATIVE TECHNOLOGY

Innovation & Entrepreneurship Investment Authority
&
Center for Innovative Technology

Reporting Requirements
Due:
July 15, 2015

IEIA & CIT REPORING REQUIREMENTS	
ITEM 419 page 390	**Tab**
D.1. - BY JULY 15 OF EACH YEAR:	
- Operating Plan	**1**
a) All planned and actual revenue and expenditures along with funding sources, including state, federal, and other revenue sources of both the IEIA and CIT	**2**
b) A listing of the salaries, bonuses, and benefits of all employees of the IEIA and CIT	**3**
c) By program, total grants made and investments awarded for each grant and investment program to include CRCF	**4**
d) By program, a report of the projected economic impact on the Commonwealth and recoveries of previous grants or investment and sales of equity positions	**5**
e) Cash balances by funding source, and a report, by program, of available, committed and projected expenditures of all cash balances	**6**

TAB 1

Operating Plan

Accelerating the Next Generation of Technology Solutions, Companies, and Employment For Virginia and the Nation

Center for Innovative Technology (CIT)

OPERATING PLAN

Fiscal Year 2016

Approved by the Board of Directors on of May 20, 2015

Amended July 13, 2015
Executive Summary, Research and Development Service Line, Item 3

Table of Contents

*Executive Summary**

Fiscal Year 2016 Operating Plan

For Fiscal Year 2016, CIT's mission will continue to be "accelerating the next generation of technology and technology companies" coupled with the objective to "achieve national recognition as the premier services provider engaged in technology company creation and company growth."

To achieve these objectives, CIT will operate four service lines and the MACH37™ cyber accelerator each under the leadership of a senior executive. These service lines are:

Service Line	*Responsible Executive*
Research and Development	Nancy Vorona
Entrepreneur	Tom Weithman
Connect	Paul McGowan
Broadband	Sandie Terry
MACH37™ Cyber Accelerator	Rick Gordon

In addition to the service lines above, the following corporate support functions are delivered under the leaders identified below:

Operating Area	*Responsible Executive*
Commonwealth Operations	Bob Stolle
Finance and Administration	Linda Gentry
Government and Public Relations	Hap Connors
Office of Chief Technology Officer	Dave Ihrie

The Fiscal Year 2016 CIT Operating Plan provides a complete description of the goals, objectives, plan of work, value proposition, program impact, and milestones for each service line. The following sections provide a summary of the plan and funding by service line.

Research and Development Service Line

For Fiscal Year 2016, the Research and Development service line will execute the following programs:

1. Refresh the Commonwealth Research and Technology Strategic Roadmap.
2. Maintain the Innovation and Entrepreneurship Measurement System.
3. Structure, administer, and audit $~~8~~ 3 million of new awards for the Commonwealth Research Commercialization Fund and approximately $16 million award base.

In addition to program operations, Research and Development leadership will examine new funding opportunities identified by the other service lines and will monitor opportunities in offshore wind energy. To execute these programs, the Research and Development service line will expend $400,209 as outlined in the funds usage chart below.

Entrepreneur Service Line

For Fiscal Year 2016, the Entrepreneur service line will execute the following programs:

1. Operate CIT's Federal Funding Assistance Program which helps Virginia companies secure Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) funding and ensures that the Commonwealth preserves its top 5 national ranking for total SBIR/STTR awards.
2. Accelerate seed-stage funding for Virginia's technology startup companies by operating the GAP Fund family of funds, along with the Commonwealth and State Small Business Credit Initiative (SSBCI). Funding for Fiscal Year 2016 will allow the GAP Funds to place 18 investments and support second-round funding for existing high-growth portfolio companies.
3. Accelerate seed and growth funding for Virginia's energy companies by operating the Commonwealth Energy Fund. Federal funding for this Fund will enable the creation or growth of four energy companies.
4. Provide seed funding to emerging cyber security companies through the MACH37™ Seed Fund.

The combination of the GAP Funds, MACH37™ Seed Fund, and Commonwealth Energy Fund will produce a projected 20 to 30 new investment transactions for Fiscal Year 2016. The Entrepreneur service line will offer additional operational support, as required, for programs executed by other service lines, including the Commonwealth Research Commercialization Fund and MACH37™.

In addition to program operations, service line leadership will continue its strong program of community outreach, advocacy, and new business development consistent with maintaining and growing Virginia's appropriation and identifying sources of new business consistent with its leadership in new company formation and funding. Finally, the Entrepreneur service line will examine how best to establish one or more private sector funds to augment financing obtained from Virginia's appropriation process for the purpose of investing in early stage companies.

To execute these programs, the Entrepreneur service line will expend $8.7 million as outlined in the funds usage chart below.

Connect Service Line

The Connect service line is distinct from the other CIT service lines in that it is a self-funding client focused consulting business. Connect is a consulting service which works with many federal, state, and local agencies, and corporate clients to help them accelerate

the use of and assimilation of new technology solutions while delivering significant value to the Commonwealth of Virginia (Commonwealth) through new solution development for Commonwealth implementation and cost offset for CIT operations

In the last several years Connect has focused on a few key new technology areas including Mobile Learning, Social Media Exploitation, Big Data, Health Information Technology and Education Data – particularly around State Longitudinal Data System (SLDS) Solutions.

Since 2008 Connect has been working with the Virginia Department of Education (VDOE), the Virginia Community College System (VCCS), the State Council for High Education in Virginia (SCHEV), the Department of Social Services (DSS), and other state agencies on the Virginia Longitudinal Data System (VLDS).

VLDS is a software tool that provides insight into data that informs of the effectiveness of Virginia's education and workforce programs. It provides secure access to education and workforce data, while maintaining privacy and confidentiality. VLDS is a critical tool for the Commonwealth and Connect was a key team member in the design, development and implementation of the VLDS..

In 2014 Connect was selected by the State of Nevada to implement a version of VLDS customized to their requirements. This resulted in additional license revenue for Virginia, substantially reduced costs in the provision of operations and maintenance support and created national recognition for the VLDS solution.

For Fiscal Year 2016, the Connect service line's priorities will be as follows:

1. Develop and exploit four growth platforms
2. Aggressively pursue seven new, focused, technology assimilation campaigns

Each growth platform consists of a current key and strategic client relationship which are outlined in more detail below. Each technology assimilation campaign is a focused effort to leverage a core Connect capability into a new market. For example, one campaign is to leverage the VLDS and the Nevada P-20 to Workforce Reporting System (NPWR) work to develop the nation's first SLDS-as-a-service capability which would provide leading edge SLDS capabilities to multiple states on one platform and drive tremendous benefits for Virginia in terms of improved capabilities and reduced cost.

In the successful execution of these priorities it is expected that the Connect service line will generate in excess of $2 million in revenue from external sources.

Broadband Service Line

For Fiscal Year 2016, the Broadband service line will execute the following programs:

1. Operate the Office of Telework Promotion and Broadband Assistance to encourage the usage of telework alternatives for public and private sector employees.

2. Execute programs to support the efforts of public and quasi-public bodies within the Commonwealth to enhance access to and utilization of affordable broadband services throughout Virginia. These programs include:
    a. Improve broadband access through mapping and the support and development of tools to facilitate broadband deployment planning.
    b. Provide technical assistance to underserved areas to improve their access options.
    c. Advance broadband benefits by providing resources to guide communities to implement programs that improve broadband adoption and utilization resulting in sustainable demand.
    d. Benchmark Virginia's broadband access and utilization by collaborating with agencies to assess broadband access, capacity, and utilization at schools and libraries across the Commonwealth.
    e. Benchmark Virginia's broadband access and utilization through an annual healthcare assessment and collaborating with agencies to assess broadband access and capacity at schools and libraries across the Commonwealth.
    f. Monitor national rankings to target areas needing improvement to ensure Virginia is realizing all the benefits of broadband including improved education, healthcare, and overall life.

To execute these programs, the Broadband service line will expend $793,127 as outlined in the funds usage chart below.

MACH37™

MACH37™ will enter its third year of accelerator operations in Fiscal Year 2016, the program will continue to conduct two annual cohort sessions, one in the spring and one in the fall. Each cohort session will contain between 6 and 10 companies. Also, in FY2016, MACH37™ will become self-sustaining through private sponsorships and transition to an independent operating entity.

To execute these initiatives, CIT will expend $2 million which is included in the Commonwealth Project Expense line in the funds usage chart below.

Commonwealth Operations and Special Projects

In addition to programs developed and managed in our five service lines, CIT will actively support the McAuliffe Administration, legislative, and other statewide innovation, entrepreneurship, and technology priorities. CIT is partnered with state agencies and other organizations in several significant programs that grow Virginia's technology and innovation economy. In FY16, CIT will continue to leverage the extensive knowledge and experience within its staff to provide critical assistance on these non-CIT managed programs, including:

1. Develop and grow regional innovation initiatives
2. Support the advancement of the unmanned systems industry

3. Expand modeling and simulation into new industries including health care, advanced manufacturing, and unmanned systems
4. Support and expand the Commonwealth's initiatives in cyber security and cyber data analytics
5. Provide leadership and support for Governor's Biosciences Roundtable initiative
6. Coordinate with university partners to develop an online resource for accessing combined research capabilities within the Commonwealth

To execute these initiatives, CIT will expend $2.8 million as outlined in the funds usage chart below.

Corporate Support Groups

In addition to the operating service lines, CIT is supported by the Finance and Administration (F&A) group. CIT's F&A group is responsible for all financial, legal, and administrative functions of the corporation including the design and operation of a federal and state compliant financial management system.

The Chief Technology Officer (CTO) provides leadership of the group responsible for technology vision, as well as information technology services. The goal of the CTO is to take a lead role in defining, promoting, and implementing forward-looking technology policies and processes that advance entrepreneurial activity and the assimilation of technology.

CIT is also supported by the Government and Public Relations group. The Government and Public Relations group is responsible for state, federal, and public relations functions.

Operating Budget

The Fiscal Year 2016 budget, summarized below, plans the controlled use of net assets to achieve impact in all service lines. The projected year end net asset position of $1.5 million ensures our ability to bridge fiscal year commitments and manage operating adjustments throughout the year.

Summary Budget	FY16 Budget	% of Total FY16 Budget	Contracts & Grants	Commonwealth Appropriation, CRCF & Other funds
Revenue				
Virginia Appropriation	$ 7,656,000	56%		$ 7,656,000
Commonwealth Research Commercialization Fund (CRCF) - MACH37	$ 2,000,000	14%		$ 2,000,000
CRCF funds - Administrative	$ 265,932	2%		$ 265,932
Program Revenue - Non-appropriated Funds	$ 1,790,726	13%	$ 1,790,726	
Program Revenue - New Business	$ 2,100,000	15%	$ 2,100,000	
Other Income	$ 5,000	0%		$ 5,000
Total Revenue	**$ 13,817,658**	**100%**	**$ 3,890,726**	**$ 9,926,932**
Expenses				
Research & Development	$ 400,209	3%	$ 15,060	$ 385,149
Entrepreneur	$ 8,717,965	54%	$ 1,143,677	$ 7,574,288
Connect	$ 772,683	5%	$ 772,683	
Broadband	$ 793,127	5%		$ 793,127
Commonwealth Project	$ 2,797,243	18%		$ 2,797,243
Other Activities - New Business	$ 2,090,225	13%	$ 2,090,225	
Communications & Marketing, Advocacy & Fundraising	$ 1,200,788	8%		$ 1,200,788
Under-applied (over-applied) Indirects	$ (883,056)	-6%		$ (883,056)
Total Expenses	**$ 15,889,184**	**100%**	**$ 4,021,645**	**$ 11,867,539**
Net	**$ (2,071,526)**		**$ (130,919)**	**$ (1,940,607)**
Beginning Net Assets	$ 3,553,000			
Ending Net Assets	**$ 1,481,474**			

President and CEO's Perspective

Fiscal Year 2014 was the most successful operating year in the history of CIT, both in terms of revenue achieved as well as mission accomplishments. Fiscal Year 2015 will also be successful and it has delivered a new perspective on operating a multi-source funding model to fund CIT operations. During Fiscal Year 2015, CIT's budget from the Commonwealth was reduced by 36% due to reductions in revenues received by the Commonwealth. This reduction, which was implemented as a one-time reduction, initiated a review of standing practices for the inclusion of unsold new business in the CIT operating budget. Due to the 36% reduction in CIT's Fiscal Year 2015 appropriation, the Administration instructed CIT to include high probability unsigned new business in the proposed Fiscal Year 2016 operating budget. This adjusted procedure will enable CIT to present a break-even budget and pursue new business throughout the year to achieve growth and funding objectives.

Also, by mid-year, the current CEO will step down and be replaced by a new CEO; this transition is being navigated by the CIT Board Search Committee with support from an executive search firm and transition support from the leadership team. As the CEO of CIT, I can report that it is a privilege to serve as CEO and we are looking forward to successful candidate recruitment and transition.

Fiscal Year 2016 provides significant opportunity and mission challenges for CIT. Our entrepreneurial approach and focus ensures that we are aligned with our customer base. The entire team is energized to deliver to the goals outlined in this plan.

Plan of Work, Milestones, and Metrics - Fiscal Year 2016

Research and Development (R&D) Service Line

Goal 1: Refresh and maintain a statewide research and technology plan

Objective 1.1 – Coordinate and facilitate Virginia's research and technology strategic planning process

Program and Plan of Work

CIT is at the nexus of the Commonwealth's research and technology strategic planning process with the Research and Technology (R&T) Strategic Roadmap (Roadmap) and the Innovation and Entrepreneurship Measurement System (IEMS), discussed, respectively, in Objectives 1.1 and 1.2. Through demonstrated value, CIT will strive for the Roadmap to become the Commonwealth's de facto strategic planning tool addressing technology-related research and commercialization.

The Roadmap identifies research areas worthy of investment, economic development, and institutional focus. The process, powered by CIT, is a grass roots initiative that engages the state's technology and economic development communities. Technology executives and officials throughout the Commonwealth's ten technology council regions, including those in academia and federal labs, identify their strengths and 5-10 year technology priorities. They also identify critical assets, technologies, and skills needed to meet regional technology goals and develop approaches to close gaps. CIT facilitates the dialogue and compiles information at a statewide level in order to identify technologies and markets with strength in Virginia and significant market opportunity. The Roadmap thus helps elected and other officials identify areas worthy of economic development and institutional focus as well as investment, including those technology sectors eligible for Commonwealth Research Commercialization Fund (CRCF) investment.

The Code of Virginia requires a triennial Roadmap update, and CIT submitted the initial report on November 1, 2011 and the update on November 1, 2014. However, the technology community reexamines technology priorities on a regular basis, and the Roadmap reflects this dynamism. CIT regularly engages with technology, economic development, and other officials to understand and synthesize priorities, make them known via CIT's website and other channels, and subsequently to advance them.

R&D will work with the Virginia Department of Planning and Budget (DPB) to monitor academia's capital budget requests related to research and commercialization and will work with the Six-Year Capital Outlay Plan Advisory Committee, DPB, and the State Council of Higher Education for Virginia (SCHEV), as appropriate, regarding their alignment with the Roadmap.

CIT R&D also will work closely with colleagues, including the Senior Vice President of Commonwealth Operations and the Vice President of Government and Public Affairs, to

enhance awareness and use of the Roadmap through briefings, media coverage, and other outreach. R&D's goal is to ensure the Roadmap, in conjunction with the IEMS, is valuable for regional and state officials and technology executives and is used effectively by them. In order to facilitate this, CIT must stay current with and examine technology priorities and trends, develop Roadmap/IEMS briefings, and expand outreach to decision-makers.

Among technology priorities for Virginia and the nation is renewable energy, particularly offshore wind energy. In March 2015, Virginia was the first state in the nation to receive a federal wind energy lease, a key step in constructing two offshore research wind turbines. CIT's experience and relationships in coastal ocean observation support its effective monitoring of this emerging sector, as does is its ownership of high frequency radars along the Delmarva coast, which provide information on sea surface conditions. Although the industry has been too nascent for translational research opportunities, R&D will continue to monitor developments in offshore wind to determine translational research opportunities that advance Virginia's capabilities and drive economic development in Hampton Roads and other regions of the state. CIT R&D will support pursuit of funding opportunities in this sector along with those identified as complementary to projects performed by other services lines.

Unique Value Proposition

The statewide Roadmap allows the Commonwealth to align investments in research and technology with strategic industry opportunities. The Roadmap provides elected and other officials with information on sectors that have commercial promise and will drive economic growth in the Commonwealth. A result of its 30+ years advancing technology and technology companies, CIT has unique knowledge of Virginia's technology strengths and drivers of innovation, along with unique experience developing strategic plans and technology roadmaps and identifying technologies with market opportunities. Additionally, CIT has the relationships with academia, government and other nonprofits, and the private sector required to develop, implement, and advocate for the Roadmap.

2016 Program Impact

This objective focuses on updating Roadmap profiles of academia, technology regions, and research institutes on CIT's website throughout Fiscal Year 2016, monitoring trends, increasing knowledge about and use of the Roadmap, and identifying those technology sectors eligible for CRCF awards in Fiscal Year 2016. Program impact is determined by Commonwealth investments and policies in research and technology in academia, and the nonprofit and private sectors.

Future Program Impact

Future impact will be based on investments and decisions that elected and other officials make as a result of information garnered through the Roadmap. The Roadmap will permit Commonwealth officials to make more informed investment decisions based on these

reviews of research and development initiatives, regulatory and other policies, and economic development initiatives and outcomes.

Milestones

The following milestones are specific to this objective and will be used to manage the objective's deliverables and metrics.

Activity	Date	Person Responsible
Define schedule and approach for refresh	July 2015	VP Research Investment
Develop public relations campaign ™	October 2015	VP, Government and Public Affairs
Refresh R&T Strategic Roadmap on CIT.org	November 1, 2015 and ongoing	VP, Research Investment
Advise Virginia elected officials on the statewide R&T Strategic Plan	November 2015 and ongoing	VP, Government and Public Affairs

Management Reporting Tools

- R&T Strategic Roadmap updates on CIT.org

Objective 1.2 – Maintain the Innovation and Entrepreneurship Measurement System

Program and Plan of Work

The Innovation and Entrepreneurship Measurement System (IEMS) provides CIT, other Commonwealth leadership, and the public with a clear view of Virginia's performance and trends in innovation and entrepreneurship. Established by the 2013 General Assembly as a complement to the Roadmap, the IEMS also is a policy tool that helps CIT and the Commonwealth determine activities worthy of economic development or institutional focus. While the Roadmap assesses technology priorities, the IEMS examines evidence related to the innovation and entrepreneurship ecosystem. The availability of innovation and entrepreneurship metrics at the state, regional, and national levels allow CIT and others to better assess local and statewide ecosystems and determine needed programs and policies. CIT will strive for the IEMS to become the Commonwealth's de facto strategic planning tool addressing technology-related innovation and entrepreneurship.

IEMS performance measures are presented online in dashboard format and examine trends in such categories as R&D, university commercialization, and the talent pipeline. Measures, such as university licensing, SBIR and STTR awards, and private sector investment, are typically a blend of indicators, both internal and external to CIT, which "roll up" into these innovation and entrepreneurship-related categories. Also known as Virginia's Innovation Dashboard, the IEMS was launched in Fiscal Year 2014 and updated in Fiscal Year 2015.

CIT's Fiscal Year 2016 IEMS update will include a review of performance measures and trends. R&D will assess trends by evaluating Virginia's five-year performance data, regional activity, and by benchmarking Virginia's performance against those of other leading technology states. CIT will continue to work with the Council on Virginia's Future and will explore whether our already closely coordinated projects, the IEMS and the Council's *Innovation & Entrepreneurship Report Card,* should become a single initiative. CIT R&D and CIT's Senior Vice President of Commonwealth Operations will work together on this.

Additionally, R&D will work with the Senior Vice President of Commonwealth Operations and Vice President of Government and Public Affairs to increase familiarity by policymakers and other technology community leaders of the IEMS and its relation to the Roadmap. The goal is for these officials to look to the IEMS consistently as a key source of information about the innovation and entrepreneurship ecosystem and as a foundation for developing strategies and programs.

CIT R&D will work with Marketing and Communications to enhance IEMS' visibility on CIT.org and via social media. R&D also will perform outreach through speaking engagements and other outreach.

Unique Value Proposition

The IEMS will help CIT identify and track trends in the Commonwealth's innovation ecosystem and determine when and what policy and/or other initiatives are required to ensure a strong ecosystem. CIT's capabilities span such essential areas as knowledge of Virginia's innovation economy and measures of innovation, practical experience with startup companies and the investment community, and strong relationships in government and industry. These provide CIT with a unique ability to formulate policy and programs that drive and strengthen the innovation ecosystem.

2016 Program Impact

This objective focuses on analyzing and updating metrics and publishing a dashboard refresh in Fiscal Year 2016. Program impact is determined by development and implementation, as needed, of state and regional policies and programs that reflect trends uncovered by the IEMS.

Future Program Impact

Future impact will be based on policies and other decisions that elected and other officials make as a result of information garnered through the IEMS, as well as economic outcomes. It is expected that CIT and other state leaders will develop and recommend policies and programs as a result of what is learned through IEMS performance measures and trends.

Milestones

The following milestones are specific to this objective and will be used to manage the objective's deliverables and metrics.

Activity	Date	Person Responsible
Publish dashboard on CIT.org	June 2015	VP, Government and Public Affairs
Evaluate metrics, approach, and schedule for IEMS	September 2015	VP, Research Investment
Develop public relations campaign	November 2015 and May 2016	VP, Government and Public Affairs
Advise Virginia elected officials on the IEMS	December 2015	VP, Government and Public Affairs

Management Reporting Tools

- IEMS refresh on CIT.org

Objective 1.3 – Manage the Commonwealth Research Commercialization Fund (CRCF)

Program and Plan of Work

The Commonwealth Research Commercialization Fund (CRCF, Fund) advances science- and technology-based research, development, and commercialization to drive economic growth in Virginia. Legislation also stipulates that CRCF awards further the goals of the Commonwealth Research and Technology (R&T) Strategic Roadmap. The final funding from the 2015 General Assembly for the Fund in Fiscal Year 2016 is projected to be $1.8 million.

CIT administers the CRCF per legislative mandate. CIT's Fiscal Year 2016 responsibilities include developing program guidelines in consultation with the Secretary of Technology, issuing solicitation(s), managing the application review and award announcement processes, preparing award agreements, authorizing disbursements, and reviewing and reporting on award recipients' progress during and for up to five years after the projects. CIT also regularly reviews and may fine-tune the process. CIT will continue to support the Research and Technology Investment Advisory Committee (RTIAC). The RTIAC's primary responsibility is to recommend to the CIT Board those proposals it believes are most suited for award. In Fiscal Year 2016, four of the five RTIAC's private citizen positions will be subject to new appointments or reappointments made by the House of Delegates, Senate, or Governor; two academic appointments are also likely. CIT will assist as appropriate to complete the appointment process.

