



INNOVATE GEORGIA 2025

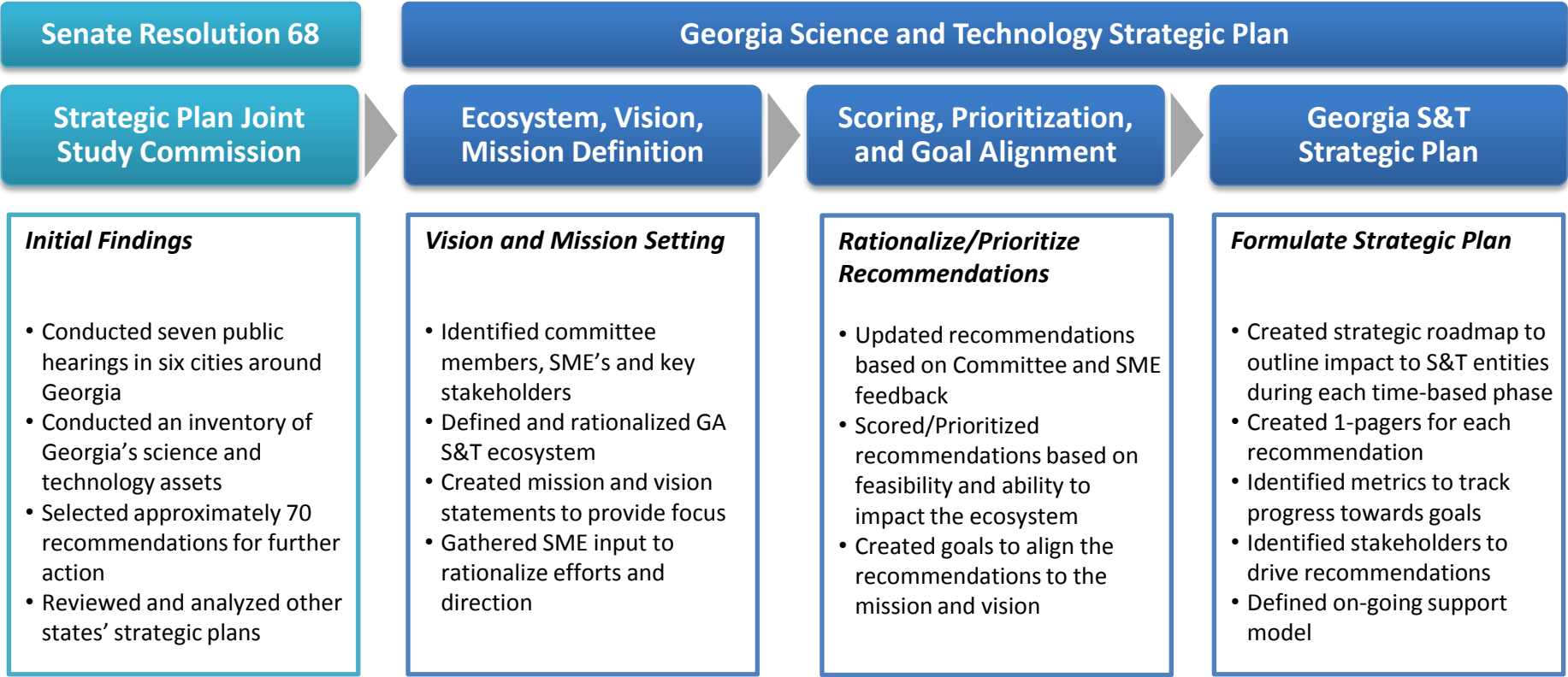
THE GEORGIA SCIENCE AND TECHNOLOGY STRATEGIC PLAN



PROJECT OVERVIEW

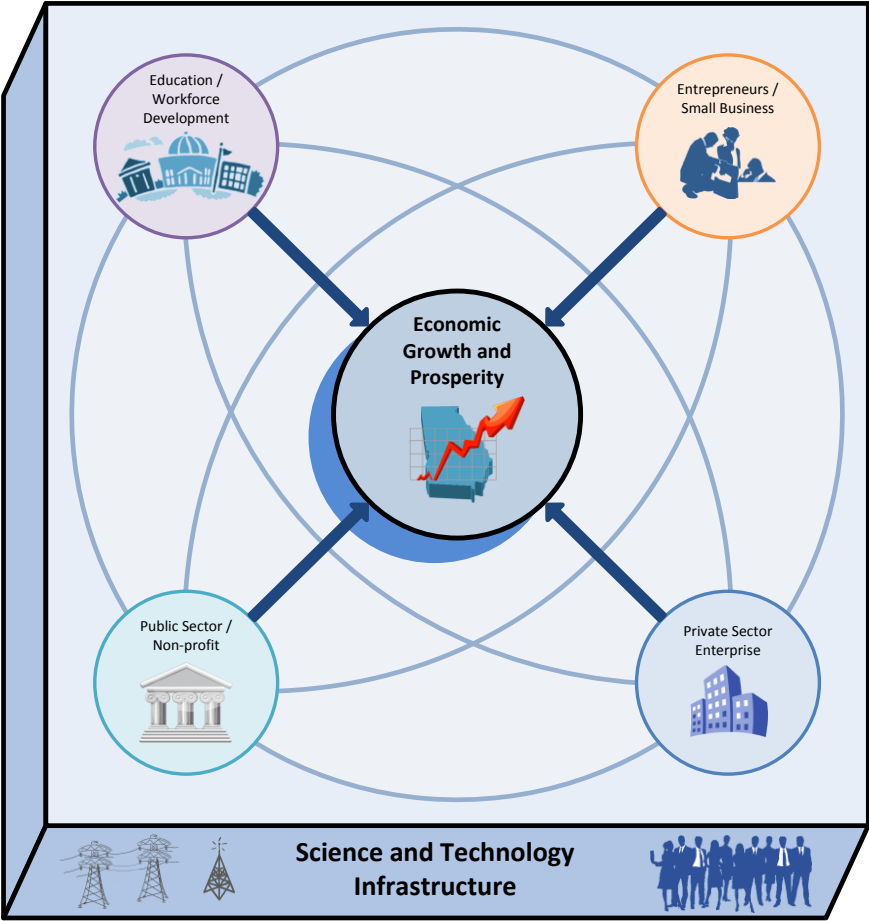
PROJECT APPROACH AND BACKGROUND

We leveraged the initial recommendations and key findings from the Strategic Plan Joint Study Commission Final Report (SR68) as a starting point for the Georgia Science and Technology Strategic Plan.



GEORGIA SCIENCE AND TECHNOLOGY ECOSYSTEM

The Georgia Science and Technology Ecosystem illustrates how major science and technology entities work together to drive Georgia’s growth and prosperity.



Key

Science and Technology Entities
Parties within the Science and Technology Ecosystem that serve as growth engines for Georgia’s economy and drive social prosperity. Examples of each entity in detail below.

Education / Workforce Development
K-12 education, university system of Georgia, technical colleges and other workforce development programs such as transitional workforce training.

Entrepreneurs / Small Business
Privately held, for profit, science and technology small businesses, entrepreneurs, and venture capitalist.

Public Sector / Non-profit
Publically held and/or non-profit, science and technology organizations and agencies.

Private Sector Enterprise
Privately held, for profit, science and technology companies.

Georgia Economic Growth and Prosperity

The ultimate mission / vision of the Georgia Science and Technology Strategic Plan.

Science and Technology Infrastructure

The physical and organizational structure that allows science and technology entities to operate and grow. The physical infrastructure includes fiber cable and data centers. The organizational structure includes the skilled workforce.

Growth Channels

The conversion of a science and technology entity’s growth leading to Georgia economic growth and prosperity. The recommendations provided in the roadmap will be specifically targeted at enhancing these growth channels.

Interconnection of Entities

The ways in which the science and technology entities interact. For example, the education system interacts with all other entities by producing skilled workers each year.