CIT will develop plans for a Fiscal Year 2016 solicitation(s), including the number of rounds and eligibility criteria. R&D's initial concept is to issue a single solicitation, with the

preview and Request for Proposals issued in Quarter 1, and awards announced in Quarter 3. Programs will be recommended for Fiscal Year 2016 based on opportunities to advance technology commercialization and economic growth and will reflect legislation, Commonwealth priorities, funding availability, recent demand, and complementary programs within and outside of CIT.

Fiscal Year 2016 activities include managing prior-year awards whose performance continues into Fiscal Year 2016, and monitoring commercialization progress and successes for those award recipients whose period of performance concluded prior to July 1, 2015. For awardees with disbursements planned in FY2016, CIT will evaluate performance against proposed goals and metrics, as well as adherence to award terms and conditions. Based on that performance, CIT will arrange for distribution of funds and/or will coordinate with the award recipient regarding performance requirements.

As required by the Code of Virginia, CIT will file an annual report on CRCF awards with the Governor and the General Assembly. CIT also will perform public communications and outreach and will coordinate with the Administration, the General Assembly, and the technology community. CIT's multi-faceted outreach includes webinars and dedicated university engagement, as well as working with regional technology councils and such industry groups as the Virginia Biotechnology Association (VABIO).

R&D will work with the Senior Vice President of Commonwealth Operations and Vice President of Government and Public Affairs to pursue transitioning CRCF to CIT's budget from that of the Virginia Secretary of Commerce & Trade. R&D will support other legislative and budget amendments that would enhance the CRCF's efficiency and effectiveness.

Unique Value Proposition

The CRCF provides an invaluable source of funds to propel commercialization in technology sectors of strategic importance to Virginia. Academia, the private sector, and nonprofit research institutes advance these technologies to drive economic development. In administering the Fund, CIT brings a unique ability to support applicants throughout the continuum from research to company creation and expansion, and unique experience and skills from managing the CTRF, the GAP Funds, and the Federal Funding Assistance Program (FFAP) and managing and performing on contracts and grants. CIT's extensive relationships in academia, government, and the private sector maximize program outreach and effectiveness.

2016 Program Impact

Award recipients will report contributions to the state's R&D through federal or private matching funds, intellectual property creation and licensing, products launched, sales revenue, jobs created, and other commercialization outcomes. CIT will compile and summarize these contributions and alignments with goals of the Roadmap in the annual report to the Governor and the General Assembly.

Future Program Impact

Future impact will be based on investments and other decisions that elected and other officials make as a result of results achieved through CRCF investments. It is expected that targeted investments will lead to substantial economic development outcomes from new technologies and services, including sales and licensing revenue, company creation and attraction, and job creation.

Milestones

The following milestones are specific to this objective and will be used to manage the objective's deliverables.

Activity	Date	Person Responsible
Review and assess projects' performance	June 2015 and ongoing	VP, Research Investment
Determine solicitation schedule and approach	July 2015	VP, Research Investment
Manage solicitation process	August 2015 – June 2016	VP, Research Investment
Submit annual report on CRCF operations and awards to the Governor and General Assembly	October 2015	VP, Research Investment
Issue CRCF solicitation	September 2016	VP, Research Investment

Management Reporting Tools

- Annual report for the Governor and General Assembly
- Interim, final, and commercialization reports from grant recipients
- Budget covering administration and review process
- Updates to CIT Board

Entrepreneur Service Line

Goal 2: Secure global leadership in the development of entrepreneurial technology ventures

Objective 2.1 – Identify and accelerate opportunities for small technology firms to obtain federal R&D awards

Program and Plan of Work

Virginia maintained a third place ranking in the number and total funding of Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) awards

behind California and Massachusetts in 2013, the latest year in which complete data is available. Virginia firms received 229 Phase I awards and 108 Phase II awards, for a total award amount of $115.4 million. These totals reflect an increase from prior year levels of almost $15 million.

To ensure the development of Virginia's next generation of technology companies, Virginia must increase both the number and dollar amount of SBIR and STTR awards. In addition, Virginia needs to increase the number of research awards companies receive from other federal funding programs, such as those presented by the Department of Energy (DOE), Department of Defense (DOD), National Institute of Standards and Technology (NIST), National Science Foundation (NSF), and the National Institutes of Health (NIH). Through CIT, the Commonwealth provides assistance to companies developing proposals to commercialize their technologies supported by SBIR/STTR funding.

CIT continues its statewide leadership in federal funding assistance for businesses through its Federal Funding Assistance Program (FFAP), which helps Virginia's technology companies obtain SBIR/STTR funding. Key program initiatives will continue for Fiscal Year 2016: delivery of specialized federal funding workshops throughout the Commonwealth; proposal development support; mentoring/commercialization assistance to awardees; and outreach to the federal R&D funding program management community, major and mid-tier prime contractors, universities, and applicable supporting professional resources.

In Fiscal Year 2016, the FFAP will continue to promote its services to a broad group of state university R&D, technology transfer, and patent office staffs, as well as the staffs of Small Business Development Centers (SBDC), Procurement Technical Assistance Centers (PTAC), the Virginia Economic Development Partnership (VEDP), VABIO, and local economic developers. The FFAP will continue to examine federal funding sources to enhance program development.

Unique Value Proposition

CIT's FFAP brings non-dilutive financing to enhance the value of Virginia's early-stage technology companies and promotes a more robust and innovative R&D base within the Commonwealth. CIT's unique position in both monitoring statewide research initiatives and managing a seed-stage venture capital fund targeting Virginia startups provides the CIT FFAP with a singular ability to reach entrepreneurs in the Commonwealth best able to access and exploit federal R&D funding.

2016 Program Impact

The Fiscal Year 2015 plan for the FFAP will focus CIT's efforts on increasing the amount of SBIR/STTR funding to Virginia businesses by conducting online and offline training, as well as mentoring and proposal development support for 200 Virginia companies.

Future Program Impact

CIT's FFAP helps Virginia's emerging high-technology companies attract R&D dollars from federal executive agencies. Through this program, CIT helps companies build significant value in their enterprises without the dilutive effects of private equity infusion.

Milestones

The following milestones are specific to this objective and will be used to manage the objective's deliverables and metrics.

Activity	Date	Person Responsible
Market and conduct two SBIR/STTR training modules related to SBIR/STTR proposal preparation.	September 30, 2015	Director, Federal Funding
Market and deliver two SBIR/STTR training modules related to SBIR/STTR proposal preparation.	December 31, 2015	Director, Federal Funding
Market and deliver two SBIR/STTR training modules related to SBIR/STTR proposal preparation.	March 31, 2016	Director, Federal Funding
Provide mentoring and training support for 200 Virginia businesses developing proposals or conducting/commercializing research supported by SBIR/STTR awards.	June 30, 2016	Director, Federal Funding
Market and deliver two SBIR/STTR training modules related to SBIR/STTR proposal preparation.	June 30, 2016	Director, Federal Funding

Management Reporting Tools

- Weekly federal funding activity reports
- Quarterly FFAP pipeline report
- Quarterly scorecard

Objective 2.2 – Accelerate funding for early-stage technology firms

Program and Plan of Work

Each year, CIT benchmarks both aggregate venture capital deployment and seed capital investment in Virginia, compared to other states of similar size and economic composition. In doing so, CIT compares 60-month trailing venture investments in Virginia (2013 GSP: $453 billion), Maryland (2013 GSP: $342 billion), and Massachusetts (2013 GSP: $446 billion). Over the past five years (2010–2014), Virginia companies have attracted $2.3 billion in venture capital, tracking closely with neighboring Maryland, which has attracted

$2.3 billion. Virginia, however, suffers significantly in comparison to Massachusetts, which attracted $16.7 billion in venture capital during this same period. The difference becomes more acute with a comparison of the number of first sequence investments in these states during the same five-year period; during this time frame, investors placed 132 seed-stage investments in Virginia, compared to 493 in Massachusetts and 166 in Maryland.

	2013 GSP	Venture Funding	First Sequence Investments
Maryland	$342.4 billion	$2.3 billion	166
Massachusetts	$446.3billion	$16.7 billion	493
Virginia	$452.6billion	$2.3 billion	132

In order to be a leader in the development of the next generation of technology companies, Virginia must, at a minimum, perform on par with Maryland. Optimally, Virginia should use Massachusetts as a model in the deployment of seed-stage capital investment.

CIT launched the CIT GAP Funds in 2004 to provide critical seed-stage funding to the Commonwealth's high-potential, early-stage technology companies. Since that time, CIT GAP Funds has served as the centerpiece of CIT's "feeder" system to identify and groom technology companies for target investment by the regional and national angel and venture capital communities. Today, CIT invests from five discrete funds – GAP Tech, GAP BioLife, CIT's Innovation Fund, the Commonwealth Energy Fund, and the MACH37™ Seed Fund – to finance new companies in the Commonwealth. From the GAP Funds' launch through Quarter 2 of Fiscal Year 2015, CIT has drawn upon this system to leverage private money against Commonwealth funds at a rate of 16:1.

From an historical perspective, CIT has averaged leverage of private to GAP funding into portfolio companies at a rate of 3:1 at the time of seed investment close. Based on past portfolio performance, CIT anticipates growth of this leverage factor within a 24-48 month time period following seed-round close as additional private investment is made in the portfolio company through subsequent angel financings and institutionally-led venture rounds.

In Fiscal Year 2015, CIT GAP Funds continued to invest at an aggressive pace from its $3.1 million Commonwealth allocation. In 2015, CIT continued to invest in portfolio companies of the MACH37™ Cyber Accelerator, providing initial investments of $50,000 into MACH37™ cohort companies and providing, following MACH37™ graduation, follow-on $100,000 investments through a follow-on funding pool. To support these investments, CIT drew down funds from its FY14 allocation of $2 million from the U.S. Treasury Department's State Small Business Credit Initiative (SSBCI) obtained in partnership with the Virginia Small Business Financing Authority (VSBFA). Also in Fiscal Year 2015, CIT continued to consider energy investments through residual funds left over from the $2.6 million contract acquired from Virginia's Department of Mines, Minerals, and Energy (DMME) in 2011.

In 2015, CIT also continued to explore initiatives to increase assets under management from outside of the Virginia appropriation process. CIT initiated and maintains active discussions with investors with potential interest in investing in "side-car" funds backed by private investors and managed by CIT, which would channel private co-investment into CIT GAP Funds investments made in regional or alumni affinity groups. CIT has also examined the possibility of raising a privately-backed fund to invest in cyber security companies. CIT has also been instrumental in the formation of two angel networks within the Commonwealth - the Charlottesville Angel Network and the Virginia Tech Investor Network. Both of these networks bring substantial additional capacity to invest in CIT GAP Funds portfolio companies.

For Fiscal Year 2016, CIT projects receiving $3.1 million in funding from the Virginia General Assembly and drawing down the remainder out of its $2 million SSBCI-backed fund to invest in Virginia's high-potential science and technology companies. In doing so, CIT will support the investment requirements of both CIT GAP Funds and MACH37™. To further third-party private sector investment in Virginia's cyber security companies, CIT will leverage $1 million of GAP Funds to stimulate the formation of a new, $10 million CIT-managed cyber security fund by committing to invest $1 million in conjunction with the additional $9 million of private funds. This will create an immediate and automatic leveraging at a 10:1 private-to-public funding ratio for those investments targeted by that fund.

To ensure continued availability of capital for its portfolio companies, CIT GAP Funds will continue its outreach activities of the past several years to key regional and national venture and angel investment markets such as Boston, New York, Silicon Valley, and Philadelphia to aggressively expand its base of seed-stage syndication partners and downstream investment sources for portfolio companies. CIT will contribute to the ability of Virginia's companies to raise $10 million from placement by institutional and angel funds.

In 2016, CIT GAP Funds will continue to support other service line initiatives and the broader CIT mission. CIT GAP Funds Managing Partner will maintain a continued role as partner and Chief Investment Officer for MACH37™ and selected investment team members will continue to support the CRCF Program's application evaluation process. Additionally, CIT GAP Funds will continue to undertake additional business development and advocacy initiatives in coordination with CIT's Senior Vice President of Commonwealth Operations in an effort to sustain and grow its Virginia appropriation and to acquire new business consistent with CIT's mission, goals, and objectives. Principal among these initiatives will be CIT's continued exploration of the formation of privately financed investment funds managed by CIT GAP Funds and CIT GAP Funds community outreach program to ensure that key entrepreneurial constituencies in Richmond, Charlottesville, Hampton Roads, Roanoke-Blacksburg, and Southside Virginia benefit from CIT's role as knowledge leader on subject matter relative to entrepreneurship and early-stage investment.

Unique Value Proposition

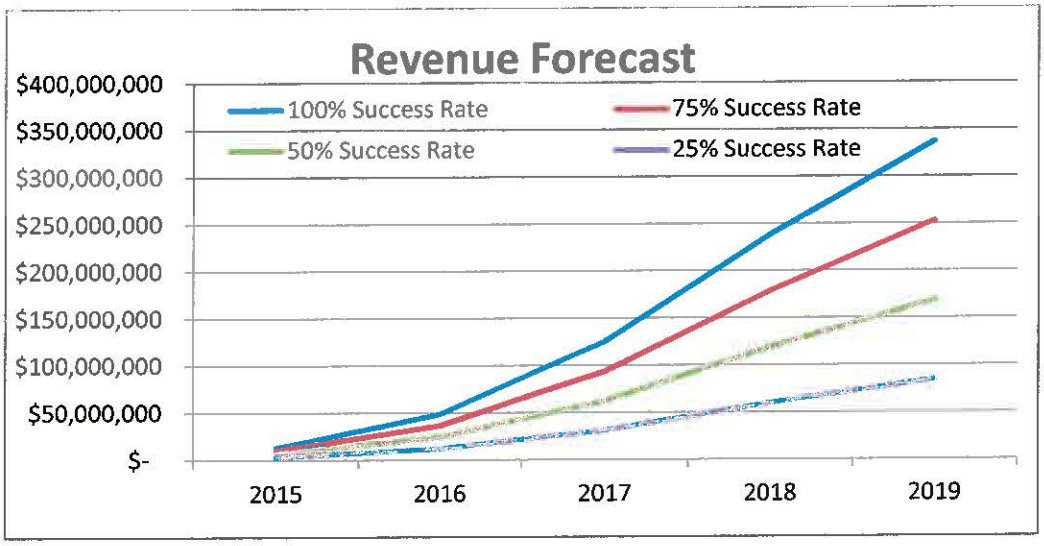
As a double-bottom-line fund designed to resolve Virginia's current shortage of seed-stage capital, CIT GAP Funds offer superior economic returns for entrepreneurs and co-investors, while providing significant economic development contribution to the Commonwealth. As a proven fund manager with superior regional and sector-specific deal flow, CIT is uniquely positioned to augment Commonwealth funding by bringing together privately-sourced capital through the formation of both angel investment networks and blind-pool investment vehicles.

2016 Program Impact

The Entrepreneur service line facilitates the creation of new high-impact technology companies in Virginia. By providing programs and funding that stimulate private-sector investment, these public-private partnerships jumpstart the next generation of the Commonwealth's economy. For Fiscal Year 2016, CIT will stimulate $11 million of private-sector investment in new technology companies.

Future Program Impact

The companies that receive capital generation assistance from CIT are positioned for accelerated company growth 24 to 36 months after CIT's initial investment. This growth, recorded as company revenue, contributes to Virginia's gross state product (GSP) and the economy of Virginia through new job creation. Since new company formation is a high-risk activity, the aggregated value of the future contribution of CIT client companies is factored at 75%, 50%, and 25% success rates. The projected value of company revenue growth is profiled in the following graphs and includes thirteen new GAP Technology and GAP BioLife and two GAP Innovation investments in Fiscal Year 2016.



Milestones

The following milestones are specific to this objective and will be used to manage the objective's deliverables and metrics.

Activity	Date	Person Responsible
Deliver quarterly updates of the GAP Funds Portfolio Newsletter	July 2015 – June 2016	Director(s), Investments
Identify 25 new companies per quarter for investment consideration through the CIT GAP Technology, GAP BioLife, Commonwealth Energy Fund, and Innovation Investment Fund	September 2015 and quarterly	Director(s), Investments
Present three energy and cleantech companies to the Commonwealth Energy Fund and GAP CleanTech investment committees to yield one investment	March 2016	Managing Director
Present 25 life science, cleantech, cyber security, or technology companies to CIT GAP Funds investment committees to yield a total of 15 investments	June 2016	Managing Director

Management Reporting Tools

- Quarterly pipeline analysis reports
- Quarterly GAP portfolio update
- Quarterly reports of leveraged cash
- Quarterly reports of actual and projected GSP contribution

Connect Service Line

Goal 3: Secure global leadership in the identification and assimilation of innovative technologies

Executive Summary

At the conclusion of Fiscal Year 2015, the Connect service line will enter the new fiscal year with the following:

- A track record of successful performance of over $10 million in consulting engagements for a wide range of clients
- A track record of having secured over $40 million in Federal Funding for Virginia agencies and enterprises
- A backlog of approximately $2 million for work to be executed in Fiscal Year 16
- A sales pipeline in excess of $12 million

- A Federal Funding opportunity for the Virginia Department of Education (VDOE) in excess of $7 million
- Four strategic client relationships – "growth platforms" – which, if properly managed and served, can continue to grow and generate positive returns for CIT and the Commonwealth of Virginia
- Seven strategic technology assimilation campaigns which, if successful, will generate new businesses and new opportunities for CIT and the Commonwealth of Virginia
- A strategic and long term partnership with the Virginia Longitudinal Data System (VLDS) which has:
    - Developed a unique and innovative technology solution for the unique requirements of Virginia's P-20 stakeholders
    - Developed and launched a unique solution for measuring the effectiveness of, and developing policies to improve, Virginia's workforce, education and social spending investment programs
    - Developed a unique multi-agency, multi-stakeholder governance process which can serve as a template for future inter-agency cooperation and collaboration

Objective 3.1 – Accelerate the assimilation of new technology by large-scale public and private-sector technology consumers

Program and Plan of Work

Reductions in expenditures for government and private-sector research create an opportunity for early-stage science and technology companies to fill the innovation gap by delivering solutions that meet the mission objectives of large-scale technology consumers. These larger consumers that identify and assimilate early-stage technologies gain a competitive advantage because they can tailor emerging technology solutions to their requirements.

Connect provides a consulting service for large-scale technology consumers that offers:

- Requirements definition for client innovation objectives
- Identification of technology solutions that map to objectives
- Analysis, vetting, and presentation of relevant technology solutions
- Technology assimilation planning and support services
- Identification of potential strategic partners for clients
- Development of innovation roadmaps for clients
- Education and awareness of the potential impact of emerging technology for clients

For large technology consumers, the Connect service line provides identification of and access to innovation matching their requirements in markets they find difficult or inefficient to explore. Smaller innovative technology companies are attracted to Connect's outreach program because it gives them a new channel for market development in an untapped client base.

Virginia benefits from the Connect service line in the following ways:

- Connect has secured over $40 million in Federal funding for Virginia agencies and enterprises.
- Connect has generated in excess of $10 million in direct revenue for CIT
- Connect played a key role in the development and launch of the VLDS – a unique software tool which helps researchers, policymakers and key Government decision makers leverage secure education and workforce data sets to drive improvements in education practice and policy and to improve outcomes for Virginia's students
- Connect attracts new companies and high-technology jobs to the Commonwealth

In Fiscal Year 2016, Connect will continue to identify opportunities to resolve technology assimilation challenges and build on the client relationships developed in Fiscal Year 2015, aggressively execute business and proposal development efforts, and continue to build and refine the consulting service model, including an increased focus on the four current growth platforms and seven sales campaigns.

Connect has a proven technology assimilation process and market potential for its service and has achieved tremendous growth in Fiscal Year 2015. The biggest challenge for Fiscal Year 2016 will be to maintain that momentum and continue that growth without any concomitant growth in supporting resources.

Unique Value Proposition

Connect helps its clients solve mission-specific problems and challenges with technology solutions that deliver improvements in their operating objectives. CIT is uniquely positioned to help public and private organizations as a neutral party focused on improving the understanding and implementation of technology.

The Connect team has identified the following priorities for Fiscal Year 2016:

1. **VLDS / VDOE / DNA** – VLDS and Data Needs Analysis (DNA) work with VDOE and other agencies

   This work has kept the Commonwealth of Virginia at the forefront of the State Longitudinal Data System (SLDS) initiative with Virginia recognized as one of the national leaders:
   - Virginia is one of only a few states that has a fully functional, fully integrated, multi-agency SLDS solution which is driving improvements in education and workforce policy and practice
   - VDOE, through Connect's DNA program, has transformed its relationship with the 132 local education divisions in Virginia and has a clear understanding of their technology and data related professional development and operational needs

- With Connect's support Virginia has developed the nation's first Instructional Improvement Architecture (IIA) which puts new information and data tools in the hands of principals, teachers and administrators in order to drive dramatic improvements in outcomes for Virginia's K-12 school children

2. **IEP** – Individual Education Plan (IEP) work for VDOE

Across the nation many states have struggled in their approach to Individual Education Plans, which are toolkits to ensure that special needs students have full access to all the accommodations they need to be successful. Typically states allow each local division / district to develop their own approach – which leads to sub-optimization, duplication and increased cost – or they impose a state standard from above, which does not meet the needs of all of their local education authorities (LEAs). Since late 2013 Connect has been working with VDOE's Deputy Superintendent for Special Education to develop best practices, benchmark other jurisdictions and to develop an optimal approach for Virginia and all of its 132 school divisions.

3. **DHS** – First Responders / Accelerator work for Department of Homeland Security (DHS)

Under the leadership of the CIT CTO/CIO the Connect team has been working with the US Department of Homeland Security to understand how DHS can attract early stage / emerging technology companies to develop solutions unique to the requirements of first responders. This program has the potential to be a new blueprint for how DHS does business with emerging technology companies and technology accelerators and is supported by the Virginia Secretary of Public Safety and Homeland Security and is positioning Virginia as a leader in supporting technology assimilation for first responders.

4. **N-PWR** – SLDS and other work for the Nevada Department of Education (NDE) and the State of Nevada (Nevada)

In April of 2014 the State of Nevada contracted with Connect to develop an SLDS solution for Nevada based on the Virginia SLDS platform. This has brought the following direct benefits to the Commonwealth of Virginia:

- Recognition that VDOE, VCCS and SCHEV are the national leaders in terms of partnership, cooperation, and the development and implementation of shared, secure data systems to improve decision making, education practice, and policy
- Additional funding for VDOE in the form of a license fee from Nevada
- Provision of support resources for VLDS at reduced cost and increased availability
- Access to upgrades and enhancements from Nevada at reduced cost
- Development of a unique inter-state partnership which is recognized a model of success and which other states are now trying to emulate

Aggressively pursue each of the seven technology assimilation market opportunities – this is a focused and strategic attempt to leverage a core Connect capability into a new client or new market. These Technology Assimilation Campaigns will drive direct benefits for the Commonwealth of Virginia by ensuring recognition of Virginia's leadership, leveraging Virginia assets across other States, and driving increased revenue and cost reduction for the Commonwealth of Virginia. Connect's Technology Assimilation Campaigns are as follows:

SLDS-as-a-Service: Convert Connect's SLDS capability to a Software-as-a-Service platform and actively sell it to other states.

If Connect is successful in leveraging the SLDS capability into other states this will continue to drive Virginia's reputation as a national leader in the SLDS arena and ensure that Virginia always has access to the best capability, the best resources, and the best functionality at the lowest possible cost.

IEP: Actively sell Connect's IEP capability, insight and market understanding to other states.

As the current IEP program continues, Virginia's reputation as a leader in the support of Special Education will be consolidated and Virginia will develop a unique and innovative partnership between the Department of Education and the 132 local education authorities (divisions) in Virginia. This knowledge and expertise will be highly sought after by other States and this will ensure that Virginia continues to be at the forefront of IEP capability.

DNA & IIA: Actively sell Connect's DNA and IIA capability to other states and also develop a professional development Center of Excellence for the use of Education Data.

The Instructional Improvement Architecture (IIA) which Virginia is currently developing with Connect's support is unique in the nation, and will put new forms of information and data in the hands of teachers to drive day-to-day improvements for Virginia's K-12 students. The lessons learned and architectures in this program are at the heart of VDOE's $7 million grant application to the Federal Government for Fiscal Year 2016 SLDS grant funding. In addition Connect will work with VDOE to develop the nation's first teacher professional development Center of Excellence for the use of Education Data. This Center will ensure that all Virginia's K-12 teachers have access to the best professional development resources in terms of the use and application of education data.

Develop Working Partnerships with Other Virginia Agencies:

Connect has previously worked closely with VDOE, SCHEV, VCCS, VDH. There are many other VA agencies Connect could work closely with to provide a range of potential services

- Stakeholder Management
- Big Data
- Program Management
- Data Exchange
- Data Analytics & Decision-making
- Data Governance
- Technical Architecture
- Innovation Strategies
- New Technology Assessment
- CRM enabled business process development
- Social Media Exploitation
- Mobile Learning
- New Technology Assimilation

Within Virginia, VLDS has become a template for the successful cooperation and collaboration across multiple state agencies. CIT Connect was a key facilitator of that cooperation in the development of the VLDS Data Governance program. Connect has an opportunity to exploit those capabilities and experience and to support the needs to other Virginia state agencies in the use and assimilation of emerging technology capabilities. Connect has had a number of successes with various Virginia agencies over the years and is keen to continue to work with additional state agencies. The characteristics of successful Connect programs across multiple state agency clients are as follows:

- Where multiple stakeholders are engaged in complex issues and decision making and agreement is difficult to facilitate
- Where there is potential for the use or implementation of a new, innovative, or emerging technology solution where there is no clear blueprint, methodology or implementation plan
- Where there is a clear goal or deadline

Where these characteristics exist within specific Virginia agencies, Connect is well poised to help them succeed.

CTTSO / TSWG (Combating Terrorism Technical Support Organization, Technical Support Working Group)

Connect has performed over $2 million in work for this DOD agency which is a natural customer for Connect's innovation and new technology assimilation related services In Fiscal Year 2016 there are opportunities in social media, cyber and mobile learning which Connect will respond to. TSWG is a little known DOD research agency with which Connect has an established track record. This partnership drives tremendous advantages for small, innovative technology companies in Virginia as Connect positions these companies for success with federal programs

Innovation Discovery: Connect will continue to monitor federal, state and DOD agencies for potential opportunities related to innovation discovery, management and assimilation.

Connect will continue to seek opportunities with the federal government to leverage emerging technology capability to support government requirements. This will drive success for Virginia based technology start-ups – particularly potentially those funded by CIT GAP Funds.

Health IT: Connect will continue to try to leverage its health IT capabilities, relationships and clients to develop and execute more opportunities in the health IT space.

Connect has a strong track record in the health IT space which has helped develop and improve many of Virginia's health IT capabilities:

- Connect supported the development of the technical architecture for the Virginia Health Information Exchange.
- Connect supported the development of the Virginia Health IT Regional Extension Center ensuring electronic medical records were implemented with over 2,500 physicians and that they achieved meaningful use.
- Connect is currently working with VDH using new approaches to data use and information sharing to better manage chronic diseases.

Connect will continue to support the Commonwealth of Virginia's requirements in the development and identification of innovative uses of technology to improve health outcomes for its citizens.

2016 Program Impact

For Fiscal Year 2016, the Connect service line is challenged with delivering on the existing services backlog and in converting $2.2 million of new assimilation consulting services.

Future Program Impact

As a by-product of delivering solutions to large-scale technology consumers, the Connect program accelerates the growth of early-stage technology companies by introducing their innovative technology to markets they have not explored. For early-stage companies residing in the Commonwealth, increased sales will contribute to Virginia's gross state product (GSP) and create new jobs. For companies outside the Commonwealth, new sales with large clients, like the federal government, will give them an opportunity to expand into Virginia, creating new job opportunities for Virginians.

Milestones

The following milestones are specific to this objective and will be used to manage the objective's deliverables and metrics.

Activity	Date	Person Responsible
Assess FY15 achievements, backlog for FY16 and FY16 sales pipeline to determine reasonableness of this plan	June 5, 2015	VP Connect and CEO
Q1 Status Update – Quarterly report due on sales, revenue, chargeability and sales pipeline	October 1, 2015	VP Connect and CEO
Q2 Status Update – Quarterly report due on sales, revenue, chargeability and sales pipeline	January 3, 2016	VP Connect and CEO
Q3 Status Update – Quarterly report due on sales, revenue, chargeability and sales pipeline	April 1, 2016	VP Connect and CEO

Management Reporting Tools

- Monthly sales, revenue and chargeability reports
- Monthly sales pipeline reports
- Quarterly management reports

Broadband Service Line

Goal 4: Expand the use and application of broadband technologies in rural and underserved areas

Objective 4.1 – Serve as the Commonwealth's Office of Telework Promotion and Broadband Assistance (OTPBA)

Program and Plan of Work

Access to affordable broadband services remains critical to the worldwide economic future, as nations, states, and communities are measured by the amount and cost of broadband services that are available. On March 16, 2010 the Federal Communications Commission (FCC) unveiled the nation's first "National Broadband Plan" that provides a foundation upon which the case for applications advances in seven key sectors: economic opportunity, education, healthcare, energy/environment, government performance, civic engagement, and public safety can be made.

It is undeniable that access to affordable, high-quality broadband services is viewed as a "requisite" for economic growth and enhanced quality of life. Communities that lack affordable broadband access are unable to participate in the rapidly-advancing social, educational, commercial, medical, and economic development applications and opportunities made available through the Internet. Besides empowering businesses and communities, ubiquitous broadband positions the Commonwealth to lead the nation in

technology company formation and the deployment of high-technology services and applications.

Furthermore, access to affordable, reliable broadband services is a key success factor for the adoption of telework – a family-friendly, business-friendly work structure that promotes workplace efficiency, reduces strain on the environment and transportation infrastructure, and provides employment opportunities outside of a traditional workplace. Businesses, as well as federal, state, and local governments, continue to leverage telework as a means of attracting and retaining employees.

This current emphasis on the availability of high-quality broadband services has led both federal and state leaders to examine broadband availability, affordability, and adoption rates and move from being reactive to proactive in their strategic planning and policy activities.

Acknowledging the importance of broadband and telework to Virginia's economy, the Commonwealth continues to maintain the Office of Telework Promotion and Broadband Assistance (OTPBA), created in 2006. The OTPBA consists of a program manager appointed by the Secretary of Technology and additional professionals as the Secretary determines. Since its inception, the Program Manager has been, and continues to be, provided by CIT.

The Program Manager of the OTPBA has the following duties:

- Promote and encourage use of telework alternatives for public and private-sector employees
- Support the efforts of both public and private entities to facilitate access to competitively priced broadband services, infrastructure, and applications
- Specifically work toward identifying and filling service gaps in underserved areas of the Commonwealth
- Advocate for services such as telework, telemedicine, smart grid, and first responder interoperability
- Serve as a broadband information and applications clearinghouse for the Commonwealth
- Advise the Secretary of Technology on broadband adoption, deployment, and application issues

Unique Value Proposition

CIT delivers strategic guidance, broadband demand generation, service availability, and asset mapping services for the Commonwealth of Virginia. CIT is uniquely qualified to deliver these services due to its extensive experience with Commonwealth broadband deployment projects, federal broadband programs, and technological domain expertise.

2016 Program Impact

Performance metrics for the Secretary of Technology's OTPBA are tied primarily to the goals stated in the Code of Virginia:

- Determine "next generation" telework goals for the Commonwealth's eligible workforce
- Staff the Broadband Advisory Council and work closely with the council to ensure Virginia legislation and programs facilitate broadband deployments
- Maintain online broadband resources and serve as a coalescing point for teaming opportunities and Commonwealth-wide applications related to broadband funding

Future Program Impact

Delivering access to high-quality, affordable broadband services provides Virginia's citizens and businesses with enhanced social, educational, commercial, medical, public safety, and economic development opportunities. Besides empowering businesses and communities, ubiquitous broadband positions the Commonwealth to lead the nation in technology company development, and the deployment of high-technology services and applications.

Milestones

The following milestones are specific to this objective and will be used to manage the objective's deliverables and metrics.

Activity	Date	Person Responsible
Compile broadband and telework annual report to the Governor and General Assembly as required	November 2015	Program Manager, OTPBA
Develop and monitor broadband- and telework-related legislation for the FY16 General Assembly session	January 2016	Program Manager, OTPBA
Monitor federal broadband funding and revenue opportunities	June 2016	Program Manager, OTPBA
Create an environment that facilitates collaboration between broadband technology researchers, service providers, and consumers	June 2016	Program Manager, OTPBA
Support ongoing activities of the Commonwealth's Broadband Advisory Council	June 2016	Program Manager, OTPBA

Management Reporting Tools

CIT, in conjunction with the Office of the Secretary of Technology, will use several reporting tools to track its performance against these milestones:

- Broadband and telework annual reports (as required by legislation)
- Meeting minutes and reports
- Presentations and briefings as requested

Objective 4.2 – Provide demand-generation and infrastructure-development services that advance the presence of broadband in Virginia

Program and Plan of Work

In addition to its work for the Office of Telework Promotion and Broadband Assistance (OTPBA), CIT is charged by the General Assembly to support the efforts of public and quasi-public bodies within the Commonwealth to enhance or facilitate the prompt availability of and access to affordable broadband services throughout Virginia. CIT is charged with monitoring trends and advances in advanced telecommunications technology, planning and forecasting future needs for such technology, and identifying funding options.

Although this charge emphasizes the infrastructure portion of the broadband equation, experts now acknowledge (through the National Broadband Plan) that technology infrastructure alone will not solve the access problems of rural/unserved areas. Rather, the acquisition of broadband infrastructure needs to be embedded in a broader planning and development approach that acknowledges broadband as a critical ingredient for improvements in education, business, and overall quality of life.

CIT's Broadband program for Fiscal Year 2016 will build upon the work and findings developed by the Broadband Advisory Council, the National Broadband Plan, and the NTIA Broadband Adoption Plan to develop programs and collaborations that will ensure that communities throughout Virginia have the opportunity and support programs to actively participate in the information economy. CIT staff will work with communities, federal and state legislators, and industry leaders to develop and institute holistic broadband policies and strategies that expand broadband access, adoption, and utilization to improve education opportunities, the economy, healthcare, and public safety throughout the Commonwealth.

Unique Value Proposition

Improve Broadband Access
CIT completed the NTIA state broadband initiative grant in February 2015. The broadband team is well positioned to share the tools and resources that were developed during that initiative with communities across the state. The tools and resources are designed to assist localities and regions in expanding broadband access and improving broadband adoption and utilization. We must leverage connectivity to realize the benefits of broadband access, meet the broadband demands of today and ensure the infrastructure is in place to support the future bandwidth demands in the most efficient and cost effective way. To meet this challenge we must understand what we have, where we are deficient, and implement a comprehensive broadband plan for Virginia's future. CIT continues to partner with the Virginia Geographic Information Network (VGIN), Virginia Polytechnic Institute and State

University (Virginia Tech), and other public sector organizations and agencies to expand broadband access and maximize utilization.

The CIT Broadband team has strong relationships with local governments, legislators, planning commissions, providers, and national broadband industry experts. We are technology neutral and take a holistic approach in assisting communities and regions to develop needs assessments and strategic broadband plans.

Advance Broadband Benefits
In order to support and sustain the broadband infrastructure being deployed in the Commonwealth, attention must be placed on building demand for the applications and services that it enables. During Fiscal Year 2016, CIT will continue to cooperate and collaborate with partners across Virginia to expand and develop programs and applications (telework, telemedicine, etc.) to build sustainable demand. Additionally, CIT will continue to build an inventory of resources to guide communities to implement support programs to improve broadband adoption and utilization so every citizen and business can leverage the benefits of broadband.

Benchmark Virginia's Broadband Access and Utilization
In 2014 CIT completed the first assessment of Virginia libraries' access and utilization and plans to perform a comprehensive cost analysis in the 2015 assessment. CIT will continue to work with Virginia schools and libraries to assess their broadband access and utilization as a means of tracking broadband adoption and utilization within Virginia's schools and libraries. Virginia is ranked within the states annually by several organizations in regards to broadband access, speed, and utilization and it is important that the Commonwealth excel in these areas to provide the best education and employment opportunities.

2016 Program Impact

CIT programs, in conjunction with the OTPBA, will:

- Update, maintain and enhance the Commonwealth's broadband availability map
- Conduct regional planning meetings in conjunction with the Broadband Advisory Council to collect information on broadband activities and needs in the Commonwealth
- Pursue federal funding and revenue opportunities to support program activities
- Generate a slate of broadband and telework legislative and policy priorities for consideration during the 2016 General Assembly session
- Work in conjunction with the Secretary of Technology to promote programs that will speed the deployment, adoption, and utilization of broadband services in the Commonwealth
- Work with public safety and interoperability personnel to support activities related to FirstNet
- Facilitate demand generation in underserved areas to make the business case for Internet service providers to invest in expanding broadband access

- Provide technical planning assistance to communities embarking on broadband access and adoption planning activities
- Work with state agencies, the Secretary of Technology, and communities to advance broadband capacity at our schools and libraries and ensure Virginia is leveraging all available Federal e-Rate funding for broadband access in these facilities;

Future Program Impact

CIT programs will facilitate the establishment of broadband throughout the Commonwealth and accelerate the adoption of Internet based applications. Virginia's efforts to ensure next generation broadband networks for all schools and libraries will position these facilities to have a direct impact on improved education and digital literacy opportunities for all citizens. This complementary approach will significantly extend the reach of public and private-sector telework programs, resulting in reduction in traffic and pollution. In addition, broadband will improve access to specialized medical care, educational opportunities, and employment options. CIT will facilitate the creation of community broadband support programs that will promote small business growth and home businesses resulting in an overall improved economy. These programs will positively impact the quality of life of Virginians. Finally, continual assessment of Virginia's access to broadband and utilization will ensure the Commonwealth supports the knowledge economy of the future.

Milestones

The following milestones are specific to this objective and will be used to manage the objective's deliverables and metrics.

Activity	Date	Person Responsible
Update online resources (OTPBA website) to ensure all national broadband awareness programs are included	August 2015	Program Assistant, Broadband Program
Collect and share with the Broadband Advisory Council other states' broadband legislation and funding initiatives	September 2015	Program Manager, Broadband Program
Assess localities' funding needs to expand broadband access	September 2015	Program Manager, Broadband Program
Prepare broadband awareness marketing materials for localities and share through VACO/VML/PDCs	September 2015	Program Assistant, Broadband Program
Work with the Broadband Advisory Council on broadband friendly policies and legislation	November 2015	Program Manager, Broadband Program
Promote digital literacy importance and resources with regions, PDCs, and localities	November 2015	Program Manager, Broadband Program

Create online resource (OTPBA website) of all digital literacy training opportunities within Virginia	November 2015	Program Assistant, Broadband Program
Work with Secretary of Technology and VLA to assess Virginia's libraries' access and utilization of Broadband	February 2016	Program Manager, Broadband Program
Share provider subsidy program information to encourage activities that will promote programs	March 2016	Program Assistant, Broadband Program
Share PC refurbishment program best practices	May 2016	Program Assistant, Broadband Program
Provide broadband assessment and recommendations to localities to facilitate broadband expansion and utilization	June 2016	Program Manager, Broadband Program
Work with Secretary of Technology, Secretary of Education and VDOE to improve Virginia's schools' broadband access and utilization	June 2016	Program Manager, Broadband Program
Continue working with PDCs on regional initiatives focused on next generation networks and expanding broadband access	June 2016	Program Manager, Broadband Program
Facilitate unmet demand capture by localities and regions to improve the business case for broadband expansions	June 2016	Program Manager, Broadband Program
Work with state agencies to document and facilitate the sharing of state-owned assets (per the Governor's New Virginia Economy Plan)	June 2016	Program Manager, Broadband Program
Continue Virginia's state broadband mapping	June 2016	Program Assistant, Broadband Program
Assist underserved areas with utilization of the broadband resources and tools to improve broadband coverage	June 2016	Program Manager, Broadband Program
Pursue federal funding and revenue opportunities to support program activities	June 2016	Program Manager, Broadband Program
Conduct outreach and offer advice and guidance to underserved areas in Virginia to expand broadband access and utilization	June 2016	Program Manager, Broadband Program

Management Reporting Tools

- Briefings for local, state, and federal officials and commissions as requested
- Broadband annual report
- National ranking of Virginia in Internet use penetration by third parties
- Statistics from Virginia's OTPBA Citizen survey tool

- Broadband statistics from mapping data to measure broadband access expansion
- Broadband availability mapping

Marketing

Executive Summary

Since 1985, CIT has been the Commonwealth's primary agent for advancing innovation, technology, research, and entrepreneurship. Today, CIT is increasingly being recognized as an integral component of Virginia's economic development and jobs creation strategies and has received additional funding for planning, consulting, commercialization, and financial services. This marketing plan continues a strategy that accelerates efforts to enhance CIT's brand as the Commonwealth's leader in innovation, entrepreneurship, and technology, and takes advantage of new opportunities arising from persistent challenges in both the public and private sectors.

Market Trends and Opportunities

Our culture and economy are in transition, creating disruptions and opportunities alike. All across the globe and here in Virginia, we are coming together to search for new ways to grow the economy and create jobs. CIT's mission is unique in the Commonwealth: it is uniquely qualified to advance the role of innovation and entrepreneurship in fostering new economic opportunities. Unlike other departments, agencies, and authorities engaged in economic development activity in the Commonwealth, CIT was created in 1985 as a non-profit organization to foster research and development, innovation, and accelerate the next generation of technology and technology companies. It has built a reputation as a trusted resource and expert in technology-based economic development solutions. CIT's expertise includes not only credentialed employees, but a vast array of strategic alliances that provide additional resources to meet challenges. Trust in CIT's ability to play the leading role in innovation and entrepreneurship is demonstrated in the endorsements of our GAP Funds and the Commonwealth Research Commercialization Fund (CRCF), the establishment of the MACH37™ Cyber Accelerator, and the Innovation and Entrepreneurship Measurement System (IEMS). With all of these assets and attributes, CIT is well positioned to enhance its brand and grow its business in the coming year.

Marketing Strategy, Goals, and Objectives

CIT's brand is strong, and will continue to be strengthened by reaffirming CIT as a:

- Trusted expert and resource for innovation, research, technology, and innovative solutions
- Unique and indispensable agent for the Commonwealth's transformation to the innovation economy
- Trusted partner and voice for the technology councils and technology community

CIT will achieve the following objectives, while improving overall awareness of the mission and services to specific audiences, through:

- Supporting service lines and new strategic initiatives with a proactive public relations, marketing, and government relations support
- Continue building on the new CIT website by expanding the use of social media corporately and for the service lines to lead an "ongoing conversation" about innovation, entrepreneurship, and technology
- Continuing a federal advocacy strategy to take advantage of bipartisan opportunities and other federal agency initiatives in cyber security, homeland security, and mobile learning; this strategy also includes work with the State Science & Technology Institute (SSTI) and Bio.org federal policy committees
- Ongoing discussions with federal, state, and local elected officials to (1) assist them with innovative ideas and technology-based economic development strategies; (2) develop legislative initiatives; and (3) build new leads and customers for CIT Connect and other service lines
- Targeted outreach, strengthening, and leveraging relationships with the technology councils, venture capital and angel groups, government agencies, and associations, as well as strengthen relationships with the Virginia Chamber of Commerce, VAFREE, Virginia Manufacturers Association (VMA), and the Virginia Biotechnology Association (VABIO), while looking for other opportunities to (1) strengthen the CIT brand and (2) build a technology-centric alliance to leverage our message
- Continuing to increase the level of public relations, including greater frequency of news releases and media availability for CIT leaders, to (1) take advantage of free media to strengthen the CIT brand and (2) become a trusted resource for news media outlets

As noted, the CIT brand in the community is strong, and has been demonstrated with increased investments by the Administration and the General Assembly. In Fiscal Year 2016, CIT will build on those gains to achieve long-term sustained support for innovation and technology in the Commonwealth.

Milestones

The following milestones are specific to this objective and will be used to manage the objective's deliverables and metrics.

Activity	Date	Person Responsible
Continued support for MACH37™ website and communications strategies	Ongoing	VP, Government and Public Affairs, CIT CEO, MACH37™ Partners
Government relations (state) – pre-Session (meetings, developing legislative initiatives)	Ongoing	VP, Government and Public Affairs
Produce annual report	July 2015	VP, Government and Public Affairs and CIT Leadership

Government relations (state) – Session	January 2016 – March 2016	VP, Government and Public Affairs
Support service lines and new strategic initiatives	Ongoing	VP, Government and Public Affairs and Leadership
Continue with CIT website enhancements and integrated social media strategy	Ongoing	VP, Government and Public Affairs, CIT CTO, and Content Management Group (CMG)
Outreach (tech councils and other organizations)	Ongoing	VP, Government and Public Affairs, Sr. VP, Commonwealth Operations, and CIT Leadership
Public relations/press (four releases per month, media interviews)	Ongoing	VP, Government and Public Affairs and CIT Leadership

Management Reporting Tools

- Quarterly Google analytic reports on web traffic and social media outreach
- Develop and deploy survey tools for stakeholders
- Weekly updates on outreach activities, opportunities filed in Leadership Dropbox
- Weekly news releases, clips
- Briefings for state and federal officials and commissions as scheduled

Commonwealth Programs

Executive Summary

As businesses and organizations work to be in position to take maximum advantage of emerging technology-based opportunities, it is more critical than ever that Virginia has a globally competitive economy. To do that, entrepreneurship must be boosted, the availability of seed-stage funding for startups must be increased, research that leads to commercialization of intellectual property must be supported, and the growth of new innovation-based industries must be sparked. These are all key ingredients for the formation of the next generation of technology companies and of a dynamic and successful innovation economy.