GEORGIA SCIENCE AND TECHNOLOGY ECOSYSTEM

Education Workforce Development



Education / Workforce Development

K-12 education, university system of GA, technical colleges and other workforce development programs such as transitional workforce training

Education

- o K-12 Education System
- o Public Universities
- o Private Universities
- o Technical Schools
- o Internships & Co-ops
- o Science & Technology Scholarships

Workforce Development

- o Government Funded Training Programs (State & Local)
- o Charitable/Non-Profit Organizations
- o Private Sector Driven Training Programs

Resources

- o Museums (i.e. Fernbank)
- o State Parks
- o Professional Development Grants
- o Science & Technology Grants
- o Makerspaces (i.e. Makervillage)
- o Libraries (State & Local) Events
- o Competitions (i.e. Georgia Technology Competition)
- o Festivals (i.e. Atlanta Science Fair)
- o Fairs (i.e. GA Science and Engineering Fair)
- o Conferences (i.e. Georgia Educational Technology Conference)

Entrepreneurs / Small Business

Privately Held for profit science and technology small businesses entrepreneurs and venture capitalist

Growth Engines

- o Incubators
- o Accelerators
- Funding Providers
- o Angel Investors
- o Venture Capitalists
- o Non-Profit Administrations and Government Grants
- Professional Services
- o Consulting
- o Finance and Banking
- o Legal
- o Real Estate

Resources

- o Government Programs
- o Media

Networking

- o Technology Meet-up Groups
- o Chambers of Commerce
- o Networking Associations and Organizations
- o Conferences

Competitions

- o Hack-a-thons
- o Investor Pitch

Educational Partnerships

- o Private and Public Universities
- o Start-Up Education
- o Alternative Education
- o Internships and Co-ops

Entrepreneurs Small Business



Economic Growth and Prosperity



Public Sector / Non-Profit

Public Publically held and / or non-profit science and technology organizations and agencies

Military

- o Technology Research
- o Hi-Tech Manufacturing
- o Chemical and Biological Research
- Legislators - State and Federal
- o Funding of Science and Technology Programs

- o Science and Technology Regulation
- o Tax incentives for Science and Technology development

State Agencies

- o Georgia Research Alliance
- o GA Department of Economic Development
- o Department of Health
- o Georgia Centers of Innovation

Non-Profits

- o State Science and Technology Institute
- o Technology Association of Georgia
- o Chambers of Commerce
- o Research Institutes

Federal Agencies

- o Department of Energy
- o Center for Disease Control
- o Environmental Protection Agency
- o Department of Agriculture
- o Science and Technology Directorate
- o NASA
- o Department of Health and Human Services
- o US Patent and Trademark Office

Private Sector Enterprise

Privately held for profit science and technology companies

Communications Services

- o ISP
- o Carrier – Multi-Service
- o Carrier – Wireless
- o Carrier – Satellite
- o Integrator
- o Multimedia
- o OSS
- o Value Added Resellers
- o Infrastructure Providers
- o Equipment Providers
- o Managed Services
- Mission Critical
- o Data Centers

Financial Technologies

- o Card Processing / POS
- o Trade / Payment
- o Electronic Billing & Presentment
- o Retail Banking Solutions
- o Prepaid/Loyalty & Points
- o Capital Markets
- o Identity / Analytics / Risk
- o Gateway / Alternative Payments
- Healthcare
- o Provider
- o Payer
- o Government
- o Life Sciences
- o Pharmaceutical
- o Medical Devices
- o Insurance

Information Security

- o Business Continuity / Disaster Recovery
- o Products
- o Solutions
- o Services
- o Value Added Resellers
- Logistics
- o Freight Transportation
- o Warehousing & Distribution Centers
- o Logistics Technology
- Smart Energy
- o Energy Provider
- o Power Generation
- o Infrastructure
- o Electric Vehicles

Private Sector Enterprise



Public Sector Non profit



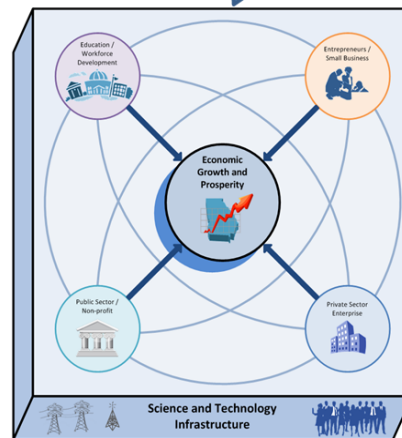
HOW CAN WE OPTIMIZE THE ECOSYSTEM?



Science and technology are key components for Georgia economic growth and national competitiveness. On its own, the ecosystem will operate and lead to economic growth and prosperity; however, with government support, Georgia's science and technology ecosystem will be optimized for businesses and citizens.



stimulates
ecosystem



Georgia Science and Technology Ecosystem

Recommendation Types

Research

Research in this case includes, basic research (academic / university R&D) and applied research (commercial R&D).

Regulation

The government can accelerate growth through updates to regulation that lessen the burden on science and technology entities.

Education

Educational investments and workforce training provide enormous benefit to growing businesses by providing a capable workforce.

Infrastructure

The private sector greatly benefits from the physical science and technology infrastructure to connect markets and allow idea / information to be shared.

Awareness

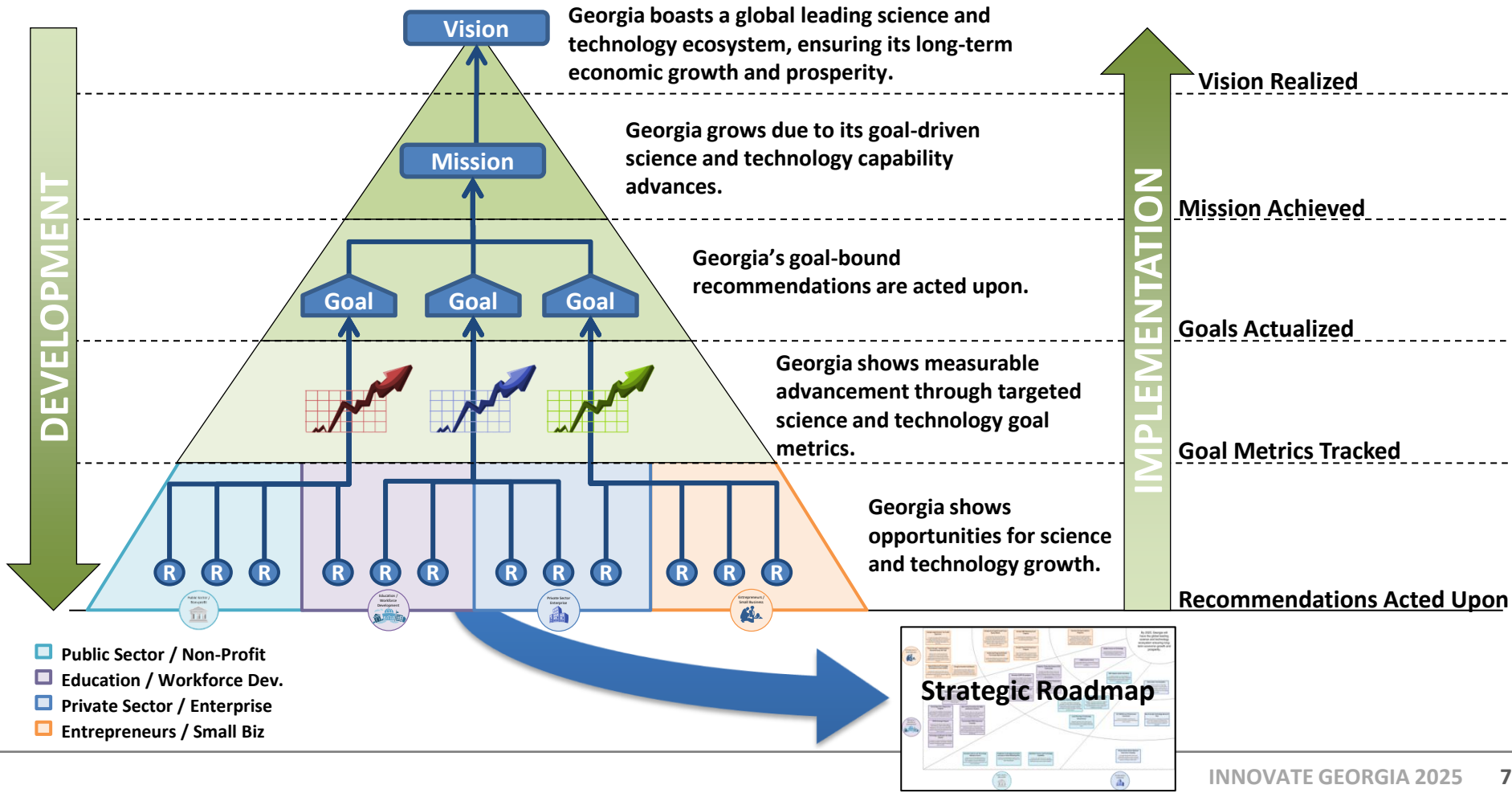
Marketing the great business climate and science and technology assets that Georgia has to offer will attract science and technology companies, skilled labor, and investment.