Beyond developing and managing its flagship programs, CIT must leverage the extensive knowledge and experience within its staff to provide critical assistance on non-CIT managed programs. The organization brings a uniquely qualified and experienced team of investment, research, technology and other experts that must be engaged outside of CIT and in all regions of the Commonwealth.

Support key McAuliffe Administration, legislative, and other statewide innovation, entrepreneurship and technology priorities.

Program and Plan of Work

A key responsibility for CIT in Fiscal Year 2016 will be supporting the establishment and operation of strategic programs designed to maximize the growth of Virginia's technology industries and entrepreneur sector. CIT is already an active participant and resource for organizations across the Commonwealth dedicated to growing the innovation economy through entrepreneurship, STEM education, technology-based economic development, and commercialization of research and intellectual property.

Specific program support in Fiscal Year 2016 will include:

- **Regional Growth** – Beyond its core programs, CIT will continue to provide leadership and support for the development and growth of innovation initiatives in each of the Commonwealth's diverse regions. CIT's investment, entrepreneur, research, and strategic planning staff work with regional businesses, organizations, and universities to develop targeted programs throughout the Commonwealth. These programs already include regional investment funds, incubators, accelerators, innovation summits and forums, startup weekends, and active participation in all ten of Virginia's technology councils.
- **Unmanned Systems** – CIT will work with the Secretary of Technology's Office, the Virginia Economic Development Partnership, the Mid Atlantic Aviation Partnership, Virginia Tech, DMV, the Department of Aviation, and others to develop a business plan for supporting and growing the unmanned systems industry in Virginia. A final business plan shall be communicated to the Governor and the Chairmen of the House Appropriations and Senate Finance Committees by September 1, 2015.
- **Modelling & Simulation** – CIT will work to expand modeling and simulation into new industries including healthcare, advanced manufacturing, and unmanned systems. In cooperation with the Governor's modeling and simulation advisory council and the Virginia Economic Development Partnership, CIT shall jointly develop a business plan for growing modeling and simulation startup companies and job opportunities in Virginia. A final business plan will be communicated to the Governor and the Chairmen of the House Committee on Appropriations and the Senate Committee on Finance by September 1, 2015.
- **Cyber Security** – CIT will support and expand the Commonwealth's initiatives in cyber security and cyber data analytics, and provide support to the Virginia Cyber Security Commission for its recommendations.
- **Biosciences** –CIT will continue to participate in Governor McAuliffe's Biosciences Roundtable initiative that includes: elevating the profile of the Virginia bioscience industry, enhancing incentives for bioscience businesses, leveraging existing assets into new opportunities, assuring an outstanding bioscience workforce, and promoting commercialization of university research.
- **University Based Economic Development** – CIT will work with VEDP, SCHEV, and Virginia's universities to define the university role in economic development and to

develop an online resource for accessing combined research capabilities within the Commonwealth.

Unique Value Proposition

CIT is the only organization in the Commonwealth with statewide and regional perspectives of technology and innovation opportunities and challenges. Rather than the focus on near-term jobs and investment of traditional economic development, CIT identifies and cultivates technology transfer and entrepreneurial opportunities based on assessments of research capabilities and industry strengths for long-term growth potential. As interest in innovation and entrepreneurship continues to expand, so do expectations that CIT serve as the Commonwealth's resource for information and catalyst for strategic initiatives in this critical sector of Virginia's economy.

2016 Program Impact

Significant value will be added, and redundancy avoided, by including existing CIT resources to these critical programs.

Assess regional growth inhibitors and accelerators and develop programmatic solutions

Program and Plan of Work

The most important elements of the ongoing R&T Roadmap process is the direct participation that brings experts together from industries critical to future technology development and innovation in the respective regions. Through the knowledge, insight, and vision shared during these facilitated brainstorming sessions, CIT and the tech councils have identified priorities, future opportunities, and key challenges to successfully pursuing those opportunities in targeted industries.

Although each region has unique inhibitors to technology industry growth, most of the major challenges are actually common throughout Virginia. Therefore, programs that address these common inhibitors offer the largest potential for statewide impact.

A list of common inhibitors includes:

- Difficulty attracting engineering workforce
- Patent/copyright issues
- Lack of risk capital and entrepreneurial infrastructure
- Limited broadband access to all businesses and homes
- Absence of regional partnerships and collaborative efforts

Ongoing involvement by regional tech industry leaders provides key perspective on:

- Current regional economy and representative companies

- Specific industry five- and ten-year growth objectives for the current baseline
- New and emerging regional growth priorities
- Key regional accelerators
- Inhibitors to growth

The initial meetings in each region were not intended to identify all opportunities, accelerators, and inhibitors for innovation in the targeted industries. Instead, they were the beginning of a process that will evolve, expand, shift focus, and ultimately lead to evolved conclusions. Follow-on meetings to collect data annually in each region have continued from the Innovation Index into the R&T Roadmap project. CIT has developed innovation committees where regional innovation initiatives do not currently exist.

The product of this process is a resource used not only for CIT-specific goals but also for other public and private sector initiatives. Those initiatives have included:

- Governor McDonnell's "Year of the Entrepreneur"
- Commerce & Trade's entrepreneur business plan competition,
- StartupVa
- Innovate Hampton Roads
- Southwest Virginia's Entrepreneurial Blueprint
- VirginiaFirst Robotics
- VEDP's New York Executive and Government Contractor recruiting initiatives
- The Virginia Innovator Network
- The Virginia Technology Alliance
- The Council on Virginia's Future
- Virginia Manufacturers Associations regional town halls
- VABIO
- Support for all ten of the Commonwealth's regional technology councils

Unique Value Proposition

CIT has established a baseline of information regarding key technology industries in each region of the Commonwealth and a detailed understanding of related opportunities, accelerators, and inhibitors. This knowledge and the relationships developed with key community and industry leaders will be critical in the successful development of programs that assist in addressing each region's priorities.

2016 Program Impact

Industry data gathered throughout this process will be a critical ingredient in the overall assessment of Virginia's research and technology capabilities and opportunities. This assessment will directly impact the conclusions and recommendations that will be documented in the R&T Roadmap.

Future Program Impact

CIT is committed to supporting and serving as a catalyst for regional initiatives that expand technology-based industry growth opportunities. The R&T Roadmap created a vehicle for communication, research, and analysis in each region; through the Roadmap and future direct participation in regional initiatives, CIT will serve as the nexus for the aggregate data, the authority for innovation and technology opportunities, accelerators, and inhibitors in each region, and a principal facilitator for regional cooperation on innovation initiatives.

Milestones

The following milestones are specific to this objective and will be used to manage the objective's deliverables and metrics.

Activity	Date	Person Responsible
Complete Roadmap update	November 2015	SVP Operations
Meet with regional organizations, tech councils, and economic development groups to collect and update data	Ongoing	SVP Operations

Management Reporting Tools

- Roadmap update
- Briefings for state and federal officials and commissions as scheduled

MACH37™ Cyber Accelerator

Overview

MACH37™ is the nation's first accelerator dedicated to aligning the requirements of cyber security leaders from government, industry, and investment communities with the creativity and entrepreneurship of cyber security startup companies. Drawn from nation-wide deal flow, 10-20 MACH37™ portfolio companies per year will participate in a 90-day residence program. By June 2015, MACH37™ will have graduated 22 companies since initiating operations.

Funding Profile

MACH37™ will be funded for the first two years of operation by CIT through a $2.5 million appropriation provided by the Commonwealth of Virginia. In September of 2014, the CIT Board of Directors acknowledged that budget language placed in the 2014 caboose budget bill that prevented CIT from creating limited liability companies would delay the private funding of MACH37™. Due to this delay MACH37™ will require an additional year of public funding before transitioning to private funding. The CIT GAP Funds, which has established a cyber security fund, will place seed-stage investments in companies that are accepted and successfully complete the MACH37™ program.

MACH37™ currently operates as an independent service line within CIT. During Fiscal Year 2016, MACH37™ will transition to an independent legal entity owned by CIT and controlled by the MACH37™ leadership team to support its mandate of securing private sector funding.

Milestones

The following milestones are specific to the formation of the MACH37™ Cyber Accelerator.

Activity	Date	Person Responsible
Conduct spring 2015 session	March – June 2015	MACH37™ Partners
Recruit fall 2015 applicants	April – June 2015	MACH37™ Partners
Open application for fall 2015 session	May 2015	MACH37™ Partners
Conduct fall 2015 session	September – December 2015	MACH37™ Partners
Recruit spring 2016 applicants	September – December 2015	MACH37™ Partners
Conduct spring 2016 session	March – June 2016	MACH37™ Partners

Management Reporting Tools

- MACH37™ applicant pipeline report
- MACH37™ cohort performance report
- MACH37™ portfolio status report

Summary of Operating Budget for Fiscal Year 2016

Summary Budget	FY16 Budget	% of Total FY16 Budget	Contracts & Grants	Commonwealth Appropriation, CRCF & Other funds
Revenue				
Virginia Appropriation	$ 7,656,000	56%		$ 7,656,000
Commonwealth Research Commercialization Fund (CRCF) - MACH37	$ 2,000,000	14%		$ 2,000,000
CRCF funds - Administrative	$ 265,932	2%		$ 265,932
Program Revenue - Non-appropriated Funds	$ 1,790,726	13%	$ 1,790,726	
Program Revenue - New Business	$ 2,100,000	15%	$ 2,100,000	
Other Income	$ 5,000	0%		$ 5,000
Total Revenue	**$ 13,817,658**	**100%**	**$ 3,890,726**	**$ 9,926,932**
Expenses				
Research & Development	$ 400,209	3%	$ 15,060	$ 385,149
Entrepreneur	$ 8,717,965	54%	$ 1,143,677	$ 7,574,288
Connect	$ 772,683	5%	$ 772,683	
Broadband	$ 793,127	5%		$ 793,127
Commonwealth Project	$ 2,797,243	18%		$ 2,797,243
Other Activities - New Business	$ 2,090,225	13%	$ 2,090,225	
Communications & Marketing, Advocacy & Fundraising	$ 1,200,788	8%		$ 1,200,788
Under-applied (over-applied) Indirects	$ (883,056)	-6%		$ (883,056)
Total Expenses	**$ 15,889,184**	**100%**	**$ 4,021,645**	**$ 11,867,539**
Net	**$ (2,071,526)**		**$ (130,919)**	**$ (1,940,607)**
Beginning Net Assets	$ 3,553,000			
Ending Net Assets	**$ 1,481,474**			

Project Budget by Funding Source for Fiscal Year 2016

Operations Funded by Commonwealth Appropriation & Other Revenue

Revenue			
Virginia Appropriation		$	7,656,000
Commonwealth Research Commercialization Fund (CRCF) - MACH37 Expenses		$	2,000,000
CRCF - Administration Expenses		$	265,932
Interest & Misc Income		$	5,000
	Total Revenue	$	**9,926,932**
Program Expenses			
R&D - Commonwealth research and technology strategic roadmap		$	58,314
R&D - Innovation & Entrepreneurship Management System		$	60,903
R&D - Commonwealth Research Commercialization Fund (CRCF)		$	265,932
Entrepreneur - Federal proposal assistance		$	275,459
Entrepreneur - GAP		$	7,298,829
Broadband - Office of telework promotion & BB assistance & deployment		$	16,225
Broadband - Broadband Planning & Assistance		$	776,902
Commonwealth projects - Cybersecurity		$	297,515
Commonwealth projects - Cyber Accelerator - Mach37		$	2,000,000
Commonwealth projects - Regional growth		$	123,566
Commonwealth projects - Cyber Commission		$	287,259
Commonwealth projects - Unmaned Systems		$	88,903
	Program Expenses	$	**11,549,807**
Other Expenses			
Marketing, Advocacy & Fundraising		$	1,200,788
Under-applied (over-applied) indirects		$	(883,056)
	Other Expenses	$	**317,732**
	Total Expenses	$	**11,867,539**
Net Operations funded by VA Appropriation & Other Revenue		$	**(1,940,607)**

Operations Funded by Contracts & Grants (Program Revenue - Non-appropriated funds)

R&D

Project # RD172 - 55 - Rutgers - MARACOOS		$	15,060
Program Expense		$	15,060
	Profit/(Loss)	$	-

Entrepreneur

Project # EN104 - 55- SBA FAST V		$	6,983
Program Expense		$	38,759
	Profit/(Loss)	$	**(31,776)**
Project # EN110 - 55 - DMME - Commonwealth Energy Fund		$	294,363
Program Expense		$	294,363
	Profit/(Loss)	$	-
Project # EN120 - 55 - VSBFA - SSBCI Fund		$	647,870
Program Expense		$	810,555
	Profit/(Loss)	$	**(162,685)**

Connect		
Project # CN210 - 99 - Virginia Health Quality Center (VHQC) - Total Summary Project	$	7,484
Program Expense	$	7,484
Profit/(Loss)	**$**	**-**
Project #CN254 - 55 - VDOE IEP	$	103,000
Program Expense	$	149,233
Profit/(Loss)	**$**	**(46,233)**
Project #CN240 - 55,56-Nevada	$	236,939
Program Expense	$	136,939
Profit/(Loss)	**$**	**100,000**
Project #CN270 - 55-USAFA Analytic Discovery Homeland Security	$	403,474
Program Expense	$	403,474
Profit/(Loss)	**$**	**-**
Project #CN272 - 55,56,57,58,59 - Virginia Community College System	$	75,553
Program Expense	$	75,553
Profit/(Loss)	**$**	**-**
Other Activities		
Project # NEWBZ-00 - New Business	$	2,100,000
Program Expense	$	2,090,225
Profit/(Loss)	**$**	**9,775**
Program Revenue	**$**	3,890,726
Program Expenses	**$**	4,021,645
Net Operations funded by Contracts & Grants	**$**	**(130,919)**

Consolidated Revenue & Expenses & Changes in Net Assets

Total Revenue	$	13,817,658
Total Expenses	$	15,889,184
Change in net assets	$	(2,071,526)
Beginning Net Assets	$	3,553,000
Ending Net Assets for FY16	**$**	**1,481,474**

Project Budgets for Fiscal Year 2016

RESEARCH AND DEVELOPMENT SERVICE LINE	
GOAL 1. REFRESH & MAINTAIN A STATEWIDE RESEARCH AND TECHNOLOGY PLAN	
1.1 Objective - Coordinate and facilitate Virginia's R&T strategic plan	
Project # RD130 - 00 - Commonwealth R&T Strategic Roadmap	
Revenue	
Program Revenue - Non-appropriated funds	
Use of Commonwealth Appropriation	58,314
Total Revenue	**58,314**
Programs Costs	
Total Salaries	23,983
Fringe	13,709
Travel	2,400
Supplies	
Contractual	
Temporary Services	
Other	
Overhead	6,660
Total Costs Before G&A	46,752
G&A	11,562
Equipment	0
Contractual-Over-Cap	
Total Costs	**58,314**
Net	**0**
Project # RD172 - 55 - Rutgers - MARACOOS	
Revenue	
Program Revenue - Non-appropriated funds	15,060
Use of Commonwealth Appropriation	0
Revenue	**15,060**
Programs Costs	
Total Salaries	1,781
Fringe	1,018
Travel	
Supplies	
Contractual	2,080
Temporary Services	
Other	6,700
Overhead	495
Total Costs Before G&A	12,074
G&A	2,986
Equipment	
Contractual-Over-Cap	
Total Costs	**15,060**
Net	**0**
1.2 Objective - Maintain the Innovation & Entrepreneurship Measurement system	
Project # RD220 - 00 - Innovation & Entrepreneurship Management System	
Revenue	
Program Revenue - Non-appropriated funds	
Use of Commonwealth Appropriation	60,903
Total Revenue	**60,903**

Programs Costs	
Total Salaries	16,346
Fringe	9,343
Travel	2,400
Supplies	
Contractual	16,200
Temporary Services	
Other	
Overhead	4,539
Total Costs Before G&A	48,828
G&A	12,075
Equipment	0
Contractual-Over-Cap	
Total Costs	**60,903**
Net	**0**
1.3 Objective - Manage the Commonwealth Research Commercialization Fund (CRCF)	
Project # VA140 - 55 - Commonwealth Research Commercialization Fund (CRCF)	
Revenue	
CRCF funds	265,932
Use of Commonwealth Appropriation	0
Total Revenue	**265,932**
Programs Costs	
Total Salaries	105,611
Fringe	60,367
Travel	2,800
Supplies	100
Contractual	7,000
Temporary Services	
Other	8,000
Overhead	29,328
Total Costs Before G&A	213,206
G&A	52,726
Equipment	0
Contractual-Over-Cap	0
Total Costs	**265,932**
Net	**0**
ENTREPRENEUR SERVICE LINE	
GOAL 2. SECURE GLOBAL LEADERSHIP IN DEVELOPMENT OF ENTREPRENEURIAL TECH VENTURES	
2.1 Objective - ID and accelerate opportunities for small firms to obtain federal R&D awards	
Project # EN020 - 00- Federal Proposal Assistance	
Revenue	
Use of Commonwealth Appropriation	275,459
Total Revenue	**275,459**
Programs Costs	
Total Salaries	82,221
Fringe	46,998
Travel	9,800
Supplies	
Contractual	26,000
Temporary Services	
Funding Pool	
Other	32,992
Overhead	22,833
Total Costs Before G&A	220,844
G&A	54,615
Equipment	
Contractual-Over-Cap	
Total Costs	**275,459**
Net	**0**

Project # EN104 - 00- SBA FAST V	
Revenue	
Use of Commonwealth Appropriation	31,776
Total Revenue	**31,776**
Programs Costs	
Total Salaries	9,303
Fringe	5,318
Travel	1,000
Supplies	
Contractual	
Temporary Services	
Funding Pool	
Other	7,272
Overhead	2,583
Total Costs Before G&A	25,476
G&A	6,300
Equipment	
Contractual-Over-Cap	
Total Costs	**31,776**
Net	**0**
Project # EN104 - 55- SBA FAST V	
Revenue	
Program Revenue - Non-appropriated funds	**6,983**
Use of Commonwealth Appropriation	(0
Total Revenue	**6,983**
Programs Costs	
Total Salaries	317
Fringe	181
Travel	
Supplies	
Contractual	1,857
Temporary Services	
Funding Pool	
Other	
Overhead	88
Total Costs Before G&A	2,443
G&A	604
Equipment	
Contractual-Over-Cap	3,936
Total Costs	**6,983**
Net	**0**
2.2 Objective - Accelerate funding for early stage technology firms	
Project # EN070 - 00 - GAP Fund Program	
Revenue	
Program Revenue - Non-appropriated funds	
Use of Commonwealth Appropriation	7,298,829
Total Revenue	**7,298,829**
Programs Costs	
Total Salaries	712,801
Fringe	407,437
Travel	60,000
Supplies	
Contractual	344,520
Temporary Services	
GAP Investments - Tranche A	800,000
GAP Investments - Tranche B	
Portfolio Follow-On	1,714,000
Innovation Investments	350,000
Mach37 Seed Fund	600,000
Mach37 Seed Fund - Follow-on	600,000
Other	65,000
Overhead	197,945
Total Costs Before G&A	5,851,703

G&A	1,447,126
Equipment	
Contractual-Over-Cap	0
Total Costs	**7,298,829**
Net	**0**
Project # EN110 - 55 - DMME - Commonwealth Energy Fund	
Revenue	
Program Revenue - Non-appropriated funds	294,363
Use of Commonwealth Appropriation	0
Total Revenue	**294,363**
Programs Costs	
Total Salaries	0
Fringe	0
Travel	
Supplies	
Contractual	
Commonwealth Energy Fund	236,000
Temporary Services	
Other	
Overhead	0
Total Costs Before G&A	236,000
G&A	58,363
Equipment	
Contractual-Over-Cap	
Total Costs	**294,363**
Net	**0**
Project # EN120 - 00 - VSBFA - SSBCI Fund	
Revenue	
Program Revenue - Non-appropriated funds	0
Use of Commonwealth Appropriation	162,685
Total Revenue	**162,685**
Programs Costs	
Total Salaries	1,286
Fringe	735
Travel	
Supplies	
Contractual	
Fund	
Temporary Services	
Other	
Overhead	357
Total Costs Before G&A	2,378
G&A	588
Equipment	
Contractual-Over-Cap	159,719
Total Costs	**162,685**
Net	**0**
Project # EN120 - 55 - VSBFA - SSBCI Fund	
Revenue	
Program Revenue - Non-appropriated funds	647,870
Use of Commonwealth Appropriation	0
Total Revenue	**647,870**
Programs Costs	
Total Salaries	
Fringe	0
Travel	
Supplies	
Contractual	
Fund	647,470
Temporary Services	
Other	
Overhead	0
Total Costs Before G&A	647,470

G&A	160,119
Equipment	
Contractual-Over-Cap	-159,719
Total Costs	**647,870**
Net	**0**
CONNECT SERVICE LINE	
GOAL 3. SECURE LEADERSHIP IN THE ID AND ASSIMILATION OF INNOVATION TECHNOLOGIES	
3.1 Objective - Accelerate the assimilation of new technology by large-scale federal and private-sector technology consumers	
Project # CN210 - 99 - Virginia Health Quality Center (VHQC) - Total Summary Project	
Revenue	
Program Revenue - Non-appropriated funds	7,484
Use of Commonwealth Appropriation	0
Total Revenue	**7,484**
Programs Costs	
Total Salaries	
Fringe	0
Travel	0
Supplies	0
Contractual	6,000
Temporary Services	0
Other	0
Overhead	0
Total Costs Before G&A	6,000
G&A	1,484
Equipment	
Contractual-Over-Cap	
Total Costs	**7,484**
Net	**0**
Project #CN272 - 55,56,57,58,59 - Virginia Community College System	
Revenue	
Program Revenue - Non-appropriated funds	75,553
Use of Commonwealth Appropriation	0
Total Revenue	**75,553**
Programs Costs	
Total Salaries	20,706
Fringe	11,836
Travel	900
Supplies	
Contractual	
Temporary Services	
Other	
Overhead	5,750
Total Costs Before G&A	39,192
G&A	9,692
Equipment	
Contractual-Over-Cap	26,669
Total Costs	**75,553**
Net	**0**
Project #CN254 - 55 - VDOE IEP	
Revenue	
Program Revenue - Non-appropriated funds	103,000
Use of Commonwealth Appropriation	46,233
Total Revenue	**149,233**