Capital

In the early stages of a start-up, access to capital is critical. In order to support early stage investment, the government needs to create an environment to attract not only in-state but also out-of-state investors.

STRATEGIC PLANNING FRAMEWORK

The development of the strategic plan starts with articulating the vision and continues by defining detailed recommendations and tangible next steps summarized in a strategic roadmap. The implementation of the roadmap leads to realization of the vision.



GEORGIA SCIENCE AND TECHNOLOGY STRATEGIC PLAN

EXECUTIVE SUMMARY

In the spring of 2012, Technology Association of Georgia (TAG) and Georgia Tech Research Institute (GTRI) formed a Science and Technology Strategic Planning Executive Committee. Led by Jabian Consulting, the executive committee was composed of eighteen members and broadly represented business, academia, and the public sector from across the state.

The Executive Committee was tasked with developing a strategic plan to enable Georgia to have a global leading science and technology ecosystem, ensuring its long-term economic growth and prosperity.

Starting with the Senate Resolution 68 (Strategic Plan Joint Study Commission Final Report), the executive committee analyzed current state and developed a set of goals and recommendations to grow the state of Georgia by advancing its science and technology capabilities.



This strategic plan is a call to action for Georgia’s political and policy leaders, private sector leaders, research institutions, educators, and the public to accomplish the following seven goals:

- Goal One: Attract New Science and Technology Businesses and Talented Workforce to Georgia
- Goal Two: Increase Capital Available for Science and Technology Startups
- Goal Three: Expand State Support for Georgia Science and Technology Start Ups
- Goal Four: Strengthen Relationship between Education and Science & Technology Industry
- Goal Five: Increase the Quantity and Quality of Science, Technology, Engineering, and Mathematics (STEM) Faculty, Programs, and Curricula
- Goal Six: Increase the Number of Students in STEM Career Pathways
- Goal Seven: Support Community Infrastructure to Enable Better Access to Technology



VISION AND MISSION



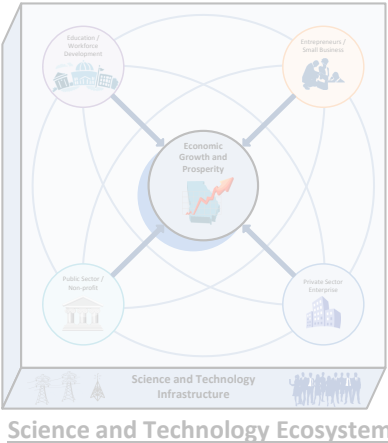
The Vision and Mission of **INNOVATE GEORGIA 2025** is important to the long-term direction and sustainability of the effort as many changes will occur overtime (leadership, priorities, resources etc.).

VISION

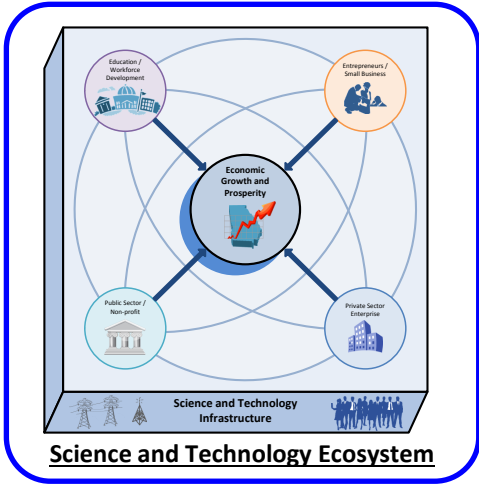
By 2025, Georgia will have a leading global science and technology ecosystem ensuring long-term economic growth and prosperity.

MISSION

To grow the state of Georgia by advancing its science and technology capabilities.



STRATEGIC GOALS



Through SME interviews across all entities, seven strategic goals have emerged as areas of focus to achieve the Vision and Mission of **INNOVATE GEORGIA 2025**.

SEVEN STRATEGIC GOALS



Goal One: Expand and Attract Science and Technology Businesses and Talented Workforce to Georgia



Goal Two: Increase Capital Available for Science and Technology Startups



Goal Three: Expand State Support for Georgia Science and Technology Start Ups



Goal Four: Strengthen Relationship between Education and Science & Technology Industry



Goal Five: Increase the Quantity and Quality of STEM Faculty, Programs, and Curricula



Goal Six: Increase the Number of Students in STEM Career Pathways



Goal Seven: Support Community Infrastructure to Enable Better Access to Technology

HIGH LEVEL METRICS

- # of new science and technology jobs created in Georgia
- # of newly registered science and technology businesses in Georgia
- Track Market Cap of Georgia Based Venture Capital, Angel, Early Stage investors
- # of companies and jobs created as a result of increased capital
- # of startup companies that use state funded technology incubation centers
- # of companies and jobs created as a result of state programs
- # of new career pathway curriculum developed
- # of companies participating in technology intern / apprentice program
- # of Education and Industry partnerships
- # of teachers graduating with in STEM-related fields
- # of STEM preparation programs and resources available
- # participating in clearinghouse
- # of students in STEM career pathways
- # of students in STEM undergraduate programs
- # of students in STEM graduate programs
- Bandwidth available to each school
- Number of schools with virtual learning programs
- Total # of schools with new technology certification

RECOMMENDATIONS

We have gathered a set of recommendations for each strategic goal and ranked/prioritized the recommendations based on feedback gathered from Executive Committee meetings #2 and #3.



Goal Four: Strengthen Relationship between Education and Science & Technology Industry

- Recommendation 1: **College and Career Academies Industry Partnership**
- Recommendation 2: **Technology Intern / Apprentice Program**
- Recommendation 3: **Targeted S&T Workforce Training Program**
- Recommendation 4: **Strengthen K-12 Computer Programming Education**



Goal Five: Increase the Quantity and Quality of STEM Faculty, Programs, and Curricula

- Recommendation 1: **Statewide STEM Clearinghouse**
- Recommendation 2: **STEM Teacher - Industry Exchange Program**
- Recommendation 3: **Expand STEM Teacher Preparation Programs**
- Recommendation 4: **Increase Number of STEM Certified Schools**



Goal Six: Increase the Number of Students in STEM Career Pathways

- Recommendation 1: **Promote Science and Technology Education through Budget Allocation**
- Recommendation 2: **Concentrated STEM Awareness Program**



Goal Seven: Support Community Infrastructure to Enable Better Access to Technology

- Recommendation 1: **Ensuring Student Access to Digital Learning through Virtual Schools & electronic Textbooks**
- Recommendation 2: **Technology Certification for Georgia School (Public & Private)**
- Recommendation 3: **Local Planning of Technology Infrastructure**
- Recommendation 4: **Digital Georgia Program.**

Goal One: Expand and Attract Science and Technology Businesses and Talented Workforce to Georgia

- Recommendation 1: **Digital Media Tax Credits**
- Recommendation 2: **Private Sector Driven Global Awareness Campaign**
- Recommendation 3: **Post-Production Tax Credit**
- Recommendation 4: **Cybersecurity Study Committee**
- Recommendation 5: **Georgia Innovation Dashboard**

Goal Two: Increase Capital Available for Science and Technology Startups

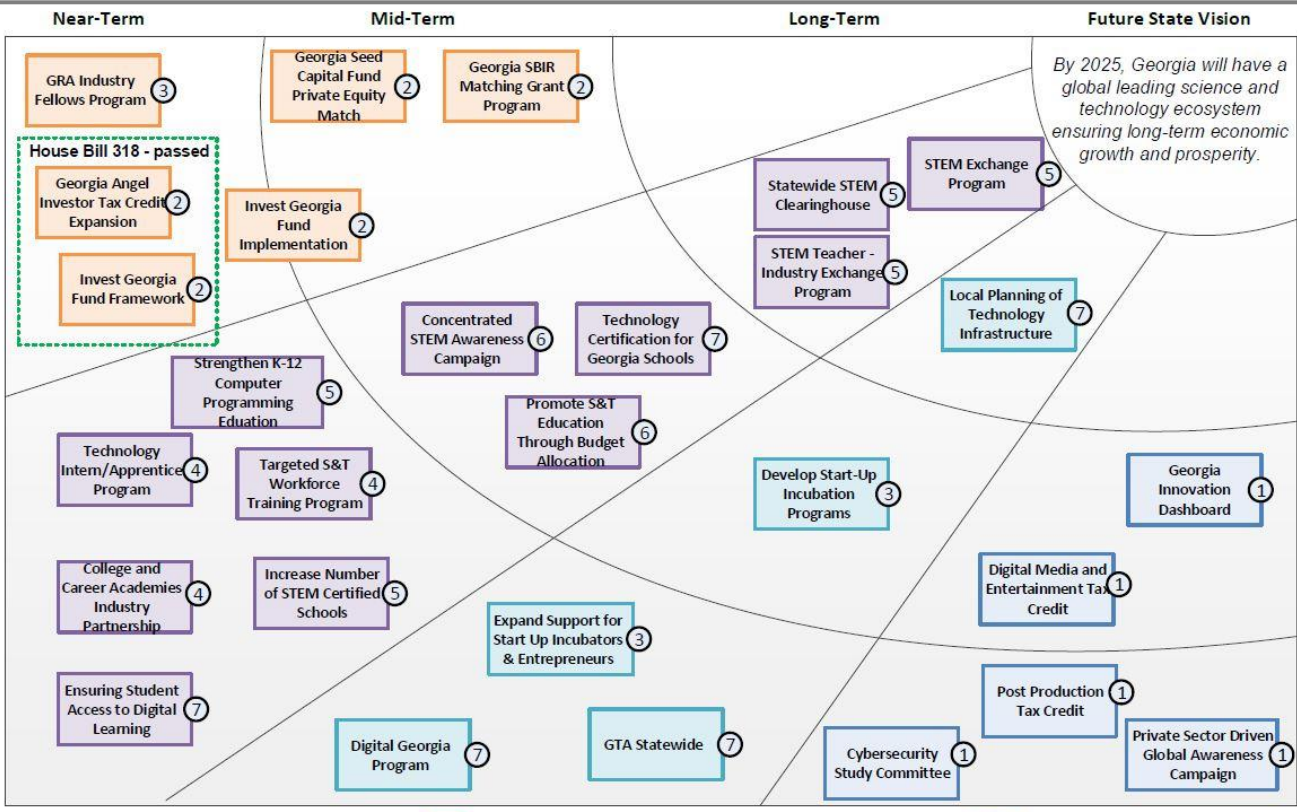
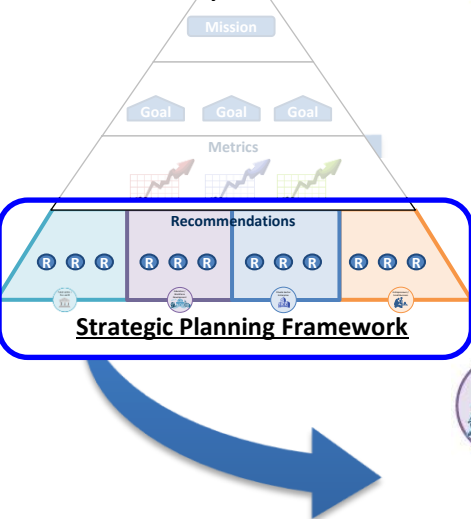
- Recommendation 1: **"Invest Georgia" Implementation (passed)**
- Recommendation 2: **Georgia Angel Investor Tax Credit Expansion (passed)**
- Recommendation 3: **"Invest Georgia" Fund Implementation**
- Recommendation 4: **Georgia Seed Capital Fund Private Equity Match**
- Recommendation 5: **Georgia SBIR Matching Grant Program**

Goal Three: Expand State Support for Georgia Science and Technology Start Ups

- Recommendation 1: **Expand State and Private Support for Start Up Entrepreneurs, Incubators, and Start Ups**
- Recommendation 2: **Develop Start-Up Incubation Programs (Flashpoint; ATDC; ATV)**
- Recommendation 3: **GRA Industry Fellows Program**

STRATEGIC ROADMAP

Each recommendation was positioned on the strategic roadmap based on priority and feasibility.



STRATEGIC GOALS



Goal One: Expand and Attract Science and Technology Businesses and Talented Workforce to Georgia



Goal Two: Increase Capital Available for Science and Technology Startups



Goal Three: Expand State Support for Georgia Science and Technology Start Ups



Goal Four: Strengthen Relationship between Education and Science & Technology Industry



Goal Five: Increase the Quantity and Quality of STEM Faculty, Programs, and Curricula



Goal Six: Increase the Number of Students in STEM Career Pathways



Goal Seven: Support Community Infrastructure to Enable Better Access to Technology

RECOMMENDATION 1-PAGERS

TABLE OF CONTENTS



Goal One: Expand and Attract Science and Technology Businesses and Talented Workforce to Georgia

- Recommendation 1: **Digital Media Tax Credits** Pg 18
- Recommendation 2: **Private Sector Driven Global Awareness Campaign** Pg 19
- Recommendation 3: **Post-Production Tax Credit** Pg 20
- Recommendation 4: **Cybersecurity Study Committee** Pg 21
- Recommendation 5: **Georgia Innovation Dashboard** Pg 22



Goal Two: Increase Capital Available for Science and Technology Startups

- Recommendation 1: **"Invest Georgia" Implementation (passed)** Pg 24
- Recommendation 2: **Georgia Angel Investor Tax Credit Expansion (passed)** Pg 25
- Recommendation 3: **"Invest Georgia" Fund Implementation** Pg 26
- Recommendation 4: **Georgia Seed Capital Fund Private Equity Match** Pg 27
- Recommendation 5: **Georgia SBIR Matching Grant Program** Pg 28



Goal Three: Expand State Support for Georgia Science and Technology Start Ups

- Recommendation 1: **Expand State and Private Support for Start Up Entrepreneurs, Incubators, and Start Ups** Pg 30
- Recommendation 2: **Develop Start-Up Incubation Programs (Flashpoint; ATDC; ATV)** Pg 31
- Recommendation 3: **GRA Industry Fellows Program** Pg 32



Goal Four: Strengthen Relationship between Education and Science & Technology Industry

- Recommendation 1: **College and Career Academies Industry Partnership** Pg 34
- Recommendation 2: **Technology Intern / Apprentice Program** Pg 35
- Recommendation 3: **Targeted S&T Workforce Training Program** Pg 36
- Recommendation 5: **Strengthen K-12 Computer Programming Education** Pg 37



TABLE OF CONTENTS



Goal Five: Increase the Quantity and Quality of STEM Faculty, Programs, and Curricula

- Recommendation 1: **Statewide STEM Clearinghouse** Pg 39
- Recommendation 2: **STEM Teacher - Industry Exchange Program** Pg 40
- Recommendation 3: **Expand STEM Teacher Preparation Programs** Pg 41
- Recommendation 4: **Increase Number of STEM Certified Schools** Pg 42