Programs Costs	
Total Salaries	56,030
Fringe	32,027
Travel	3,200
Supplies	
Contractual	
Temporary Services	
Other	
Overhead	15,560
Total Costs Before G&A	106,817
G&A	26,416
Equipment	
Contractual-Over-Cap	16,000
Total Costs	**149,233**
Net	**0**
Project #CN240 - 55,56-Nevada	
Revenue	
Program Revenue - Non-appropriated funds	236,939
Use of Commonwealth Appropriation	
Total Revenue	**236,939**
Programs Costs	
Total Salaries	
Fringe	0
Travel	9,614
Supplies	
Contractual	850
Temporary Services	
Other	
Overhead	0
Total Costs Before G&A	10,464
G&A	2,588
Equipment	
Contractual-Over-Cap	123,887
Total Costs	**136,939**
Net	**100,000**
Project #CN270 - 55-USAFA Analytic Discovery Homeland Security	
Revenue	
Program Revenue - Non-appropriated funds	403,474
Use of Commonwealth Appropriation	0
Total Revenue	**403,474**
Programs Costs	
Total Salaries	88,716
Fringe	50,710
Travel	10,003
Supplies	
Contractual	
Temporary Services	
Other	53,276
Overhead	24,636
Total Costs Before G&A	227,341
G&A	56,221
Equipment	
Contractual-Over-Cap	119,912
Total Costs	**403,474**
Net	**0**

BROADBAND SERVICE LINE	
GOAL 4. EXPAND THE USE OF BROADBAND TECHNOLOGIES IN RURAL & UNDERSERVED AREAS	
4.1 Objective - Serve as the Commonwealth's Office of Telework Promotion and Broadband Assistance	
Project # BB060 - 00 - Office of Telework Promotion and Broadband Assist & Broadband Deployment	
Revenue	
Use of Commonwealth Appropriation	16,225
Total Revenue	**16,225**
Programs Costs	
Total Salaries	7,034
Fringe	4,021
Travel	
Supplies	
Contractual	
Temporary Services	
Other	
Overhead	1,953
Total Costs Before G&A	13,008
G&A	3,217
Equipment	0
Contractual-Over-Cap	
Total Costs	**16,225**
Net	**0**
4.2 Objective - Provide demand-generation and infrastructure-development that advance the presence of broadband in Virginia	
Project # BB090 - 11,12,13,14,15,21,22,23,24- Broadband Planning & Assistance	
Revenue	
Program Revenue - Non-appropriated funds	
Use of Commonwealth Appropriation	776,902
Total Revenue	**776,902**
Programs Costs	
Total Salaries	124,916
Fringe	71,402
Travel	7,800
Supplies	2,100
Contractual	381,960
Temporary Services	
Other	
Overhead	34,689
Total Costs Before G&A	622,867
G&A	154,035
Equipment	0
Contractual-Over-Cap	
Total Costs	**776,902**
Net	**0**
COMMONWEALTH PROJECTS & OPERATIONS	
Project # VA160 - 00 - Cybersecurity	
Revenue	
Use of Commonwealth Appropriation	297,515
Total Revenue	**297,515**

Programs Costs	
Total Salaries	0
Fringe	0
Travel	
Supplies	
Contractual	201,579
Temporary Services	
Other	36,948
Overhead	0
Total Costs Before G&A	238,527
G&A	58,988
Equipment	0
Contractual-Over-Cap	
Total Costs	**297,515**
Net	**0**
Project # CA100 - 55 - Cyber Accelerator - Mach37	
Revenue	
CRCF funds	**2,000,000**
Use of Commonwealth Appropriation	0
Total Revenue	**2,000,000**
Programs Costs	
Total Salaries	665,856
Fringe	380,603
Travel	45,000
Supplies	18,948
Contractual	5,596
Temporary Services	
Other	302,552
Overhead	184,908
Total Costs Before G&A	1,603,463
G&A	396,536
Equipment	
Contractual-Over-Cap	1
Total Costs	**2,000,000**
Net	**0**
Project # VA170 - 00 - Regional Growth	
Revenue	
Use of Commonwealth Appropriation	123,566
Total Revenue	**123,566**
Programs Costs	
Total Salaries	53,570
Fringe	30,621
Travel	
Supplies	
Contractual	
Temporary Services	
Other	
Overhead	14,876
Total Costs Before G&A	99,067
G&A	24,499
Equipment	0
Contractual-Over-Cap	
Total Costs	**123,566**
Net	**0**
Project # VA180 - 00 - Cyber Security Commission	
Revenue	
Use of Commonwealth Appropriation	287,259
Total Revenue	**287,259**

Programs Costs	
Total Salaries	77,167
Fringe	44,109
Travel	
Supplies	
Contractual	87,600
Temporary Services	
Other	
Overhead	21,429
Total Costs Before G&A	230,305
G&A	56,954
Equipment	0
Contractual-Over-Cap	
Total Costs	**287,259**
Net	**0**
Project # VA185 - 00 - Unmanned Systems	
Revenue	
Use of Commonwealth Appropriation	88,903
Total Revenue	**88,903**
Programs Costs	
Total Salaries	38,542
Fringe	22,031
Travel	
Supplies	
Contractual	
Temporary Services	
Other	
Overhead	10,703
Total Costs Before G&A	71,276
G&A	17,627
Equipment	0
Contractual-Over-Cap	
Total Costs	**88,903**
Net	**0**
OTHER ACTIVITIES	
Project # NEWBZ-00 - New Business	
Revenue	
Program Revenue - Non-appropriated funds	2,100,000
Use of Commonwealth Appropriation	
Total Revenue	**2,100,000**
Programs Costs	
Total Salaries	906,181
Fringe	517,973
Travel	
Supplies	
Contractual	
Temporary Services	
Other	
Overhead	251,646
Total Costs Before G&A	1,675,800
G&A	414,425
Equipment	
Contractual-Over-Cap	
Total Costs	**2,090,225**
Net	**9,775**

ADMINISTRATIVE PROGRAMS	
Project # VA040 - 00 - Communications and Marketing	
Revenue	
Use of Commonwealth Appropriation	704,591
Total Revenue	**704,591**
Programs Costs	
Total Salaries	147,963
Fringe	84,576
Travel	7,000
Supplies	
Contractual	34,105
Temporary Services	
Other ($211,241 Other + $38,919 ISP payment)	250,160
Overhead	41,089
Total Costs Before G&A	564,893
G&A	139,698
Equipment	0
Contractual-Over-Cap	0
Total Costs	**704,591**
Net	**0**
Project # VA060 - 00 - Advocacy	
Revenue	
Use of Commonwealth Appropriation	419,537
Total Revenue	**419,537**
Programs Costs	
Total Salaries	96,986
Fringe	55,437
Travel	5,000
Supplies	
Contractual	132,000
Temporary Services	
Other	20,000
Overhead	26,933
Total Costs Before G&A	336,356
G&A	83,181
Equipment	
Contractual-Over-Cap	0
Total Costs	**419,537**
Net	**0**
Project # VA090 - 00 - Fundraising	
Revenue	
Use of Commonwealth Appropriation	76,660
Total Revenue	**76,660**
Programs Costs	
Total Salaries	33,235
Fringe	18,997
Travel	
Supplies	
Contractual	
Temporary Services	
Other	
Overhead	9,229
Total Costs Before G&A	61,461
G&A	15,199
Equipment	
Contractual-Over-Cap	0
Total Costs	**76,660**
Net	**0**

TAB 2

All Planned Revenue & Expenses By Sources of Funding

CIT – Net Operations funded by Appropriation, CRCF & Other Rev FY15 Forecast vs. FY16 Budget

CIT
CENTER FOR INNOVATIVE TECHNOLOGY

CIT	FY15 Forecast	FY16 Budget	Change
		In Thousands	
Revenue			
Transfer from IEIA - Virginia Appropriation	$ 5,476	$ 7,656	$ 2,180
Commonwealth Research Commercialization Fund (CRCF) - MACH37	$ -	$ 2,000	$ 2,000
Interest & Miscellaneous Revenue	$ 564	$ 271	$ (293)
Total Revenue	**$ 6,040**	**$ 9,927**	**$ 3,887**
Program Expenses			
R&D - Commonwealth R&T Strategic Roadmap	$ 56	$ 58	$ 2
R&D - CRCF	$ 282	$ 266	$ (16)
R&D - Innovative Metrics	$ 61	$ 61	$ -
Entrepreneur - Federal Proposal Assistance	$ 160	$ 275	$ 115
Entrepreneur - GAP	$ 4,350	$ 7,299	$ 2,949
Connect - Commonwealth Consulting & Education	$ 41	$ -	$ (41)
Broadband - Office of Telework Promotion & BB Deployment	$ 9	$ 16	$ 7
Broadband Planning and Assistance	$ 279	$ 777	$ 498
Commonwealth Support - Cyber Security, Regional Growth, Mod & Sim	$ 1,077	$ 797	$ (280)
Commonwealth Support - MACH37	$ 1,544	$ 2,000	$ 456
Other Activities - Innovation Center	$ 108	$ -	$ (108)
Total Program Expenses	**$ 7,967**	**$ 11,549**	**$ 3,582**
Other Expenses			
Business Development, Marketing, Advocacy, Fundraising, Misc	$ 1,676	$ 1,202	$ (474)
Indirects Unapplied (Over-applied) to Projects	$ (246)	$ (883)	$ (637)
Total Other Expenses	**$ 1,430**	**$ 319**	**$ (1,111)**
Net Operations Funded by Commonwealth Appropriation, CRCF & Other Revenue	**$ (3,357)**	**$ (1,941)**	**$ 1,416**

CIT OPERATIONS FUNDED BY CONTRACTS & GRANTS

CIT		FY15 Forecast	FY16 Budget	Change
			In Thousands	
R&D				
Program Revenue - 2014 Virginia Energy Plan		$ 11	$ -	$ (11)
Program Expense		$ 29	$ -	$ (29)
	Profit/(Loss)	$ (18)	$ -	**$ 18**
Program Revenue - Rutgers - Mid-Atlantic Reg Coastal Observing System		$ 59	$ 15	$ (44)
Program Expense		$ 59	$ 15	$ (44)
	Profit/(Loss)	$ -	$ -	**$ -**
Entrepreneur				
Program Revenue - State Small Business Credit Initiative Fund		$ 1,352	$ 647	$ (705)
Program Expense		$ 1,691	$ 810	$ (881)
	Profit/(Loss)	$ (339)	$ (163)	**$ 176**
Program Revenue - SBA FAST V		$ 84	$ 7	$ (77)
Program Expense		$ 143	$ 39	$ (104)
	Profit/(Loss)	$ (59)	$ (32)	**$ 27**
Program Revenue - DMME Commonwealth Energy Fund		$ 176	$ 294	$ 118
Program Expense		$ 176	$ 294	$ 118
	Profit/(Loss)	$ -	$ -	**$ -**
Connect				
Program Revenue - Virginia Department of Education		$ 666	$ 103	$ (563)
Program Expense		$ 684	$ 149	$ (535)
	Profit/(Loss)	$ (18)	$ (46)	**$ (28)**
Program Revenue - Virginia Community College System		$ 124	$ 76	$ (48)
Program Expense		$ 124	$ 76	$ (48)
		$ -	$ -	**$ -**
Program Revenue - Virginia Million Hearts		$ 5	$ -	$ (5)
Program Expense		$ 5	$ -	$ (5)
	Profit/(Loss)	$ -	$ -	**$ -**
Program Revenue - VHQC - Electronic Medical Health Records		$ 10	$ 7	$ (3)
Program Expense		$ 10	$ 7	$ (3)
	Profit/(Loss)	$ -	$ -	**$ -**
Program Revenue - Airforce Analytical Discovery		$ 822	$ 403	$ (419)
Program Expense		$ 822	$ 403	$ (419)
	Profit/(Loss)	$ -	$ -	**$ -**
Program Revenue - Nevada SLDS Implementation		$ 1,554	$ 237	$ (1,317)
Program Expense		$ 1,518	$ 137	$ (1,381)
	Profit/(Loss)	$ 36	$ 100	**$ 64**
Program Revenue - Connect New Biz		$ -	$ 2,100	$ 2,100
Program Expense		$ -	$ 2,090	$ 2,090
	Profit/(Loss)	$ -	$ 10	**$ 10**
Broadband				
Program Revenue - NTIA Broadband Mapping and Planning		$ 942	$ -	$ (942)
Program Expense		$ 942	$ -	$ (942)
	Profit/(Loss)	$ -	$ -	**$ -**
	Total Program Revenue	$ 5,805	$ 3,889	$ (1,916)
	Total Program Expenses	$ 6,203	$ 4,020	$ (2,183)
Net Operations Funded by Contracts & Grants		**$ (398)**	**$ (131)**	**$ 267**

IEIA – Building only
FY15 Forecast vs. FY16 Budget

CIT
CENTER FOR INNOVATIVE TECHNOLOGY

IEIA - BUILDING ONLY	FY15 Forecast	FY16 Budget	Change
		In Thousands	
Revenue			
Rental Income	$ 1,910	$ 1,684	$ 226
Total Revenue	**$ 1,910**	**$ 1,684**	**$ 226**
Expenses			
Payroll	$ 286	$ 282	$ 4
Utilities	$ 448	$ 432	$ 16
Administrative	$ 136	$ 142	$ (6)
Operating & Maintenance	$ 142	$ 152	$ (10)
Contracts	$ 408	$ 414	$ (6)
Insurance	$ 100	$ 100	$ -
Food Service Subsidy	$ 44	$ 40	$ 4
Leasing Commission and Miscellaneous	$ 86	$ 38	$ 48
Total Expenses	**$ 1,650**	**$ 1,600**	**$ 50**
Net Income	**$ 260**	**$ 84**	**$ 176**

TAB 3

Listing of Salaries, bonuses, and benefits

Innovation and Entrepreneurship Investment Authority

Item 419 D.1.b

A listing of the salaries, bonuses, and benefits of all employees of the IEIA and CIT

Fiscal Year 2016 Budget

Note:

- CIT employees are compensated through a combination of general and non-general fund revenue. The list below includes executives and employees that are entirely compensated through non-general fund consultant fees and employees of CIT's MACH37 that will transition to private funding during FY16.
- Every three years, CIT uses Towers Watson to do a competitive compensation assessment (Assessment) for all CIT employees
- The last Assessment was done in February 2014
- The methodology used by Towers Watson is to:
  1) gather recently updated job descriptions
  2) obtain relevant talent market(s) is determined
  3) identify competitive compensation data sources
  4) match positions and validate preliminary research
  5) interpret compensation data
  6) adjust and finalize market rates
- The Towers Watson's Assessment provides information to support decisions about "how much" and "how" to pay employees. Additionally, this information is used to design/maintain a compensation program that enables CIT to attract, retain and motivate the talent required to achieve the organization's mission
- Incentive Salaries are paid only if employees achieve CIT's goals articulated in the Operating Plan and delegated to employees in their Scorecards
- CIT benefits include: health, life, and disability insurance, retirement, payroll taxes, and cell phone allowance

Title	Base Salary	Incentive Salaries	Benefits	Total by employee
Director 1	$149,280	$14,565	$57,171	$221,016
Manager 1	$109,808	$10,713	$50,404	$170,925
Assistant 1	$63,756	$6,220	$32,261	$102,237
Director 2	$108,081	$10,545	$50,081	$168,707
Director 3	$99,089	$9,668	$40,937	$149,694
Consultant 1	$63,343	$6,180	$32,143	$101,666
Vice President 1	$157,076	$29,700	$58,701	$245,477
Developer 1	$56,373	$5,500	$23,473	$85,346
Director 4	$118,171	$11,529	$38,027	$167,727
Officer 1	$213,428	$59,866	$61,651	$334,945
Consultant 2	$179,471	$17,510	$62,258	$259,239
Director 5	$237,535	$0	$71,934	$309,469
Director 6	$124,574	$12,154	$52,983	$189,711
Specialist 1	$54,135	$5,282	$22,920	$82,337
Vice President 2	$200,758	$39,174	$66,133	$306,065
Manager 2	$115,157	$11,235	$44,463	$170,855
Officer 2	$133,878	$93,005	$33,464	$260,347
Assistant 2	$65,365	$6,377	$39,567	$111,309
Senior Accountant 1	$73,154	$7,137	$27,618	$107,909
Director 7	$155,704	$15,191	$58,253	$229,148
Specialist 2	$46,985	$4,584	$21,156	$72,725
Vice President 3	$248,287	$84,784	$74,500	$407,571
Associate 1	$86,809	$8,470	$30,987	$126,266
Consultant 3	$66,690	$6,507	$39,912	$113,109
Manager 3	$105,852	$10,327	$49,532	$165,711
Analyst 1	$58,064	$5,665	$30,814	$94,543
Analyst 2	$57,960	$5,655	$23,865	$87,480
Vice President 4	$186,992	$45,610	$57,011	$289,613
Director 8	$216,421	$0	$54,632	$271,053
Manager 4	$95,608	$13,992	$40,483	$150,083
Specialist 3	$47,507	$4,635	$35,134	$87,276
Manager 5	$73,783	$7,198	$41,624	$122,605
Vice President 5	$157,803	$34,641	$51,970	$244,414
Assistant 3	$57,960	$5,655	$37,734	$101,349
Vice President 6	$224,670	$76,720	$70,670	$372,060
Associate Director 1	$79,178	$15,450	$44,133	$138,761
Manager 5	$105,691	$10,312	$35,656	$151,659
Director 9	$216,421	$0	$61,570	$277,991
Director 10	$126,000	$0	$53,614	$179,614
Officer 3	$239,389	$80,000	$77,921	$397,310
	$4,976,206	**$791,756**	**$1,857,359**	**$7,625,321**

TAB 4

GAP Investments

GAP Investments made in FY2015

	Total Investment
First Time GAP	
Company 1	100,000
Company 2	125,000
Company 3	125,000
Company 4	100,000
Company 5	100,000
Company 6	100,000
Company 7	100,000
Company 8	12,951
Company 9	100,000
Company 10	100,000
Company 11	5,000
Company 12	50,000
Company 13	25,000
Company 14	125,000
Company 15	100,000
Follow on GAP	
Company 16	1,285
Company 17	74,912
Company 18	16,667
Company 19	25
Company 20	32,961
Company 21	100,000
Company 21	50,849
Company 21	100,000
Company 5	100,000
Company 22	17,619
Company 23	100,000
Company 24	16,667
Company 4	100,000
Company 8	99,999
Company 9	2,203
Company 25	7,590
Company 24	16,667
Company 6	100,000
Company 26	100,000
Company 10	100,000
Company 27	200,000
Company 28	100,000
Company 29	100,001
First Time MACH37	
Company 30	25,000
Company 31	50,000
Company 32	50,000
Company 33	50,000
Company 34	50,000
Company 35	50,000
Company 36	50,000
Company 37	50,000
Company 38	50,000
Company 39	50,000
Company 40	50,000
Company 41	50,000
Company 42	50,000
Follow on MACH37	
Company 43	100,001
Company 33	62,500
Company 35	100,000
Total July 2014 - June 2015	3,692,897

TAB 4

CRCF Investments

FY2015 RTIAC Award Recommendations

CIT R & D
CENTER FOR INNOVATIVE TECHNOLOGY

Eminent Researcher Recruitment Program

Eastern Virginia Medical School	*Recruitment of Eminent Investigator in HealthCare Science and Discovery Research*	$250,000

Total **$250,000**

Investments approved by the CIT Board on May 20, 2015

FY2015 RTIAC Award Recommendations (cont'd)

CIT R & D
CENTER FOR INNOVATIVE TECHNOLOGY

Matching Funds Program

College of William & Mary	*Reducing Smartphone Application Delay through Read/Write Isolation*	$99,998
Commonwealth Center for Advanced Logistics Systems (CCALS)	*Aviation Drop-In Biofuels: Sustainable Supply Chain in Virginia in Support of Farm-to-Fly 2.0 and State Agricultural/Economic Objectives*	$99,988
Commonwealth Center for Advanced Manufacturing	*High Speed Telemetry for Machining*	$100,000
Eastern Virginia Eye Institute	*Corneal Endothelial Allograft Transport and Transplant Device*	$100,000

Investments approved by the CIT Board on May 20, 2015

FY2015 RTIAC Award Recommendations (cont'd)

CIT R&D
CENTER FOR INNOVATIVE TECHNOLOGY

Matching Funds Program (cont'd)

Old Dominion University Research Foundation	*Real-Time Fusion of Medical Images for Personalized Image Guided Diagnosis and Therapy*	$100,000
Old Dominion University Research Foundation	*Development of Hybrid Boron Nitride/Carbon Nanotubes Supercapacitors for High-Density Energy Storage*	$100,000
The George Washington University	*A Wireless Wearable Electrocardiogram (ECG) Sensor on a Finger Ring*	$50,000

Investments approved by the CIT Board on May 20, 2015

FY2015 RTIAC Award Recommendations (cont'd)

CIT R&D
CENTER FOR INNOVATIVE TECHNOLOGY

Matching Funds Program (cont'd)

University of Virginia	*Insulin-ORAL Renewal Application*	$100,000
University of Virginia	*Accelerating Data Analytics (Bioinformatics) Applications using the Automata Processor*	$100,000
Virginia Commonwealth University	*Rehab Fingerprint-A Patient Centered System to Measure the Impact of Physical Rehabilitation*	$29,263
Virginia Commonwealth University	*Rapid Measurement of Plasma Antithrombin*	$100,000

FY2015 RTIAC Award Recommendations (cont'd)

CIT R&D
CENTER FOR INNOVATIVE TECHNOLOGY

Matching Funds Program (cont'd)

Virginia Commonwealth University	*A Modeling and Simulation Hub for Straintronic Logic and Memory Technology*	$100,000
Virginia Commonwealth University	*Nano-inspired Electrolytes and Cathode Materials for a New Generation of Li and Na-ion Batteries*	$100,000
Virginia Institute of Marine Science, College of William & Mary	*Eliminating Plastic Shotgun Wads as a Source of Harmful Aquatic Debris*	$83,971

Investments approved by the CIT Board on May 20, 2015

FY2015 RTIAC Award Recommendations (cont'd)

CIT R&D
CENTER FOR INNOVATIVE TECHNOLOGY

Matching Funds Program (cont'd)

Virginia Tech	*Novel Coatings to Prevent Bacterial Colonization of Medical Implants*	$99,704
Virginia Tech	*Energy-Harvesting Vehicle Suspensions*	$100,000
	Total	**$1,512,924**

Investments approved by the CIT Board on May 20, 2015

FY2015 RTIAC Award Recommendations (cont'd)