Goal Six: Increase the Number of Students in STEM Career Pathways

- Recommendation 1: **Promote Science and Technology Education through Budget Allocation** Pg 44
- Recommendation 2: **Concentrated STEM Awareness Program** Pg 45



Goal Seven: Support Community Infrastructure to Enable Better Access to Technology

- Recommendation 1: **Ensuring Student Access to Digital Learning through Virtual Schools & Electronic Textbooks** Pg 47
- Recommendation 2: **Technology Certification for Georgia Schools (Public and Private)** Pg 48
- Recommendation 3: **Local Planning of Technology Infrastructure** Pg 49
- Recommendation 4: **Digital Georgia Program** Pg 50
- Recommendation 5: **Data Center Tax Credit** Pg 51



GOAL OVERVIEW



Goal One: Expand and Attract Science and Technology Businesses and Talented Workforce to Georgia

- Recommendation 1: **Digital Media Tax Credits**
- Recommendation 2: **Private Sector Driven Global Awareness Campaign**
- Recommendation 3: **Film Post-Production Tax Credit**
- Recommendation 4: **Cybersecurity Tax Credit**
- Recommendation 3: **Georgia Innovation Dashboard**

Georgia is often recognized as having an excellent business climate with a great quality of life. Major international companies such as Delta, Coca Cola, McKesson, CNN, and UPS have chosen the state as their headquarters. Our tax structure is generally considered business friendly and our commitment to growing the economy is foremost on policy leaders' minds. However, as we look at the science and technology industry specifically, we find many opportunities for change. Ensuring an equitable tax structure that is independent from technology platform, creating incentives that encourage new business growth, and positioning Georgia as an business-friendly environment assets are imperative to becoming a global leader.

Benchmark

- *Georgia is home to 14 Fortune 500 companies.*
- *Georgia is one of only 13 states to hold a AAA bond rating.*
- *Georgia is the nation's Health IT capital with more than 200 Health IT companies operating in the State.*



SUMMARY

Enhance the current Film and Entertainment Tax Credit or create a new digital media and entertainment tax credit to be more reflective of current industry trends and practices.

STAKEHOLDERS

- **Sponsor (s):** TAG / GA Department of Economic Development / Metro Atlanta Chamber

COST

TBD

JUSTIFICATION / OVERVIEW

Georgia currently offers a Film and Entertainment Tax Credit that allows companies to take a 20% income tax deduction against their state income liability and can be increased to 30% if they insert the Georgia logo into their final production. As it currently stands, items like post production, marketing and other common industry practices, are not considered qualified expenditures. We recommend that either the Film and Entertainment Tax Credit be modified and include these common industry practices, or a new credit be established that specifically addresses the digital media and entertainment industry. The credit should be flexible for long term industry growth and changes in practices, but also enforceable to prevent abuse or fraud.

WHO ELSE IS DOING IT?

States: Alabama, Florida, North Carolina, Louisiana, Virginia, and others

Countries: Ontario, Canada; Nova Scotia Canada

ALIGNMENT TO GOALS

- Expand and Attract Science and Technology Businesses and Talented Workforce to Georgia

SUCCESS MEASUREMENT

- Number of new digital media jobs created in Georgia
- Number of applications and approval rate
- Number of credits applied for
- Number of credits approved

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

Steps

1. Discussed details of legislation at Georgia Tech-TAG Legislative Roundtable on Nov 29, 2012.
2. Identify champion for legislation
3. Explore other state's Digital Media Tax Credit legislation (Use house research groups)
4. Draft Digital Media Tax Credits House Measure
5. Introduce legislation in Senate and House in next session



SUMMARY

Encourage Georgia based science and technology businesses to drive a national awareness campaign and attract a talented workforce through a unified effort.

STAKEHOLDERS

– **Sponsor (s):** Technology Association of Georgia

COST

TBD

JUSTIFICATION / OVERVIEW

Emphasize Georgia technology innovation success stories and assets from higher education into a state marketing plan. This campaign is would be organized by the private sector but complement the efforts of the state to promote and market our state's science and technology assets to external audiences. Through a concentrated effort the private sector could help drive business development and growth in Georgia with advertising throughout the country and world.

WHO ELSE IS DOING IT?

States: None found.

Countries: Research ongoing.

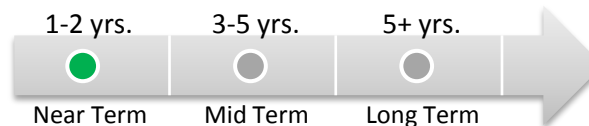
ALIGNMENT TO GOALS

– Expand and Attract Science and Technology Businesses and Talented Workforce to Georgia

SUCCESS MEASUREMENT

- Number of filled technical jobs
- Net new companies
- Total media impressions outside of Georgia

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

Steps

1. Identify private / non-profit champion to lead
2. Discuss Private sector driven global awareness campaign with Atlanta based Fortune 500 and mid-market companies
3. Identify private industry partners



SUMMARY

Encourage companies to bring their post-production work and jobs to the state of Georgia. These post production jobs are sustainable, high-paying jobs that will stay here in Georgia.

STAKEHOLDERS

- **Partner (s):** Georgia Chamber of Commerce, Technology Association of Georgia

COST

Georgia Chamber is Currently Working on the Numbers

JUSTIFICATION / OVERVIEW

Georgia is number three in the United States for Film Production, but once all the filming is complete these temporary jobs leave Georgia. However, these Post Production jobs are more sustainable, higher paying jobs that will stay here in Georgia. With Georgia's leading role in film production, an incentive for post production companies will further grow Georgia's economy and make us the leaders in film production/post-production.

WHO ELSE IS DOING IT?

States: New York, Texas, Illinois, New Mexico, & California

Countries: Research ongoing.

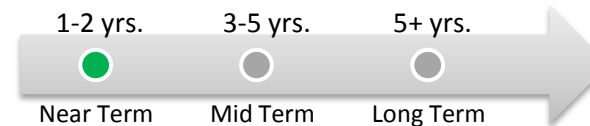
ALIGNMENT TO GOALS

- Expand and Attract Film Post Production Businesses and Talented Workforce to Georgia

SUCCESS MEASUREMENT

- Number of post production companies relocating to Georgia
- Amount of investment in Georgia from the Tax Credit
- Total number of applications / approved companies

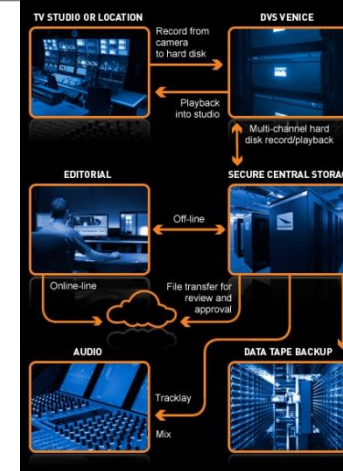
STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

Steps

1. Support the Georgia Chamber
2. Identify private industry partners
3. Identify a legislative champion



SUMMARY

Encourage a study committee to review cybersecurity and how Georgia can position itself as a leader in this field. To essentially expand and attract cybersecurity business and make Georgia the central HUB for the industry Cybersecurity technologies.

STAKEHOLDERS

– **Sponsor (s):** Technology Association of Georgia

COST

TBD

JUSTIFICATION / OVERVIEW

The cyber threat to our nation's critical infrastructure is growing and represents one of the most significant challenges facing Georgia and the U.S. Thus, it is imperative that a study committee is formed to review the cybersecurity ecosystem here in Georgia and what "next steps" the state can make to further grow this industry. Primarily due to the Army's Cybersecurity command center moving to Augusta, Georgia can position itself as a leader in this ever-growing industry.

WHO ELSE IS DOING IT?

States: Maryland

Countries: Research ongoing.

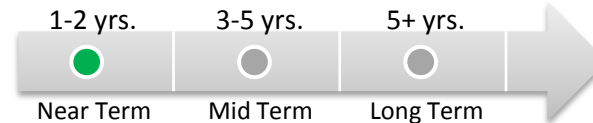
ALIGNMENT TO GOALS

– A study committee to determine best practices to expand, attract, and create a thriving ecosystem for cybersecurity business and talented workforce

SUCCESS MEASUREMENT

– Study committee is Approved

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

Steps

1. Identify private / non-profit champion to lead/support
2. Identify legislators to support the having the study committee
3. Identify private industry partners



SUMMARY

To benchmark and provide insight, create a web-based data visualization dashboard to measure innovation in Georgia and compare performance regionally, nationally and globally.

STAKEHOLDERS

- **Sponsor (s):** Georgia Tech

COST

\$150,000/year program management/research support

JUSTIFICATION / OVERVIEW

This program would create an interactive "dashboard" for innovation and emerging technologies, using state-of-the-art analytic techniques and databases to highlight the relative strength and impact of the innovation economy in Georgia and identify niches in emerging technologies where technology-led entrepreneurial activity could be successful. The program would publish a regular (i.e., quarterly or semi-annual) outlook on innovation in Georgia based on indicators from key datasets such as jobs created, businesses established, patents granted, research funded, publications, corporations, and startup investment activity.

WHO ELSE IS DOING IT?

States: City of Louisville, KY. No states are doing this.
Countries: Europe measures innovation but shares it in a static report rather than a dynamic data visualization experience.

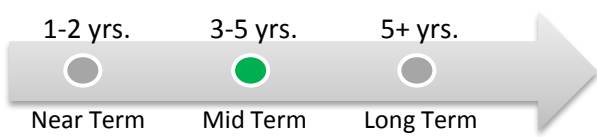
ALIGNMENT TO GOALS

- Expand and Attract Science and Technology Businesses and Talented Workforce to Georgia

SUCCESS MEASUREMENT

- Number of newly registered science and technology businesses in Georgia
- Other states and countries modeling Georgia’s dashboard

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

- Steps**
1. Determine interested parties
 2. Develop benchmarks for measurement & prototype
 3. Seek funding sources and project leaders



Benchmark

- 92 cents of every \$1 of investment in technology start-ups in GA come from outside the state
- Only 4 Venture Capital firms in GA
- < 2% of Venture Capital dollars spent in the U.S. is spent in GA

GOAL OVERVIEW



Goal Two: Increase Capital Available for Science and Technology Startups

- Recommendation 1: "Invest Georgia" Implementation (passed)
- Recommendation 2: Georgia Angel Investor Tax Credit Expansion (passed)
- Recommendation 3: "Invest Georgia" Fund Implementation
- Recommendation 4: Georgia Seed Capital Fund Private Equity Match
- Recommendation 5: Georgia SBIR Matching Grant Program

One of the most often cited challenges Georgia faces in its ability to become a global leader in the industry is the lack of access to capital available for early and growth stage science and technology companies. The need for capital is critical to Georgia technology startups' growth and requires a strong investment from state officials. In order to be successful, we must implement funding mechanisms that will provide access to capital at the early and growth stage of company. This systematic approach ensures that companies are encouraged to both start in Georgia and remain in the state as they continue to expand. Through the implementation of the recommendations within this goal, Georgia will enjoy an increase in new jobs, business, and tax revenue. Our ability to become an international leader in the science and technology industry will dramatically increase.

SUMMARY

Improve access to financing and local mentorship for science and technology entrepreneurs by implementing a state-funded capital investment program that includes a fund to be matched by private investors.

STAKEHOLDERS

- **Sponsor (s):** Technology Association of Georgia and Georgia Venture Coalition
- **Participant(s):** Department of Economic Development; chambers of commerce; start-up community, Metro Atlanta Chamber

COST

\$200 million over 4 years (\$50 million a year) generated from the sale of insurance premium tax credits

JUSTIFICATION

Georgia currently lags the nation in venture funding for its start-up companies. Many states have developed a model that uses state funds, matched with private dollars to invest into these companies resulting in an infusion of capital and ultimately job growth and economic development. This recommendation establishes a public-private partnership that allows the state of Georgia to issue and sell tax credits to insurance companies for cash. The cash received would create a fund that would be used to invest, through private angel and venture firms, into early and growth stage companies. The state would receive 100% of principle invested and 80% of profits generated from the gains of the venture fund.

WHO ELSE IS DOING IT?

States: New York, Oregon, Connecticut

Countries: Research ongoing.

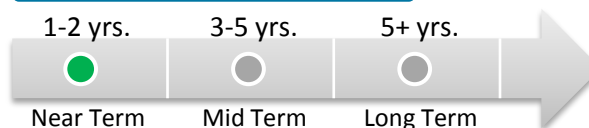
ALIGNMENT TO GOALS

- Increase capital available for science and technology startups

SUCCESS MEASUREMENT

- Track Market Cap of Georgia Based VC, Angel, Early Stage investors (track changes year over year)

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

Steps

1. Discussed details of legislation Georgia Tech-TAG Legislative Roundtable on Nov. 29, 2012.
2. Identify champion for legislation
3. Draft Invest Georgia legislation
4. Introduce legislation in Senate and House in next session



SUMMARY

The current Angel Investor Tax Credit is set to expire at the end of 2013. To support existing small businesses and encourage additional private-sector investment in Georgia technology start-ups, the commission recommends we extend the Angel Investor Tax Credit to at least 2016 and continue a credit cap of \$10M annually

STAKEHOLDERS

– **Sponsor (s):** Atlanta Technology Angels and Technology Association of Georgia

COST

\$10,000,000/year in foregone tax revenue

JUSTIFICATION

Currently the state offers an Angel Investor Tax Credit that allows investors to claim up to 35% of their investment or \$50,000, whichever is less, when made to qualified businesses. This credit is currently set to expire in 2013. There is an annual cap of \$10,000,000 for credits given to investors. The current credit requires companies to submit an approval form to the Department of Revenue to make their early stage company (25 employees or less) eligible to receive investments. After a company becomes eligible, or “qualified” investors can claim the credit against their personal income tax. Investments made cannot be claimed until 2 tax years after their investment.

WHO ELSE IS DOING IT?

States: Arizona, Connecticut, Illinois, North Carolina, and others. Requirements and features vary.

Countries: Research ongoing.

ALIGNMENT TO GOALS

– Increase capital available for science and technology startups

SUCCESS MEASUREMENT

– Track Market Cap of Georgia Based VC, Angel, Early Stage investors (track changes year over year)

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

Steps

1. Identify champion for legislation
2. Draft Georgia Angel Investor Tax Credit Expansion
3. Gather results on impact of current angel investor tax credit



SUMMARY

Improve access to financing and local mentorship for science and technology entrepreneurs by funding the state-funded capital investment program that includes a fund to be matched by private investors.

STAKEHOLDERS

- **Sponsor (s):** Technology Association of Georgia and Georgia Venture Coalition
- **Participant(s):** Department of Economic Development; chambers of commerce; start-up community, Metro Atlanta Chamber

COST

\$200 million over 4 years (\$50 million a year) generated from the sale of insurance premium tax credits

JUSTIFICATION

Georgia currently lags the nation in venture funding for its start-up companies. Many states have developed a model that uses state funds, matched with private dollars to invest into these companies resulting in an infusion of capital and ultimately job growth and economic development. This recommendation establishes a public-private partnership that allows the state of Georgia to issue and sell tax credits to insurance companies for cash. The cash received would create a fund that would be used to invest, through private angel and venture firms, into early and growth stage companies. The state would receive 100% of principle invested and 80% of profits generated from the gains of the venture fund.

WHO ELSE IS DOING IT?

States: New York, Oregon, Connecticut

Countries: Research ongoing.