CIT R&D
CENTER FOR INNOVATIVE TECHNOLOGY

Commercialization Program

AxonAI, LLC	*Echosight Modeling and Prediction Software*	$50,000
Axon Ghost Sentinel	*Internet-of-Things Security*	$50,000
CyberRock, Inc.	*CyberTrack: Automated Attack Attribution across Large-Scale Networks in Real-Time*	$50,000
DialySensors LLC	*Dialysensing™: Improving the Efficacy and Patient Outcomes of Hemodialysis and Peritoneal Dialysis through the Use of Raman Spectroscopy and Multivariate Statistical Analysis*	$49,960

Investments approved by the CIT Board on May 20, 2015

FY2015 RTIAC Award Recommendations (cont'd)

CIT R&D
CENTER FOR INNOVATIVE TECHNOLOGY

Commercialization Program (cont'd)

eTrans2020, Inc.	*Connected Vehicle Validation and Security*	$50,000
Ischemalert, LLC	*Point-of-Care Device for Detection of Acute Cardiac Ischemia*	$49,776
Key Cybersecurity, Inc.	*CyberMerlin - Illicit File Activity (IFA) Detection Solution*	$50,000
RioGin	*In Vivo Validation of PYY Antiobesity Drug with Weekly Administration*	$50,000
RioGin	*Long-Lasting HIV Entry Inhibitors*	$50,000
Syncurity Corporation	*Syncurity Forensic Artifact Collection*	$50,000

Investments approved by the CIT Board on May 20, 2015

FY2015 RTIAC Award Recommendations (cont'd)

CIT R&D
CENTER FOR INNOVATIVE TECHNOLOGY

Commercialization Program (cont'd)

Tympanogen	*A Novel Gel Patch for Nonsurgical Treatment of Eardrum Perforations*	$50,000
	Total	**$549,265**

Investments approved by the CIT Board on May 20, 2015

FY2015 RTIAC Award Recommendations (cont'd)

CIT R & D
CENTER FOR INNOVATIVE TECHNOLOGY

SBIR Matching Funds Program

BlueTherm Corp.	*Thermal Management for Energy Efficient Computing*	$50,000
Cell Free Bioinnovations Inc.	*Developing a Sugar Biobattery Prototype with High-Power and High-Energy-Density*	$50,000
D-Tech, LLC	*A Dynamic and Scalable Identity Federator for Enhanced Cloud Security*	$50,000
Ghodousi, LLC	*Assistive Digital Vision for the Blind*	$50,000

Investments approved by the CIT Board on May 20, 2015

FY2015 RTIAC Award Recommendations (cont'd)

CIT R&D
CENTER FOR INNOVATIVE TECHNOLOGY

SBIR Matching Funds Program (con't)

PaneraTech, Inc.	*IMECSFab for Inline Inspection of Touch Sensors*	$49,963
SoundPipe LLC	*Co-injection Drug Delivery with Contrast-Enhanced Intravascular Ultrasound*	$50,000
SoundPipe LLC	*Patient Tailored 3D Drug Delivery with Intravascular Ultrasound*	$50,000
StemCellLife LLC	*Highly Bioactive, Synthetic Peptides Coated cultureware for the Culture of Human Pluripotent Stem Cells*	$50,000
	Total	**$399,963**

Investments approved by the CIT Board on May 20, 2015

FY2015 RTIAC Award Recommendations (cont'd)

CIT R&D
CENTER FOR INNOVATIVE TECHNOLOGY

STTR Matching Funds Program

Cambrian Design and Development LLC	*Objective Tremor Detection System for Continuous Monitoring, Assessment, and Treatment Planning for Neonatal Abstinence Syndrome*	$49,992
VoltMed Inc.	*Minimally Invasive Surgical Platform for H-FIRE and Chemotherapy Treatment*	$50,000
	Total	**$99,992**
	CRCF FY2015 TOTAL	**$2,812,144**

Investments approved by the CIT Board on May 20, 2015

TAB 5

Program Impact

In accordance with Item 419.N of the 2014 Appropriations Act, the Center for Innovative Technology is pleased to submit the following report on behalf of Innovation and Entrepreneurship Investment Authority (IEIA). This item requires that information be reported annually on three of CIT's programs designed to grow the innovation and entrepreneurship sectors of Virginia's economy.

1. Activities associated with providing localities with broadband assistance
2. Activities associated with the Growth Accelerator Program (GAP)
3. Activities associated with the cyber security accelerator

1. Broadband

During FY14 CIT's Broadband program was entirely funded through a US Department of Commerce's National Telecommunications and Information Administration (NTIA) grant designed to expand access to broadband services in the United States. 2014 is the final year of NTIA funding but the Commonwealth's new biennial budget includes $500,000 in each year to fund CIT's program. The state funded program is designed to accelerate the socio-economic growth of Virginia's rural and underserved areas through the application and use of broadband telecommunications.

CIT's Broadband program is responsible for developing a statewide broadband strategy and working with communities and local government to develop access and adoption plans. CIT coordinates with other state entities including; DHCD, VRA, VITA, Virginia Tech, VGIN and others to further assist localities find support for planning and infrastructure projects. Additionally, CIT works with service providers in the Commonwealth to analyze and map assets and coverage data. This information is critical in developing public policy and strategic plans that facilitate broadband deployments that adequately support economic development, education, healthcare, public safety and overall quality of life.

The FY14 activity summarized below in response to Section 419.N.1 of the Appropriation Act was funded through the NTIA grant. In future reports, this section will represent state funded activity for each subsequent fiscal year.

(i) The number of localities assisted by broadband funding:
- **(i) CIT assisted 35 localities in strategic planning and conducted 7 regional broadband workshops for broadband expansion options in underserved areas of the Commonwealth**
- **(ii) CIT Developed the Commonwealth's broadband map to identify and assist localities in underserved areas based on data collected from 69 broadband providers**
- **(iii) CIT developed resources and tools used by localities in planning broadband deployments, assessing needs and raising awareness to increase adoption and utilization**

(ii) The estimated number of localities with populations lacking wired broadband access:
- **(i) Based on April 2014 data Virginia has 52 localities with a significant percentage of households that have no wireline broadband access (please see the Attachment 1 for a map of those localities reporting 20% or more households with no wired coverage)**

2. The Growth Accelerator Program (GAP)

The GAP Fund was established to meet the early stage capital demands challenging the Commonwealth's most promising science and technology-based start-ups whose funding requirements could not be met by traditional financing means. GAP Fund investments are governed by the goal of developing the next generation of Virginia's science and technology economy and the entrepreneurial ecosystem required to support that economy. To this end, the GAP Fund places equity and convertible debt investments in tech, clean-tech and life science companies at the earliest stages of company formation, in a manner conducive to stimulating significant private investment or "leverage cash" as a result of CIT's deployment of public dollars.

Fundamental to CIT's ability to successfully deliver private capital is that, unlike grant programs, CIT holds an ownership position in the investee company and maintains that ownership for a multi-year holding period of indeterminate length while the company grows in scope of operations and value. CIT recovers GAP Program investments only upon a liquidity event such as a public offering or change of control for the company.

Underwritten in part by an annual appropriation from the Virginia General Assembly, the GAP Fund Program functions as a double-bottom-line investment fund focused on creating significant economic outcomes for the Commonwealth, entrepreneurs and co-investors, with the goal of recovering investment capital for redeployment. Since inception, the GAP Fund Program has considered investing in over 3,000 companies and has invested $14.4M in 114 seed and early stage technology, life science, and energy companies across the Commonwealth of Virginia.

Over the 10-year life of the program, CIT has found that the following metrics most closely align with program objectives:

- *Venture and Angel Capital Attracted* – Venture and angel capital dollars invested in the GAP Fund Program's portfolio companies as a result of CIT investing dollars appropriated to IEIA and obtained from federal and private sources. CIT calculates its annual leverage factor by dividing the total of venture and angel capital by all GAP Fund Program portfolio companies in a given year by the dollars deployed in new investments in that year.

- *GAP Fund Program Return* – The ratio of capital returned and anticipated to return to CIT, as a result of portfolio companies being acquired, divided by total GAP Fund Program dollars deployed.

Venture and Angel Capital Attracted. For the period FY12-FY14, the GAP Fund Program achieved the following annual leverage cash totals:

- FY12 – In FY12, the GAP Funds Program invested $2.1M. In FY12, CIT attracted $24.6M

in angel and venture dollars – from both FY12 and pre-existing investments, for an annual leverage factor of 11.7.

- FY13 - In FY13, the GAP Funds Program invested $2.1M. In FY13, CIT attracted $37.5M in angel and venture dollars – from both FY13 and pre-existing investments, for an annual leverage factor of 17.9.
- FY14 - In FY14, CIT GAP Funds invested $3.6M. In FY14, CIT had attracted $102.8M in angel and venture dollars – from both FY14 and pre-existing investments, for an annual leverage factor of 28.5.

Important to note in these ratios is the impact of economic conditions with respect to the ability of GAP portfolio companies to attract leverage capital. Poor economic conditions may result in a lower capital attraction ratio due to investor withdraw from the early stage asset class which is not a direct reflection of changes or performance in the GAP program structure and operations.

GAP Fund Program Return. By the end of FY14, CIT had secured and invested a total of $14,378,710.25, program inception-to-date and had a projected capital return of $18,436,026.97 on invested funds, resulting in a capital return factor of 1.3. This number indicates that CIT is managing Virginia's GAP Funds Program appropriation consistent with its goal to return funds to preserve the base of funds for future investment in Virginia's early stage companies.

The FY2014 activity below is provided in response to Section 419.N.2 of the Appropriation Act. Since GAP investments are, by design, seed stage and intended to leverage private investment and stimulate the next generation of new technology companies, job creation and tax revenue impact are longer term objectives, that data is not available for FY14.

(i) The number of investments from the GAP fund in FY14: **57**
   a) First time investments closed – GAP: 24
   b) First time investments closed – MACH37: 10
   c) Second round investments closed – GAP: 15
   d) Second round investments closed – MACH37: 8

(ii) The average state funding per investment: **$64.4K**

(iii) The impact on job creation: **Not available**

(iv) Estimated tax revenue generated: **Not available**

(v) The number of companies who have received investments from the GAP fund still operating in Virginia: **56 of those companies remain in Virginia, one company was acquired.**

3. Cyber Security Accelerator (MACH37)

MACH37 is the premier accelerator for cybersecurity entrepreneurs and startups nationally. This unique program goes beyond the traditional model of typical business accelerators by providing innovators with focused mentoring and support from an extensive network of visionaries, practitioners, and successful entrepreneurs in cybersecurity. The Spring and Fall sessions of MACH37's 90- day program are designed

to propel graduating companies into the marketplace with validated cyber security concepts and pipelines for accelerated growth.

The program emphasizes the validation of cohort company product concepts and the development of relationships to attract an initial customer base and investment capital. MACH37 employs a tailored approach to address the priority needs of each company, based on their individual strengths and weaknesses.

MACH37 was championed by the Commonwealth's technology community and launched on September 12, 2013 and started its first cohort that same month. Companies selected for the program typically constitute a team of 2 to 4 entrepreneurs and a technical co-founder working to build alpha or prototype cyber security solutions that address the drivers of a demand for innovations in cybersecurity, including:

- New mainstream demand for advanced capabilities;
- Porous network perimeters that are making traditional solutions less relevant;
- Opportunities created from software defined networking; and
- Challenges of a hyper-connected world with an Internet-of-everything.

At the close of the fall 2014 cohort class, the list of successful graduates will include 17 new cyber companies that have been attracted from around the country to grow these critical businesses in Virginia.

The FY2014 activity below is provided in response to Section 419.N.3 of the Appropriation Act. As in the case of the GAP Fund, MACH37 companies are very early stage and the program is designed to leverage private investment and stimulate the growth of the cyber industry in Virginia. Therefore, the preceding 12 months is not sufficient to develop meaningful job creation data or to anticipate equity returns.

(i) The number of companies assisted with the cyber accelerator program in FY14: **10**
(ii) The number of companies operating in Virginia as a result of the program: **10**
(iii) Impact on job creation: **Not Available**
(iv) The value of proceeds from the sale of equity in companies that received capital support from the program in FY14: **No MACH37 graduate company has been acquired or become publicly traded in the first twelve months of this program.**

Commonwealth Research Commercialization Fund

Advancing Technology and Economic Development in Virginia by Investing in Priority Research and Commercialization Activities

ANNUAL REPORT

July 1, 2013 – June 30, 2014

Submitted by the Fund Administrator:
Center for Innovative Technology
on behalf of the Innovation and Entrepreneurship Investment Authority

October 1, 2014

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Executive Summary

In accordance with Code of Virginia Sections 2.2-2233.1 G and 2.2-2221 (18), and on behalf of the Innovation and Entrepreneurship Investment Authority (IEIA), the Center for Innovative Technology (CIT) respectfully submits this report regarding the performance of the Commonwealth Research Commercialization Fund (CRCF) in FY2014. The CRCF accelerates innovation and company formation in the Commonwealth, while solving important state, national, and international problems through technology research, development, and commercialization.

During the 2013 session of the General Assembly, $4.8 million was appropriated to CRCF for FY2014 for the purpose of advancing science- and technology-based research, development, and commercialization to drive economic growth in Virginia. CIT issued two FY2014 solicitations resulting in $4.2 million invested in 52 projects[1] and leveraging the Commonwealth's investment with approximately $7.4 million in matching funds. CRCF projects are performed by young companies, universities, and research institutes across the state and align with Virginia's key strategic technology priorities as outlined in the Commonwealth Research and Technology Strategic Roadmap.

Program Impact

FY2014 CRCF awards, along with awards made in FY2012 and FY2013, tackle major challenges in sectors such as life sciences, cyber security, advanced manufacturing, and energy. Multiple CRCF awards, for instance, hold promise for innovative new diagnostics and treatments, including for brain, pancreatic, and urogenital cancers and for diabetes. Cyber security continues to be a critical focus of CRCF projects, from products targeting cyber security assessments to solutions that monitor and detect cyber attacks and malicious intrusions. These projects, with CRCF support, have the potential to have a profound and lasting benefit to citizens of the Commonwealth and to society at large through enhancing quality of life and in job, company, and intellectual property creation in Virginia.

Most CRCF projects are underway or have been recently completed, yet CRCF investments have already resulted in companies created, products launched, intellectual property developed, graduate students recruited, and other outcomes beneficial to Virginia. Public and private colleges and universities are participating in technology commercialization; Randolph College, the Virginia Military Institute, and Washington and Lee University, for example, are among new CRCF awardees whose students and faculty are collaborating with companies. FY2014 reports identified several early returns on the Commonwealth's investment.

- **Products/services introduced to market.** In FY2014, at least two new products and/or services have been brought to market in life sciences and modeling and simulation; at least one additional product/service is anticipated for near-term release. More than 12 organizations

[1] 52 projects were selected for funding; two organizations declined awards
[2] 146 projects were selected for funding since CRCF's inception; seven awards have been declined

reported being engaged in active discussions with companies and other organizations interested in licensing products.

- **New company formation.** At least four new companies in the life sciences and cyber security industries, some of which are university spin-outs, have been formed during FY2014 in the Commonwealth. Additionally, at least one CRCF recipient has expanded its operations into multiple locations across the state, and at least two non-Virginia companies have located all or a portion of their operations to the Commonwealth.

- **Additional funding leveraged.** CRCF award recipients reported over $30 million in additional investments made in research and technology work after the conclusion of the CRCF projects. At least seven companies have noted sales and/or revenue, with reported totals of more than $3 million, combined.

- **Partnerships formed.** Several notable partnerships have formed between CRCF recipients and other organizations, including, but not limited to: Reliant Medical Group, EMC, Amgen, Dominion Virginia Power, Bracco, and Northrop Grumman, as well as with colleges, universities, large pharmaceutical companies, and small businesses in and outside of Virginia.

- **Intellectual property created and licensed.** As reported in FY2014, more than 50 patents have been filed or are pending, including both full and provisional patents; 12 or more patents have been issued; more than ten invention disclosures have been issued; five or more products or technologies have been licensed; and other discussions have circulated around trademarks and trade secrets.

- **Publications prepared and accepted.** There are more than 100 total publications and symposia by Fund awardees. Of these, more than 70 publications and presentations have been published and accepted, respectively, as reported in FY2014; an additional ten publications have been submitted and are awaiting publication and nearly 20 publications are in preparation.

Project Samplings

CIT tracks projects during their period of performance and for five years after conclusion, as economic and technological outcomes are often realized a few years or more after a project is completed. The majority of projects from the FY2012 rounds have been completed, while most projects awarded in FY2013 are nearing completion or were recently finished. Projects awarded in FY2014 are almost all underway. Projects showcasing the Fund's effectiveness in contributing to the economic, technological, and well-being of the Commonwealth follow.

- Cavion, formerly Tau Therapeutics, of Charlottesville, has developed a unique and safe adjunctive therapy that enhances conventional and targeted cancer therapies and has the potential to

significantly improve the standard of care for glioblastoma, the most common and deadly type of brain tumor. Research has shown that pre-treating patients with the drug mibefradil prior to administering chemotherapy has shown a dramatic increase in lifespan in animal models and overcome drug resistance. In the year since project completion, the Cavion team has raised $3.55 million in angel investments, received $200,000 from the Commonwealth to partner with researchers at the University of Virginia and Virginia Commonwealth University to define an optimal dosing schedule for a clinical trial, garnered approximately $2 million in sponsorship by the Yale Cancer Center for a new Phase I clinical trial, and connected with major pharmaceutical and venture firms to fund the drug development program. Cavion continues to hire new staff, primarily in Virginia.

- In FY2012, Virginia Tech was the recipient of a CRCF award that supported the recruitment of Dr. Robert Gourdie, a leading heart regenerative medicine scholar, to the university and the Virginia Tech Carilion Research Institute. Throughout the course of the project and in the year since the project concluded, the team has secured nearly $3 million in additional grants/investments and nearly $9 million in pending grant applications, recruited three cardiovascular researchers to the faculty, hired seven lab employees, published 21 papers and edited a book, and filed two patents and executed options on seven licenses. Dr. Gourdie's company, FirstString Research Inc., established a location in Roanoke, recruited its first employee there, and attracted $7 million in grant funding. Additionally, and of major note, the team has completed three Phase II clinical trials which have achieved respective primary and secondary endpoints, and FirstString is in discussions with the FDA for approval to proceed with Phase III clinical trials. For the accomplishments of the Phase II clinical trials, the team has been accepted for publication in the *Journal of Investigative Dermatology*, a milestone representing the first successful pharmacological targeting of a gap junction protein – the proteins responsible for direct communication between cells.

- Power Fingerprinting (dba PFP Cybersecurity), a Virginia Tech spin-out company, is creating game-changing cyber security solutions to assess the integrity of a variety of critical platforms and detect attacks. PFP's unique air-gapped approach enables critical embedded devices, such as cyber-physical systems, to be directly monitored for intrusions. The approach is effective even when the devices have limited resources and are based on legacy platforms not supported by current monitoring solutions. Furthermore PFP is developing options to detect counterfeit semiconductors, such as relabeled or used parts, as well as chips tampered with hardware Trojans. PFP's technology has been validated in multiple platforms and scenarios, including a pilot with Savannah River National Lab. Recent efforts have culminated in the near-term release of the P2Scan, a commercially available, portable scanner for critical infrastructure, capable of extracting baselines and performing run-time monitoring on industrial control systems. In addition to CRCF support, PFP has received funding from the Defense Advanced Research Projects Agency, Department of Homeland Security, U.S. Army, U.S. Air Force, and National Science Foundation. The company continues to raise funds to accelerate commercialization efforts; $1.15 million has been raised to-date, with plans to raise a second round from strategic investors.

- The University of Virginia and Charlottesville-based company Neoantigenics LLC are conducting research on a specific protein expressed in a broad range of human cancers in order to develop antibody-based drugs directed at this tumor marker and diagnostic tests that will guide personalized patient therapy decisions. Based on results from ongoing projects surrounding this work supported by CRCF, a pharmaceutical collaborator has made a parallel equity investment in Neoantigenics, in addition to in-kind expertise and access to key proprietary technology through a three-year collaboration. To-date, the teams have raised $1.7 million to fund this R&D work. A Series A funding round is planned for mid-2015, with interest expressed from multiple pharma venture firms to participate or syndicate in the round – a rare occurrence for a Virginia-based biotech firm. Through a CRCF Eminent Researcher Recruitment award, UVa was able to on-board to its faculty Dr. Eusebio Pires, a critical hire to the cancer-oocyte antigen research being conducted at UVa and advanced through the University and Neoantigenics. The research has led to a fundamental new insight into the nature of cancers originating in a wide variety of tissues.

- At the College of William & Mary, R&D is underway on a technology that will benignly displace problematic birds from airfields in order to reduce bird strike risks and, on secondary and tertiary levels, minimize agricultural losses due to pest bird foraging and displacing nuisance birds that cause extensive repair and chronic clean-up costs. In early testing, the "sonic net" technology, which uses non-linear acoustics, has reduced the presence of flocks by approximately 50%, and more research is underway. A Williamsburg, Virginia company, Midstream Technology LLC, has licensed the patent-pending technology and together the teams are seeking additional funding for larger-scale field tests, potentially in partnership with Dominion Power who seeks solutions for keeping birds away from power substations and the Federal Aviation Administration, among others.

- CRCF-funded ClearEdge 3D, Inc. is developing and commercializing the first automated modeling software to create fully three-dimensional computer models of buildings, streetscapes, and entire cities. Prior to ClearEdge technology, it could take hundreds of hours and tedious manual tracing of laser scans or photogrammetry point clouds to create a full 3D model of an average city building; with the company's product, 3D modeling time is reduced by up to 90%. The widespread availability of fully 3D city models and streetscapes will have a profound impact on the personal navigation, commercial real estate, design/construction, first responder, security, and defense industries.

- A research team at the Virginia Military Institute is working closely with Attochron, a California company that has recently relocated operations to the Commonwealth. Together, VMI and Attochron are in the inaugural phase of exhibiting a revolutionary wireless telecommunications technology that will increase the efficiency and data-carrying capacity to previously unattainable levels, while reducing costs. Currently, the team is in discussions with major wireless broadband telecommunications carriers and others in the value chain regarding the technology and its potential. Demonstrations at VMI and in the Lexington, Virginia area are planned for fall 2014.

- S34A, Inc., an Arlington-based small business focused on developing software and hardware solutions that provide investigators with the capability to conduct forensic analysis of solid state storage devices, has completed CRCF-funded work to validate, refine, and finalize design specifications for a set of hardware and software tools that can be used for hidden data extraction. Leveraging knowledge from the project, S34A won a $750,000 SBIR Phase II two-year contract from the Department of Homeland Security. The contract allows the company to employ two full-time researchers and additional part-time experts. Additionally, the federal and state labs that participated in S34A's customer requirements survey agreed to beta test products.