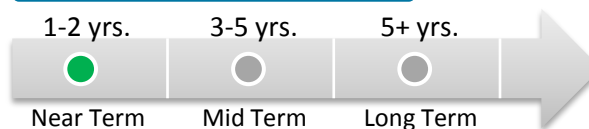
ALIGNMENT TO GOALS

- Increase capital available for science and technology startups

SUCCESS MEASUREMENT

- Have some amount of appropriations in the Invest Georgia Fund

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

Steps

1. Lobby for Appropriations
2. Seek Legislative Support
3. Use results on impact of current angel investor tax credit



SUMMARY

To increase the amount of in-state seed funding, adequately appropriate state level funding and modify investment terms of Georgia Seed Capital Fund to allow the fund to match private equity contributions at 3:1 state dollars to private dollars capped at a predetermined amount.

STAKEHOLDERS

- **Sponsor (s):** Enterprise Innovation Institute (Georgia Tech)

COST

-TBD

JUSTIFICATION

Georgia’s Seed Capital Fund is currently limited to investing in a 1:3 ratio with private investors. This limits the usefulness of the Fund since, if a company is sufficiently attractive to raise \$3.00 from the private sector, it can probably raise \$4.00. To maximize impact on creating new enterprises in Georgia, this language should be reversed. For every \$1.00 committed by non-state entities, the Georgia Seed Capital Fund should be allowed to invest up to \$3.00 on the same terms. This would provide significant leverage for private seed- and early-stage investors, and would increase the ability of small companies to grow and attract further standalone rounds of investment.

WHO ELSE IS DOING IT?

States: Several states (e.g. NY, Oklahoma, Michigan) have technology-oriented Seed Capital Funds, but none have this fiscally innovative approach.
Countries: Research ongoing.

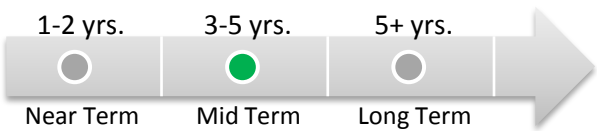
ALIGNMENT TO GOALS

- Increase capital available for science and technology startups

SUCCESS MEASUREMENT

- Utilization stats of start-up focused state programs (e.g. 175 companies invested in by Invest Georgia)
- Companies started
- Jobs created

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

- Steps**
1. Determine annual cost
 2. Seek legislative support
 3. Pass appropriations in future budget



SUMMARY

To expand funding availability for small businesses, establish a state funding mechanism to match federal Phase 1 SBIR grants in Georgia on a one-to-one basis.

STAKEHOLDERS

- **Sponsor (s):** GA Department of Economic Development
- **Participant(s):**

COST

\$5,000,000/year matching funds

\$250,000/year program management/fund oversight

JUSTIFICATION

Georgia companies win approximately \$6M in Federal SBIR/STTR awards every year. These awards are for technical research, but further testing and business development are often still needed to move an innovation from prototype to commercialized product. The SBIR/STTR awards cannot be used achieve these higher levels, and the technical innovator often does not have the skills.

We propose a matching fund program for SBIR/STTR recipients. Both Phase I (typically \$100K) and Phase II awards (typically \$750K) would be matched dollar-for-dollar by convertible loans through the existing Georgia Seed Capital Fund (which would receive annual appropriations for this purpose). Federal eligibility rules require that the companies have fewer than 500 employees, but approximately half of recipients have fewer than 20 employees at the time of their award.

WHO ELSE IS DOING IT?

States: Kentucky, Michigan, Oklahoma, Virginia.

Countries: Not applicable

ALIGNMENT TO GOALS

- Increase capital available for science and technology startups

SUCCESS MEASUREMENT

- Track Market Cap of Georgia Based VC, Angel, Early Stage investors (track changes year over year)
- Grants matched

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

Steps

1. Research other states similar programs and gather metrics. Use the senate/house research group (e.g. Kentucky)
1. Seek legislative support
2. Pass appropriations in future budget



GOAL OVERVIEW



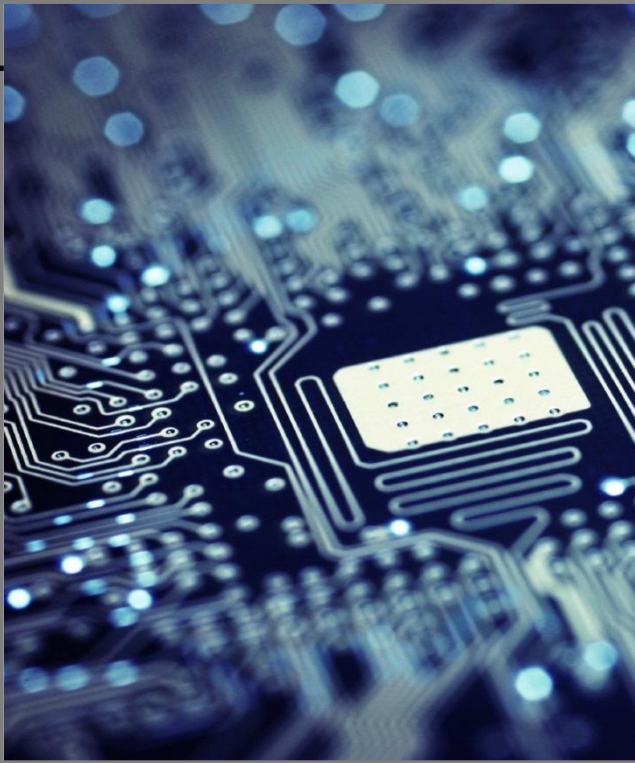
Goal Three: Expand State Support for Georgia Science and Technology Start Ups

- Recommendation 1: **Expand State and Private Support for Start Up Entrepreneurs, Incubators, and Start Ups**
- Recommendation 2: **Develop Start-Up Incubation Programs (Flashpoint; ATDC; ATV)**
- Recommendation 3: **GRA Industry Fellows Program**

Approximately 83.5% of Georgians graduate with a high school degree, while only 24% graduate with a Bachelor’s degree. The state boasts the 4th largest university system in the U.S. with 68 technical colleges and universities, along with 45 private institutes of higher learning. It is one of only four states with two or more schools ranked among the top 25 public national universities by the *U.S. News and World Report*. Access to quality higher education, the presence of high-paying jobs, and a low cost of living have made Georgia one of the fastest-growing states in the U.S. for the past two decades. The ability for these institutions to impact the science and technology economy is profound. By implementing the recommendations in this goal, they will transform the industry and the state’s economy into a global leader.

Benchmark

- Georgia has several R&D to Commercialization programs: Georgia Research Alliance, VentureLab
- Georgia has a entrepreneurship program to foster start ups: Advanced Technology Development Center (ATDC)



SUMMARY

To further the capacity and impact upon on start-ups, Georgia needs to expand state and private support for start up entrepreneurs, incubators, and start ups.

STAKEHOLDERS

- **Sponsor (s):** Advanced Technology Development Center (Georgia Tech), Technology Association of Georgia (TAG), Georgia Research Alliance (GRA)

COST

TBD

JUSTIFICATION

With proper support for incubators, there is an opportunity for our state to intercept some of these entrepreneurs and recruit them to Georgia. By nature, entrepreneurs are inspired by risk, the pursuit of innovative ideas, and future wealth. Model on the GRA’s Eminent Scholar program, Eminent Entrepreneurs would receive cash and non-cash incentives to relocate their entire management teams to Georgia. For over 30 years, ATDC has helped Georgia entrepreneurs create robust technology companies. Most recently, it was honored as one of the ten best incubators in the world by Forbes magazine. In 2009, to respond to changing market conditions, ATDC expanded its mission by opening membership to all technology entrepreneurs in Georgia, including those at the earliest conception stage to the well-established, venture-fundable companies. Georgia needs to continue to incentivize and support established and new incubators.

WHO ELSE IS DOING IT?

- States:** Most incubators are funded by corporations.
- Countries:** Research ongoing.