- A University of Virginia team has developed an innovative approach and tool which addresses cyber threats by providing point defenses at the application layer using System-Aware Cybersecurity – a security layer embedded into a critical system to protect critical system functions in the face of ongoing cyber threats. The team has built a prototype of a secure application appliance platform, or System-Aware Sentinel, to provide additional protection to critical system functions on a mission-critical, unmanned aerial platform. As a result of CRCF and other funding, the team was successfully able to spin out Mission Secure, Inc., headquartered in Charlottesville, which was scheduled for launch in August 2014. CRCF funds allowed the team to attract successful and capable management personnel and high-net-worth angel investors to take research from the lab and bring it to production applications.

Program Overview

Since the inception of the CRCF program in 2011 legislation, 380 applications were submitted from all of the Commonwealth's ten technology regions and from these submissions, 146[2] projects have been awarded CRCF funding. Funded projects cover all technology sectors.

Per legislative direction, awards made for CRCF projects must support technology sectors identified in the Commonwealth Research and Technology Strategic Roadmap; moreover, projects funded by CRCF seek to positively impact Virginia's technology future. The Roadmap, a comprehensive planning tool Virginia leaders use to help determine research areas worthy of economic development and institutional focus, identifies technology sectors with the most commercial promise and that will drive economic growth throughout the state. The Roadmap is developed through a consultative process that includes the Commonwealth's private sector technology community, academia and other nonprofit research organizations, and economic development professionals.

CIT also leverages its programs to facilitate company creation and growth. In relation to other CIT funding programs, CRCF is part of a pipeline, working closely with the Federal Funding Assistance Program (FFAP) and the GAP family of funds. CRCF also complements other funding programs in the Commonwealth, such as the Virginia Innovation Partnership (VIP), a statewide network designed to

[2] 146 projects were selected for funding since CRCF's inception; seven awards have been declined

accelerate innovation and economic growth and the Virginia Biosciences Health Research Corporation (VBHRC), a translational human health research accelerator program targeting collaboration between Virginia research universities and industry.

Two solicitations were offered in FY2014. The fall solicitation was a limited submission solicitation funded through FY2013 rollover monies and targeting the Commonwealth's universities and research organizations; the Eminent Researcher Recruitment and Matching Funds Programs were offered. The spring solicitation expanded to include the private sector and political subdivisions; the solicitation included six programs: Commercialization, Eminent Researcher Recruitment, Facilities Enhancement Loan, Matching Funds, SBIR Matching Funds, and STTR Matching Funds.

- **Commercialization Program**
  This program targeted young companies with product(s) in the proof-of-concept phase. Firms eligible for this program were established on or after January 1, 2012.

- **Eminent Researcher Recruitment Program**
  This program targeted public colleges and universities seeking to acquire or enhance research superiority in qualified technologies through the recruitment of a top scholar to its faculty.

- **Facilities Enhancement Loan Program**
  This program helped public and private universities and political subdivisions establish and/or upgrade facilities used to commercialize qualified research or technologies, including those developed at the institutions and by Virginia's private sector.

- **Matching Funds Program**
  This program helped public and private colleges, universities, other research institutes, and federal labs in Virginia leverage federal and private funds designated for the commercialization of qualified research or technologies. Funds could be used to advance research to readiness for intellectual property protection, private sector investment, and/or help to qualify institutions for funding competitions.

- **SBIR Matching Funds Program**
  This program helped advance technology commercialization by young Virginia-based technology businesses that had won a Phase I and/or Phase II Small Business Innovative Research (SBIR) award in any one of six technologies identified below. Firms eligible for Phase I matching awards were established on or after January 1, 2011, while firms eligible for Phase II matching awards were established on or after January 1, 2009.

- **STTR Matching Funds Program**
  This program helped advance technology commercialization by young Virginia-based technology businesses that had won a Phase I and/or Phase II Small Business Technology Transfer (STTR) award in any one of six technologies identified below. Firms eligible for Phase I matching awards were established on or after January 1, 2011, while firms eligible for Phase II matching awards were established on or after January 1, 2009.

Technology sectors eligible for funding in FY2014 were program-specific; the Commercialization and SBIR and STTR Matching Funds Programs invited applications in six high-priority sectors: advanced manufacturing, specifically robotics, 3D printing, or remote monitoring and sensing; cyber security; data analytics; energy; life sciences; and modeling and simulation. The Eminent Researcher Recruitment, Facilities Enhancement Loan, and Matching Funds Programs were open to submissions in all technology areas identified in the Roadmap as strategic opportunities for the Commonwealth.

In FY2014, 96 applications were received for five of the six available CRCF programs, totaling $7.9 million; applications were not received for the Facilities Enhancement Loan Program. Applications represented nine of the Commonwealth's ten technology regions and covered 11 strategically important industry sectors. Applications in FY2014 exhibited a strong emphasis on the area of life sciences, though a significant number also focused on advanced manufacturing and energy. Fifty-two awards were made, and 50 awardees accepted funding. Awarded projects represent nine of the ten regions and ten industry sectors: advanced manufacturing, aerospace, communications, cyber security, data analytics, energy, environment, information technology, life sciences, and modeling and simulation.

CRCF awards were selected by the CIT Board of Directors following a multi-step review process that included funding recommendations made by the Research and Technology Investment Advisory Committee (RTIAC). The RTIAC is a legislatively-established body comprised of representatives from higher education, economic development, research institutes, venture capital firms, and technology corporations.

A brief overview of each project is provided in Appendix A.

Preparations for FY2015

The General Assembly and Administration appropriated $2.8 million to CRCF for FY2015 and planning will begin in early in the fiscal year.

The Fund Administrator will continue to monitor projects and will report them for up to five years after their period of performance in order to capture commercialization results and economic outcomes, including job and company creation, and new revenues.

Administration

Administrative activities in FY2014 included overseeing two solicitations and the RTIAC, outreach, and award management for projects funded in FY2012 and FY2013. CIT received $205,000 for Fund management.

As Fund Administrator and with the support of the RTIAC, CIT developed the approach for the FY2014 solicitations, including program guidelines, review processes, and use of an online grants management system, CyberGrants, to facilitate application submissions and reporting. Following the review of Letters of Intent (LOIs), CIT led a multi-step proposal review process. CIT performed an internal compliance review to determine which applications advanced to examination by subject matter experts. These subject matter experts – individuals from industry, academia, and government – evaluated and rated proposals. Those that advanced were reviewed by the RTIAC. The RTIAC assessed projects and recommended to the CIT Board of Directors those which should be funded. The CIT Board made final selection decisions, after which awards were announced.

CIT maintained information on the Fund, including solicitations and award announcements, on the CIT website. Press releases described the request for proposals and, subsequently, award recipients. Outreach and communications also included email announcements and speaking engagements. Outreach efforts were supplemented by the additional communication networks of Virginia's regional technology councils; individual colleges and universities, research organizations, and federal labs; the Virginia Biotechnology Association (VABio); the State Council of Higher Education for Virginia (SCHEV); the Virginia Economic Development Partnership (VEDP); and the Administration.

Also as Fund Administrator, CIT managed awards and produced the FY2013 Annual Report. This included assessing performance on an ongoing basis. Additionally, CIT provided support to external organizations, state agencies, and researchers from academia, industry, and other members of the technology community that desired information about the Fund and future solicitations. Lastly, throughout the year, CIT provided oversight to ensure compliance with the CRCF guidelines and other requirements.

APPENDIX A: FY2014 Award Details

Fall Solicitation

Award Recipient	Project Title	Project Description	Period of Performance	Principal Investigator	CRCF Award	Match
EMINENT RESEARCHER RECRUITMENT PROGRAM						
Virginia Tech	*Recruitment of Eminent Researcher in Nanoparticle Cancer Therapeutics Development*	The Virginia Tech Carilion Research Institute is recruiting an eminent cancer researcher.	7/01/2014 – 6/30/2015	Michael Friedlander	$250,000	$250,000
				TOTAL EMINENT RESEARCHER RECRUITMENT PROGRAM AWARDS:	**$250,000**	
MATCHING FUNDS PROGRAM						
College of William and Mary	*Algal Aquaculture for Nutrient Assimilation and Removal*	This project advances the use of a cost-effective in-water algae growth system to remove sediments and nutrients above EPA-mandated total maximum daily loads, as a way to return the Chesapeake Bay to health.	1/6/2014 – 6/30/2015	William Cooke	$100,000	$100,000
College of William and Mary	*Developing Sonic Net Technology to Reduce the Risks of Bird-Aircraft Collision*	Collisions between birds and aircraft cause multi-billion dollars in damages annually in civil and military aviation, grounding aircraft and causing injury. This project is developing a technology that will benignly and sustainably displace problem birds from airfields to reduce bird strike risks.	1/13/2014 – 1/12/2015	John Swaddle	$99,781	$99,781
Commonwealth Center for Advanced Manufacturing	*Knowledge Capture and Integration*	This project focuses on developing a structured approach to knowledge capture for different manufacturing processes, including knowledge management strategy and software architecture for capturing, analyzing, modeling, and utilizing intuitive and explicit knowledge gained by advanced manufacturing industry experts.	1/6/2014 – 12/31/2014	Kevin Farinholt	$99,810	$181,700

Award Recipient	Project Title	Project Description	Period of Performance	Principal Investigator	CRCF Award	Match
Eastern Virginia Medical School	*New Combination Therapy for Type 1 Diabetes*	Currently, Type 1 diabetes patients require lifelong insulin injection to sustain life, and are at risks for complications including heart attack, stroke, blindness, kidney failure, leg amputations, and devastating neuropathic pain. The goal of this project is to identify a new commercially viable therapy for people with Type 1 diabetes.	1/6/2014 – 1/5/2015	Yumi Imai	$100,000	$100,000
Old Dominion University Research Foundation *	*Real-Time Fusion of Medical Images for Personalized Image Guided Diagnosis and Therapy*	This project focuses on a software system for medical applications and devices required in personalized medicine, including for 3D medical image fusion in image-guided neurosurgery for deep brain surgery, for the treatment of Parkinson's and Alzheimer's diseases, and tumor resection for brain cancer and emerging medical simulators.	12/6/2013 – 1/5/2014	Nikos Chrisochoides	$100,000	$100,000
Randolph College	*Assessing the Quality of Harvested Rainwater for Residential Use*	Rainwater harvesting provides a solution to two pressing environmental issues in Virginia and across much of the United States: excess run-off and strained water supplies. Rainwater harvesting systems collect run-off from roofs and other surfaces and supply water for toilets, irrigation systems, laundry, and other uses. This project examines the quality of harvested rainwater in existing and experimental rainwater harvesting systems to support the design and marketing of a new modular rainwater harvesting system.	1/10/2014 – 4/30/2015	Sarah Lawson	$23,910	$25,906
Region 2000 Research Institute dba CAER	*Impact of Digital I&C Failures on Human Performance*	This project is a follow-on project to a CRCF FY2012 fall award. In this continued work, a series of experiments is being conducted to investigate the impact of degraded or failed digital instrumentation and control (I&C)	1/6/2014 – 12/31/2014	Bob Bailey	$79,712	$170,904

Award Recipient	Project Title	Project Description	Period of Performance	Principal Investigator	CRCF Award	Match
		systems on human performance.				
Region 2000 Research Institute dba CAER	*Wireless Broadband Using LTE Repeater*	The objective of this project is to investigate and test the feasibility of using innovative spectrum access technologies to provide wireless communications in under-served localities in Virginia. The technology can lead to low-cost alternatives for providing broadband services and to the development of an infrastructure that would support a large-scale DoD testbed and provide for mobile communications in emergency scenarios.	1/6/2014 – 1/6/2015	Bob Bailey	$97,891	$132,997
University of Virginia	*Micromachined Probes for Manufacturing Diagnostics of High-Speed Electronic Components*	This project seeks to advance state-of-the-art manufacturing capabilities for high-performance semiconductors through research and development of new on-wafer probe technologies for device fabrication diagnostics and process monitoring.	1/1/2014 - 12/31/2014	Robert Weikle	$100,000	$138,165
University of Virginia	*New Molecular Imaging Technology for Safe and Inexpensive Cancer Screening*	Molecular imaging, using inherently safe medical ultrasound, is a recent technological development that has shown promise for safe, real-time, and low-cost early detection and diagnosis of cancer. This project seeks to validate and ultimately commercialize a new molecular imaging technology that will represent a substantial advancement in human healthcare.	1/6/2014 – 1/5/2015	John Hossack	$100,000	$100,000
Virginia Tech	*Development and Manufacturing of Fiberoptic Microneedle Devices for Cosmetic and Cancer Treatments*	The VT team has invented a fiberoptic microneedle device (FMD) platform technology that enables minimally-invasive delivery of light and therapeutic agents into soft tissues including brain, bladder, and skin. The project seeks to refine the	1/6/2014 – 1/5/2015	Christopher Rylander	$100,000	$100,000

Award Recipient	Project Title	Project Description	Period of Performance	Principal Investigator	CRCF Award	Match
		manufacturing process for FMDs and to advance the initial demonstration prototypes to be manufacture-ready.				
VMI Research Laboratories	*21st Century Laser Wireless R&D with Ultrashort Pulse Lasers*	To optimize the efficiency and capacity of broadband access for 4G mobile users, cellular carriers are searching for ways to increase the rate at which information is shared between cell towers, known as the backhaul capacity. The goal of this project is to establish a telecommunication link at VMI that will lead to a commercially ready system able to satisfy the backhaul needs of cellular carriers.	1/6/2014 – 9/30/2015	Stacey Vargas	$99,576	$100,125
Washington and Lee University	*Simultaneous Localization and Mapping in Python for RF-Denied Environments*	The W&L team has developed an algorithm known as SLAM to map an enclosed environment such as a room building, using small UAVs or other robots. Through this project, W&L will test the SLAM application programming interface in Python.	6/15/2014 – 8/15/2014	Simon Levy	$19,286	$19,312
				TOTAL MATCHING FUNDS PROGRAM AWARDS:	**$1,119,966**	
				TOTAL CRCF FY2014 FALL AWARDS:	**$1,369,966**	

* Indicates declined award

Spring Solicitation

Award Recipient	Project Title	Project Description	Period of Performance	Principal Investigator	CRCF Award	Match
COMMERCIALIZATION PROGRAM						
AxonAI, LLC	*Ant-Based Cyber Defense*	This project seeks to build and commercialize software which provides intrusion detection and prevention for	6/16/2014 – 6/16/2015	Sven Brueckner	$50,000	$50,000

Award Recipient	Project Title	Project Description	Period of Performance	Principal Investigator	CRCF Award	Match
		mobile devices, traditional networks, and mobile ad-hoc networks. Specifically, the current architecture is being modified to produce a prototype that can secure mobile devices and mobile ad-hoc networks, and conduct tests on already-identified potential customer networks.				
AxonAI, LLC	*Information Discovery with Active Models*	This project develops a prototype, conducts tests, and commercializes software to help military and intelligence analysts, investigators, lawyers, and journalists easily find knowledge in massive amounts of data using a cognitively intuitive interface.	6/16/2014 – 6/16/2015	Sven Brueckner	$50,000	$50,000
AxonDx, LLC	*Development of a Circulating Tumor Cell Identification and Characterization System*	Many cancers are deadly because they are asymptomatic until the tumor progresses beyond its original site; the ability to detect solid tumors while they are small and easily resectable will significantly increase survivability. This project seeks to develop a tool that can be easily integrated into a pathologist's workflow and is based on familiar microscopy methodologies. The ultimate goal is to use the tool during annual physicals for the earliest possible detection of small malignant lesions.	6/16/2014 – 6/15/2015	Jeffrey Smith	$50,000	$50,000

Award Recipient	Project Title	Project Description	Period of Performance	Principal Investigator	CRCF Award	Match
Cardinal Mechatronics	*Non-contact Measurement of Patient Respiratory Rate with a LWIR Camera System*	This project evaluates current sleep study technologies such as the sensors that measure temperature or pressure changes at the nose or mouth for the purpose of measuring respiratory rate and/or detecting sleep apnea or hypopnea. The team proposes a long-wave infrared (LWIR) camera-based system that can measure the change in temperature of a surface with no direct contact. The project will develop the hardware and software to measure the respiratory rate with the LWIR camera and compare the results with the standard sensors in a series of sleep study trials.	6/16/2014 – 6/15/2015	John Bird	$49,960	$58,646
Nanofoundry, LLC	*Development of In-Line Monitoring of Magnetic Properties in a Micro-Channel Reactor System for Nanoparticle Manufacturing*	This project seeks to develop critical technology for the manufacturing process. The technology, in-line monitoring of magnetic properties of the additive material during the chemical manufacturing process, will provide real-time feedback to the control systems, a critical component to producing a consistent, highly performing product. These advances can lead to improvements in electrical efficiency and size and cost of power transformer and conditioning systems used for electronics.	6/1/2014 – 12/31/2014	Everett Carpenter	$15,000	$15,000
NextGen Diagnostics	*Commercializing NextGen Diagnostics*	This project seeks to collect validation data from a variety of study systems to demonstrate the utility and efficacy of using next-generation sequencing technologies to provide faster and more accurate results compared to culture-based methods.	6/16/2014 – 6/15/2015	Keith Crandall	$50,000	$85,000
Ultrasonic Probe	*UltraSonagraphic*	Periodontal disease is the primary cause of	6/17/2014 –	Jack Singer	$50,000	$50,000

Award Recipient	Project Title	Project Description	Period of Performance	Principal Investigator	CRCF Award	Match
LLC	*Periodontal Probe*	tooth loss and a major contributor to other systemic and chronic diseases, many of which could be prevented or treatment with better early detection. This project seeks to facilitate better early detection and treatment though a non-invasive, painless ultrasound technology that would more accurately and precisely detect periodontal disease.	12/31/2014			
UpHex, LLC	*UpHex Commercialization*	This project seeks to further develop and accelerate an analytics monitoring service for digital agencies and their clients that: aggregates data from third-party services into one place; monitors select metrics for anomalies against predicated values; and notifies users when important events occur.	8/1/2014 – 12/31/2014	Bradley Kipp	$50,000	$50,000
				TOTAL COMMERCIALIZATION PROGRAM AWARDS:	**$364,960**	
EMINENT RESEARCHER RECRUITMENT PROGRAM						
University of Virginia	*Companion Diagnostics and Targeted Therapeutics for Treating SAS1B Positive Cancers*	This project advances the translational research capacity at UVa and within the Commonwealth through inter- and intra-institutional collaboration in novel cancer diagnostics and therapeutics. UVa is recruiting Dr. Eusebio Pires to lead a team to develop diagnostic assays and targeted biological therapeutics for precision, personalized medicine for patients with uterine, ovarian, pancreatic, and renal cancers. Dr. Pires is a critical hire for the university to achieve its 5-year goal of becoming an NIH "Comprehensive Cancer Center".	7/1/2014 – 6/30/2017	John Herr	$249,862	$249,862
Virginia Tech	*Recruitment of Eminent Researcher in Infectious*	The Virginia Tech Carilion Research Institute is recruiting Dr. Griffith Parks, one	7/1/2014 – 6/30/2015	Michael Friedlander	$250,000	$250,000

Award Recipient	Project Title	Project Description	Period of Performance	Principal Investigator	CRCF Award	Match
	Diseases and Immunology	of the country's eminent infectious disease researchers. Dr. Parks is a leading scientist whose discoveries are making major contributions to elucidating the innate immune responses to a diverse group of medically important viruses. Dr. Parks will be leader in Virginia Tech's growing health sciences infectious disease and immunology research program.				
TOTAL EMINENT RESEARCHER RECRUITMENT PROGRAM AWARDS:					**$499,862**	
MATCHING FUNDS PROGRAM						
College of William and Mary	*Manufacturing Polymers with Advanced Performance through Graphene-Based Nanoparticle Additives*	The W&M team has two novel cost-effective and scalable methods which allow for manufacturing advanced polymers via incorporation of graphene. This project focuses on achieving improved material performance and cost savings in two major applications: polyamides used in pipes for oil transport and exterior coatings for the paint industry. The novel approach significantly improves water absorption and hardness.	8/1/2014 – 7/31/2014	Hannes Schniepp	$100,000	$149,731
Eastern Virginia Medical School	*Development and Commercialization of a New, Sensitive and Chemo-Responsive Anti-SIAH-Based Monoclonal Antibody Detection Kit to Determine and Quantify the Efficacy of Chemotherapies in Real Time for Virginia Breast Cancer Patients with Metastatic Diseases*	In this project, EVMS researchers are assessing the chemo-induced changes in SIAH expression pre-, during-, and post-neoadjuvant chemotherapy with other known clinicopathological parameters including MRI and breast-specific gamma imaging. The aim is to develop an SIAH-based early detection kit to quantify, predict, and personalize chemotherapies for each Virginia breast cancer patient with metastatic disease.	7/1/2014 – 6/30/2015	Amy Tang	$100,000	$100,000
Eastern Virginia Medical School	*Development of Selective 12-Lipoxygenase Inhibitors*	This project will develop potent and specific small molecule inhibitors of 12LO	7/1/2014 – 6/30/2015	Jerry Nadler	$100,000	$100,005

Award Recipient	Project Title	Project Description	Period of Performance	Principal Investigator	CRCF Award	Match
	for Type 1 Diabetes	as a promising new treatment for diabetes.				
George Mason University	*Manufacture Large-Area Two-Dimensional Semiconductor Materials for Portable, Flexible and Transparent Electronics*	This project seeks to develop advanced manufacturing technology to produce large-area, transparent two-dimensional semiconductor materials for next-generation portable, flexible, and transparent electronics.	7/1/2014 – 6/30/2016	Qiliang li	$100,000	$100,022
The George Washington University	*Technical Feasibility and Potential Commercial Impact of High-Efficiency Solar Cells Enhanced with Quantum Dots*	Motivated by the advancement of nanotechnology, a team of physicists and engineers at GWU is developing new, efficient solar cells that will use unique properties of quantum dots to raise conversion efficiency of solar light into electricity.	6/16/2014 – 6/15/2015	Andrei Afanasev	$50,000	$104,113
Old Dominion University Research Foundation	*Advanced Single Axis Solar Tracking System for Enhanced Energy Generation*	This project focuses on the second stage of development of a photovoltaic tracking system, one that is ready for mass production. Specifically, the focus is on optimizing the structural efficiency, reducing fabrication and installation costs, improving durability, and minimizing maintenance.	6/16/2014 – 6/15/2015	Michael Seek	$25,000	$106,658
Southern Virginia Higher Education Center	*Advancing Commercialization in Virginia of Southern Yellow Pine Cross-Laminated Timbers Through Materials and Process Testing*	This project seeks to develop adhesive materials and advanced manufacturing production processes necessary to bring a technologically-innovative construction material known as cross-laminated timber (CLT) panels to commercialization in Virginia. CLTs are a highly energy-efficient engineered structural wood product made from Southern Yellow Pine.	6/16/2014 – 6/15/2015	David Kenealy	$78,724	$78,724

Award Recipient	Project Title	Project Description	Period of Performance	Principal Investigator	CRCF Award	Match
Southwest Virginia Higher Education Center Foundation	*Novel Lyme Disease Vaccine for Wildlife and Other Mammals*	This project focuses on the development of an oral bait formulation version of a VCU-developed Lyme disease vaccine that can be used to control local populations of infected white-footed mice and ticks, with the ultimate goal of breaking the enzootic cycle of Lyme disease.	7/1/2014 – 6/30/2015	Ed Rogers	$86,883	$117,956
University of Virginia	*A pH-Resistant Nanoparticle Platform for Oral Delivery of Insulin*	Insulin injection is the therapeutic approach to treating Type 1 diabetes and a major component of therapy in Type II diabetes. However, lack of adherence to the therapy is a significant problem. This project seeks to reduce the number of required insulin injections, improve patient adherence, and reduce waste and increase access to insulin therapy throughout the world.	7/1/2014 – 6/30/2015	Mark Kester	$100,000	$100,000
University of Virginia	*Efficient Programming for Automata Processors*	There is a need to develop tools and libraries to make programming easy in order to reduce the barriers to commercial adoption. This project focuses on the development of libraries and programming languages to support new categories of applications on the automation processor, as well as demonstration software to shower the power of the automation processor.	7/1/2014 – 6/30/2015	Kevin Skadron	$100,000	$100,000
University of Virginia	*Integration of Nano-Structured Oxides as Energy Generating Thermal Barrier Coatings*	This project aims to develop fabrication processes necessary to integrate Strontium Niobate (Sr2Nb207) and doped Sr2Nb207 films into thermal barrier coatings used to protect steam turbine and high performance jet engine blades.	8/1/2014 – 7/31/2015	Patrick Hopkins	$100,000	$100,000
Virginia Commonwealth	*A New Strategy for Buprenorphine Oral Delivery*	Opiate addiction continues to be a serious health problem in the U.S. and throughout	6/16/2014 – 6/15/2015	Phillip M. Gerk	$100,000	$100,001

Award Recipient	Project Title	Project Description	Period of Performance	Principal Investigator	CRCF Award	Match
University		the world, and new treatment products and strategies are still needed. Buprenorphine and naloxone are used together in order to prevent drug diversion and abuse. Both have low oral bioavailability and extensive presystemic metabolism in the liver, thus convenient oral dosing is not feasible. This project seeks to establish an effective and clinically feasible approach for buprenorphine oral systemic dosing.				
Virginia Commonwealth University	*Olfactory Implant Device*	Currently there are no treatments to restore the sense of smell, especially following head injury, viral infections, and in the normal aging process when damage to the olfactory nerves often occur. This project advances the development of a new VCU-invented biomedical device that is designed to incorporate odor sensing technologies and implantable electrodes to restore smell function.	7/1/2014 – 6/30/2015	Richard Costanzo	$100,000	$100,000
Virginia Institute of Marine Science, College of William & Mary	*Optimizing Commercial Production of Triploid Crassostrea Virginica through Development of Elite Tetraploid Brood Stock*	This project seeks to begin the process of testing new lines of tetraploids – a genetic construct paramount to continued expansion of oyster aquaculture in Virginia – to further enhance commercial triploid production. Continued improvement of oyster varieties could easily double the value of the industry in Virginia and spur further growth throughout the Chesapeake Bay.	11/1/2014 – 10/31/2016	Standish Allen	$100,000	$100,002
Virginia Tech	*Advanced Manufacture and Testing of a Brain Cancer Treatment*	Patients with the brain cancer glioma have about a year to live once diagnosed. Virginia Tech researchers have uncovered that a protein may hold the key to patient	7/1/2014 – 12/31/2015	Robert Gourdie	$100,000	$100,000

Award Recipient	Project Title	Project Description	Period of Performance	Principal Investigator	CRCF Award	Match
		resistance of the anti-cancer drug temozolomid. This project is testing the effectiveness of a gene-based drug targeting the protein using a gene vector carried by an engineered virus.				
Virginia Tech	*Hydrokinetic Energy Harvesting for Distributed Power Supply*	The Virginia Tech team is developing a robust system for on-demand harvesting of clean, renewable energy from tides and rivers using a unique oscillator-generator system to enable effective power generation from currently untapped water sources. This project seeks to develop a desktop-scale prototype device that will demonstrate the system's unique capabilities.	7/1/2014 – 6/30/2015	Mark Stremler	$61,414	$61,414
Washington and Lee University	*Structure from Motion (SfM) Geological Modeling using Terrestrial and Aerial Imagery from a Vertical Take Off and Landing Unmanned Aerial Vehicle (VTOL UAV)*	This project seeks to develop a low-cost software-hardware solution for creating extremely high resolution 3D computer models from conventional photos taken in the field. The solution will use recent advances in computer vision research, as well as improvements in unmanned aerial vehicle technology to allow collection of 3D positioning information that is difficult to obtain with conventional methods.	6/16/2014 – 6/15/2015	Christopher Connors	$38,000	$52,777
				TOTAL MATCHING FUNDS PROGRAM AWARDS:	**$1,440,021**	
SBIR MATCHING FUNDS PROGRAM						
algorithmRx LLC	*Computer-Assisted Clinical Decision-Support Tool for Management of Statins*	This project seeks to supplement an existing SBIR Phase II project for a predictive medical algorithm that identifies the most effective statin medication and dose for patients with high blood cholesterol to achieve their goal blood level.	6/16/2014 – 12/16/2014	Stephen Hutcherson	$50,000	$1,469,645
Biosensor Tech	*SBIR Phase I: Development*	Addressing a current need to improve upon	7/01/2014 –	Xinchuan Liu	$50,000	$150,000

Award Recipient	Project Title	Project Description	Period of Performance	Principal Investigator	CRCF Award	Match
LLC	*of a Highly Reliable Continuous Wireless Monitoring System for Cardiac Patients through Implantable Sensors*	transthoracic intracardiac catheters that carry major risks of infection, embolization, and bleeding, this project develops a battery-free and wireless pressure sensing system for monitoring physiologic parameters in neonatal and pediatric cancer patients.	6/30/2015			
NextGen Diagnostics	*NextGen Diagnostics Proof of Concept*	This project represents an emergent and powerful tool for both diagnosing and monitoring populations for infectious diseases. The goal is to develop, standardize, and validate a metagenomics pathogen identification platform for use in detection and biosurveillance contexts, using aquaculture-related fish species and their infectious agents as relevant application.	6/16/2014 – 6/15/2015	Keith Crandall	$50,000	$155,000
PaneraTech, Inc.	*Structural Imaging of High Temperature Furnace Walls*	This project supplements an NSF SBIR Phase II award to develop a wireless sensor system for structural health monitoring of furnaces used in the glass manufacturing industry.	7/01/2014 – 3/30/2015	Yakup Bayram	$49,996	$50,369
Rivanna Medical	*Needle Guidance with High-Resolution Handheld Ultrasound*	This project supplements an NSF SBIR Phase II award to develop a handheld general purpose and 3D spinal anesthesia guidance device. Specifically, the project focuses on improved image performance using a proprietary technology termed "synthetic focusing".	7/1/2014 – 12/31/2014	F. William Mauldin	$50,000	N/A
Rivanna Medical	*New Sensor Technology for Guidance of Orthopedic Joint Injections using Compact Ultrasound*	This project supports R&D activities related to the development of a specular surface reconstruction from multi-angle interrogation transducer product, which is intended from the growing point-of-care orthopedic join injection market.	7/1/2014 – 12/31/2014	F. William Mauldin	$50,000	N/A

Award Recipient	Project Title	Project Description	Period of Performance	Principal Investigator	CRCF Award	Match
SoundPipe LLC	*Methods for Simultaneously Guiding and Effecting Neointimal Hyperplasia Prevention*	This project complements an SBIR Phase I award to develop a combined ultrasound imaging and therapy catheter system for ultrasound and microbubble enhanced delivery of antiproliferative drugs to prevent neointimal hyperplasia following angioplasty. Specifically, work evaluates methods of simultaneous imaging and delivery.	7/14/2014 – 12/14/2014	Joseph Kilroy	$48,428	$213,212
VoltMed Inc. *	*Developing a Minimally Invasive Catheter-Based Probe for Targeted Drug Delivery to the Brain (SBIR Matching Funds)*	The goal of this project is to develop a flexible catheter-based probe for intracranial applications of a blood-brain barrier disruption platform that is compatible with other ablation technologies for treating vascular and venous diseases in a minimally invasive manner and with a greater degree of success.	7/01/2014 – 6/30/2015	Michael Sano	$50,000	$700,000
				TOTAL SBIR MATCHING FUNDS PROGRAM AWARDS:	**$398,424**	
STTR MATCHING FUNDS PROGRAM						
Cell Free Bioinnovations Inc.	*Mobile Electricity Generation Powered by Biohydrogen from Biomass Sugars Catalyzed via Cell-Free Biosystems*	This project expands upon an existing NSF STTR project that seeks to scale up high-yield hydrogen production from biomass sugars plus water mediated by cell-free enzymatic biosystems and develop prototype mobile energy generators. Specifically, this goal of this project is to decrease commercialization and technical risks of the biohydrogen generator.	7/1/2014 – 12/31/2014	Zhiguang Zhu	$49,999	$225,000
Springbok, Inc.	*Big Muscle Data Tool that Transforms Athletic Training*	This project accelerates the commercialization of technology that reveals new information about the muscles of athletes. Currently only blunt tools are available to assess each athlete's strength, thus causing training and rehabilitation	7/1/2014 – 6/30/2015	Xue Feng	$50,000	N/A

Award Recipient	Project Title	Project Description	Period of Performance	Principal Investigator	CRCF Award	Match
		approaches to be developed via experience and trial and error. The technology proposed in this project solves the problems of unknown optimal muscle characteristics by using magnetic resonance imaging, image processing, muscle modeling, and data analytics.				
VoltMed Inc.	*INSPIRE Therapy: Real Time Treatment and Monitoring of Pancreatic Cancer*	This project focuses on the development of an outpatient endoscopic-based platform that is ideally suited for the treatment of inoperable and/or metastatic cancers.	7/1/2014 – 12/31/2014	Rafael Davalos	$50,000	$225,000
TOTAL STTR MATCHING FUNDS PROGRAM AWARDS:					**$149,999**	
TOTAL CRCF FY2014 SPRING AWARDS:					**$2,853,266**	

* Indicates declined award

FY2014 Funding Totals

PROGRAM	FY2014 TOTAL
Commercialization Program	$364,960
Eminent Researcher Recruitment Program	$749,862
Matching Funds Program	$2,559,987
SBIR Matching Funds Program	$398,424
STTR Matching Funds Program	$149,999
ALL PROGRAMS	**$4,223,232**

APPENDIX B: RTIAC Members

The following individuals were members of the Research and Technology Investment Advisory Committee (RTIAC), the group responsible for making award recommendations to the CIT Board of Directors, in FY2014.

- **Martin Briley**, President and CEO, Virginia Economic Development Partnership (VEDP)
- **Vikas Chandhoke**, Vice President for Research and Economic Development, George Mason University (Mason)
- **Dan Gonzalez**, Principal, Avison Young
- **Rodger Harvey**, Interim Vice President for Research, Old Dominion University (ODU)
- **Bob Kahn**, Chairman, CEO & President, Corporation for National Research Initiatives (CNRI)
- **Dennis Manos**, Vice Provost for Research and Graduate/Professional Studies, College of William and Mary (W&M)
- **Ken Newbold**, Associate Vice Provost Research and Scholarship, James Madison University (JMU)
- **Rob Patzig**, Senior Managing Director and CIO, Third Security
- **Finis Southworth**, Chief Technology Officer, AREVA

TAB 5

GAP Fund
Portfolio Financials

GAP CONSOLIDATED FUNDS
Overview – 7/1/04 – 2/28/15

CIT
CENTER FOR INNOVATIVE TECHNOLOGY

	Quantity As of 2/28/2015		Amount *(In Dollars)* 2/28/2015
FUNDS AVAILABLE TO BE INVESTED			
Commonwealth Appropriations	10 years + 8 months	$	19,557,400
Federal Grants	2 grants + mod	$	2,813,945
Private Grants	5 donations	$	600,000
Proceeds from Liquidated Investments	19 companies	$	2,012,998
Proceeds from Non-Liquidated Investments	2 companies	$	6,579
Interest Paid & Reinvested	40 companies	$	493,774
Total		**$**	**25,484,696**
FUNDS INVESTED & RESERVES			
Investments Closed FY05 - FY14	206 trans in 128 cos	$	14,772,204
Investments Closed Q1-Q3 FY15		$	2,151,137
Other direct costs FY11 - Q3 FY15		$	5,306,573
Available for Follow-on Investments		$	3,254,782
Total		**$**	**25,484,696**

GAP FUNDS PERFORMANCE – Realized Return – 7/1/04 – 2/28/15

CIT
CENTER FOR INNOVATIVE TECHNOLOGY

	Quantity As of 2/28/2015	Amount *(In Dollars)* 2/28/2015
Return from Liquidated & Retired Investments		
Liquidated Investments - Positive Return	9	$ 1,227,003
Partially Liquidated Investments	7	$ 770,817
Retired Investments - Negative Return	3	$ 15,178
Retired Investments - Zero Return	11	$ -
Total	**30**	**$ 2,012,998**
Invested Capital for Liquidated & Retired Investments		**$ 2,689,633**
Gain/(Loss)		**$ (676,635)**

GAP FUNDS PERFORMANCE – Unrealized Return – 7/1/04 – 2/28/15

CIT
CENTER FOR INNOVATIVE TECHNOLOGY

	Quantity As of 2/28/2015	Amount *(In Dollars)* 2/28/2015
Unrealized Return of Investments		
Third-party value of Equity holdings	63	$ 11,675,501
Notes Receivable - with interest through February 28, 2015	43	$ 7,280,837
Total	**106**	**$ 18,956,338**
Invested Capital (excluding reinvested interest)		**$ 13,489,937**
Unrealized Gain/(Loss)		**$ 5,466,401**

GAP FUNDS PERFORMANCE – Realized & Unrealized Return – 7/1/04 – 2/28/15

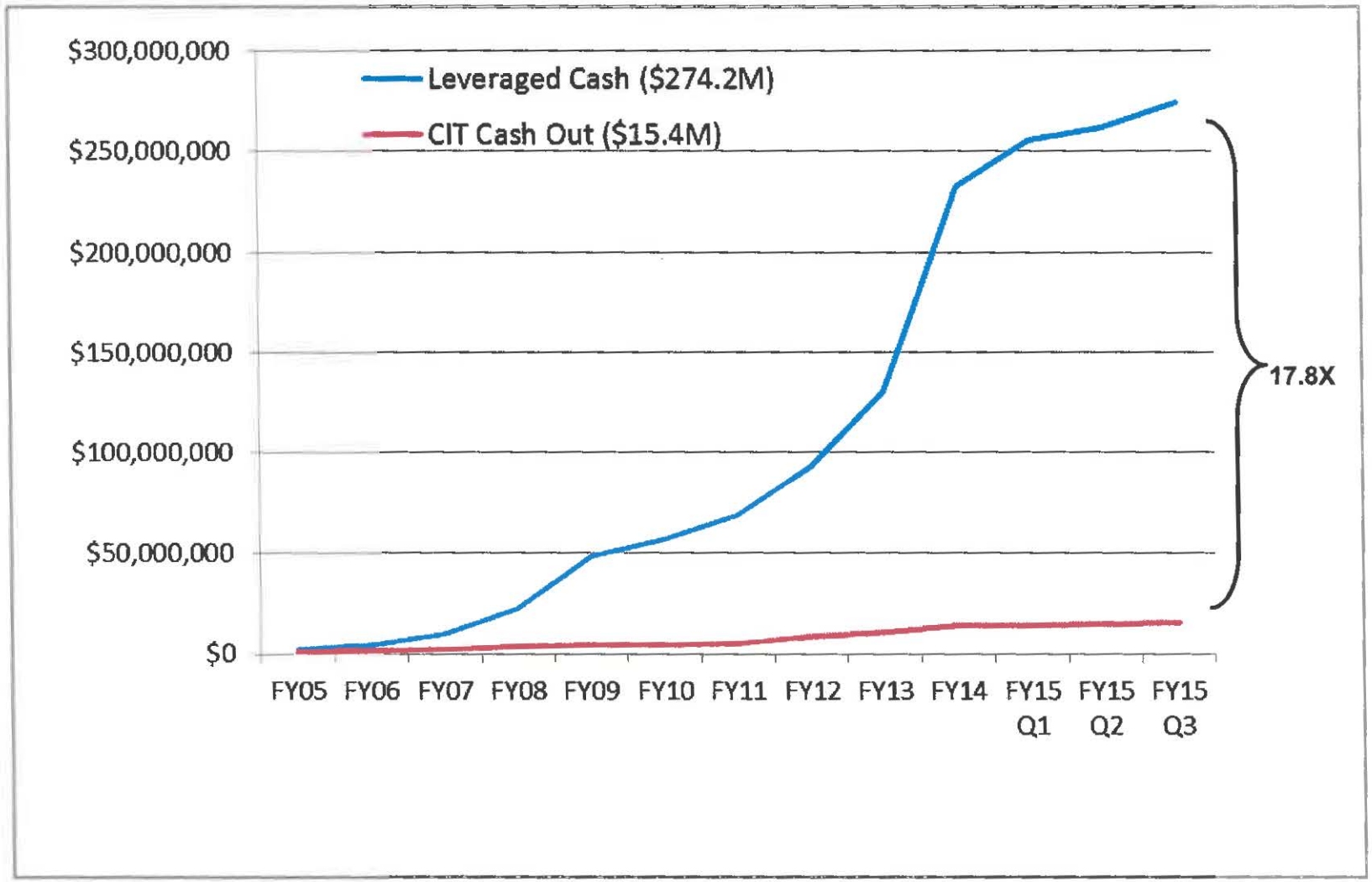
CIT
CENTER FOR INNOVATIVE TECHNOLOGY

	Quantity As of 2/28/2015	Amount *(In Dollars)* 2/28/2015
Return from Liquidated & Retired Investments		
Liquidated Investments - Positive Return	9	$ 1,227,003
Partially Liquidated Investments	7	$ 770,817
Retired Investments - Negative Return	3	$ 15,178
Retired Investments - Zero Return	11	$ -
Unrealized Return of Investments		
Third-party value of Equity holdings	63	$ 11,675,501
Notes Receivable - with interest through February 28, 2015	43	$ 7,280,837
Total	**136***	**$ 20,969,336**
Invested Capital (excluding reinvested interest)		**$ 16,179,570**
Gain/(Loss)		**$ 4,789,766**
Performance Ratio		**1.3:1**

*To-date 128 first-time investments. Total of 136 includes 8 incidents represented in more than one category.

GAP LEVERAGE
(CEF,J&J, M37, SSBCI included)

CIT
CENTER FOR INNOVATIVE TECHNOLOGY



* CIT Cash Out – does not include $493,774 of interest reinvested

TAB 6

Available, Committed, & Projected Funds

CIT	FY15 Forecast	FY16 Budget
Operating Funds		
Beginning balance	$ 2,520	$ 72
FY15/FY16 Revenue	$ 7,973	$ 8,275
FY15/FY16 Expenses	$ (8,757)	$ (8,183)
Transfer to GAP Fund	$ (2,000)	$ -
Transfer from GAP Fund to correct DMME CEF deferred revenue	$ 336	$ -
Total undesignated	$ 72	$ 164
Designated for Broadband Planning and Assistance		
Beginning balance	$ -	$ 286
FY15/16 Appropriation	$ 500	$ 500
FY15/FY16 Expenses*	$ (214)	$ (599)
Total designated for Broadband Planning and Assistance	$ 286	$ 187
Designated for Cyber Security Fund		
Beginning balance	$ 249	$ 259
FY15/16 Appropriation	$ 500	$ -
FY15/FY16 Expenses*	$ (490)	$ (239)
Total designated for Cyber Security Fund	$ 259	$ 20
Designated for Virginia Cyber Security Commission		
Beginning balance	$ -	$ -
FY15/16 Appropriation	$ -	$ 500
FY16 Appropriation taken from Unmanned Systems	$ -	$ 120
Transfer from Mod/Sim FY15 ending balance.	$ -	$ 380
FY15/FY16 Expenses*	$ -	$ (209)
Total designated for Virginia Cyber Security Commission	$ -	$ 791
Designated for Modeling and Simulation Fund		
Beginning balance	$ 561	$ 380
FY15/16 Appropriation	$ -	$ -
FY16 Transfer to Des for VA Cyber Security Commission	$ -	$ (380)
FY15/FY16 Expenses*	$ (181)	$ -
Total designated for Modeling and Simulation Fund	$ 380	$ -
Restricted/Designated for Cyber Security Accelerator Fund		
Beginning balance	$ 1,084	$ -
FY15/FY16 Expenses*	$ (1,084)	$ -
Total restricted for Cyber Security Accelerator Fund	$ -	$ -
Designated for Unmanned Aerial Systems Fund		
Beginning balance	$ -	$ -
FY15/16 Appropriation	$ -	$ 500
FY16 Transfer to Des for Cyber Security Commission Fund	$ -	$ (120)
FY15/FY16 Expenses*	$ -	$ (61)
Total designated for Unmanned Aerial Systems Fund	$ -	$ 319
Designated for GAP Fund		
Beginning balance	$ 2,894	$ 2,556
Transfer from undesignated Fund	$ 2,000	$ -
FY15/16 Appropriation	$ 1,100	$ 3,100
FY15 Proceeds - GAP	$ 294	$ -
FY15/16 Investments - GAP	$ (2,010)	$ (4,064)
FY15/16 Other direct costs - GAP	$ (1,323)	$ (1,590)
Transfer to DMME CEF Fund - interest income	$ (51)	
Transfer to undesignated to correct DMME deferred revenue	$ (336)	
FY15/16 Transfer to SSBCI Fund	$ (12)	$ (2)
Total designated for GAP Fund	$ 2,556	$ -
Designated for SSBCI - GAP Investments		
Beginning balance	$ -	$ -
FY15/16 Proceeds - SSBCI	$ 1,353	$ 647
FY15/16 Investments - SSBCI	$ (1,293)	$ (647)
FY15/16 Transfer from GAP Fund	$ 12	$ 2
FY15/16 Other direct costs - SSBCI Non-billable labor and fringe	$ (12)	$ (2)
FY15 Other direct costs - SSBCI	$ (60)	$ -
Total designated for DMME CEF	$ -	$ -
Designated for DMME CEF - GAP Investments		
Beginning balance	$ -	$ -
Transfer from Undesignated Fund	$ 125	$ 294
Transfer from Designated to GAP Fund - interest income	$ 51	$ -
FY15 Investments - DMME CEF	$ (151)	$ (236)
DMME CEF G&A	$ (25)	$ (58)
Total designated for DMME CEF	$ -	$ -
TOTAL FUND BALANCE	$ 3,553	$ 1,481

No Overhead or G&A expenses