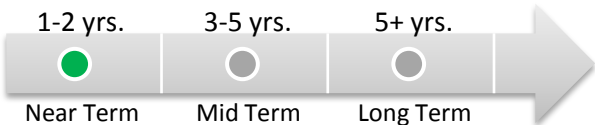
ALIGNMENT TO GOALS

- Expand State Support for Georgia Science & Technology Start Ups and Incubators

SUCCESS MEASUREMENT

- Number of startup companies that use state funded technology incubation centers
- Jobs created

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

- Steps
1. Determine scope of ATDC and constituencies to serve
 2. Group interested parties together
 3. Determine actual cost of new centers



SUMMARY

Increase the number of incubation programs in the Georgia community to provide the necessary resources and mentorships for start-ups to successfully mature based on regional needs.

STAKEHOLDERS

- **Sponsor (s):** University System of Georgia; Georgia Investment Community

COST

Min of 1-2 million annually per incubator

JUSTIFICATION

Business Incubators and Accelerators are a key ingredient to a thriving entrepreneurial and start-up community. In order to increase the number of successful businesses we need to develop more incubators and accelerators throughout the state and can serve different populations, different business segments and different areas of business growth. Through both public and private investment we can be successful in growing the number of publicly and privately held incubators and accelerators.

WHO ELSE IS DOING IT?

States: Alabama, Florida, South Carolina, and others.
Countries: Research ongoing.

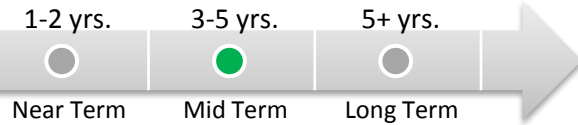
ALIGNMENT TO GOALS

- Expand State Support for Georgia Science and Technology Start Ups

SUCCESS MEASUREMENT

- Number of startup companies that use state funded technology incubation centers
- Companies created
- Jobs created

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

- Steps
- 1.
 - 2.
 - 3.
- TBD



SUMMARY

Launched in 2013, the Industry Fellows program is made up of a broad group of industry veterans from life sciences and technology sectors. Its objective is to help match faculty and entrepreneurs with seasoned industry professionals to aid in building successful startup companies.

STAKEHOLDERS

- **Sponsor (s):** Georgia Research Alliance, Technology Association of Georgia (TAG)

COST

\$2,000,000/year in cash incentives

JUSTIFICATION

Start-ups benefit from industry expertise and guidance. GRA is recruiting a growing team of seasoned industry professionals and matching them with GRA Ventures portfolio companies to aid in building successful businesses.

WHO ELSE IS DOING IT?

States: TBD

Countries: Research ongoing.

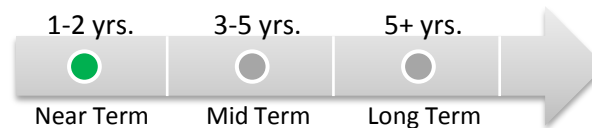
ALIGNMENT TO GOALS

- Expand State Support for Georgia Science and Technology Start Up Entrepreneurs

SUCCESS MEASUREMENT

- # of startup companies using the GRA industry fellows program
- Companies created
- Jobs created

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

Steps

1. Determine program metrics and operations
2. Develop cost/benefit analysis
3. Gather industry partners & seek funding sources



Benchmark

- % of science and engineering degrees as share of higher degrees conferred: 27.6% ; GA rank 41st

GOAL OVERVIEW



Goal Four: Strengthen Relationship between Education and Science & Technology Industry

- Recommendation 1: **College and Career Academies Industry Partnership**
- Recommendation 2: **Technology Intern / Apprenticeship Program**
- Recommendation 3: **Targeted S&T Workforce Training Program**
- Recommendation 4: **Strengthen K-12 Computer Programming Education**



Ensuring that Georgia's education system is responsive to the workforce needs of Georgia's science and technology industry is critical to our long term economic success. Educators and business leaders must partner to effectively create curriculum that will produce quality graduates with skill sets that are aligned to the needs of industry. Industry can provide real-life, work-based examples of how students can take what they have learned in the classroom and apply it to a future career. Internships, co-ops, apprenticeships and other forms of on-site learning should be encouraged and supported by the educational leadership. The recommendations set forth in this goal provide ways we can bridge the science and technology talent gap and ensure the industry is receiving the highest quality workers.

SUMMARY

To build a sustainable talent pipeline for science and technology industries by supporting partnerships with secondary and post-secondary schools that provide students with an educational curriculum and certifications that meet industry-defined workforce qualifications.

STAKEHOLDERS

- **Sponsor (s):** Lieutenant Governor Casey Cagle
- **Participant(s):** Technical College System of Georgia, local school systems and post secondary institutions, and industry partners

COST

Support continued appropriation of \$10 million to the TCSG to provide for competitive grant awards to communities who develop industry partnerships with education to establish a College and Career Academy.

JUSTIFICATION

In order to align the qualifications needed for the science and technology industry workforce, we need meaningful partnerships between industry and secondary/post secondary education. These partnerships should assist in determining the educational pathways offered students in high school and post secondary institutions and ensure that these educational opportunities prepare students for the career opportunities of the industry.

WHO ELSE IS DOING IT?

States: No others found.

Countries: Research ongoing.

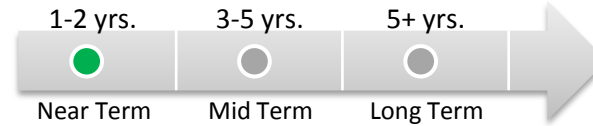
ALIGNMENT TO GOALS

- Strengthen Relationship between Education and Science & Technology Industry

SUCCESS MEASUREMENT

- Industry partnerships
- Students enrolled in programs
- New career pathway curriculum developed

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

Steps

1. Engage more industry partners to define educational standards



SUMMARY

To increase the availability of technologically skilled workforce, motivate technology firms to provide intern / apprentice opportunities and create a program to facilitate the matching process.

STAKEHOLDERS

- **Sponsor (s):** Georgia Chamber of Commerce, Metro Atlanta Chamber, Technology Association of Georgia

COST

TBD

JUSTIFICATION

Georgia's technology firms provide the workforce demand for technology jobs. These firms are positioned to establish clear requirements for the careers and openings necessary to supply talent to their organizations. To ensure these firms' needs are met, it is necessary for these firms to provide intern and apprentice opportunities to shepherd talent into their organizations. These firms should also facilitate the process to ensure their demand for talent is supplied and their skill set requirements are met.

WHO ELSE IS DOING IT?

States: Bay Area Technology Apprentice Program

Countries: Dream Careers Global Internship Program

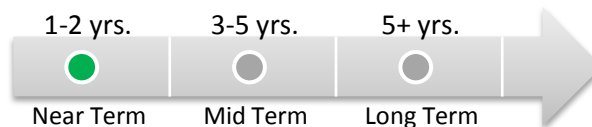
ALIGNMENT TO GOALS

- Strengthen Relationship between Education and Science & Technology Industry

SUCCESS MEASUREMENT

- Students participating as interns and apprentices
- Companies participating
- Students hired on beyond terms of internship or apprenticeship

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

Steps

1. Determine annual cost
2. Determine if full scale or segment one is necessary
3. Determine appropriate organization to lead program and solicit their support
4. Reach out to organizations to host interns



SUMMARY

Develop a targeted science and technology workforce training program to provide workers the opportunity to make career changes while addressing the needs of a local employer.

STAKEHOLDERS

- **Sponsor (s):** Governor’s Office of Workforce Development

COST

TBD

JUSTIFICATION

When employers are seeking to expand their operations, enter into a new market, or maintain market strength, they need new employees with the necessary skills to compete. When employers cannot find the needed employees with the appropriate skills, they are forced to move their operations or open a facility in another state that can meet those needs. Georgia should develop a targeted workforce development program designed to meet the needs of these established companies when situations like this arrive. While the state has had success with programs like QuickStart and Go Build, a program that focuses on current employers has the ability to address science and technology skills, all while maintaining a strong collaboration between educational and private sectors is necessary. The program should be nimble enough to modify to any scenario, yet scalable enough to easily replicate when necessary throughout the state.

WHO ELSE IS DOING IT?

States: There are many workforce training programs, but none were found that focus on aligning skills to the needs of science and technology businesses.

Countries: Research ongoing.

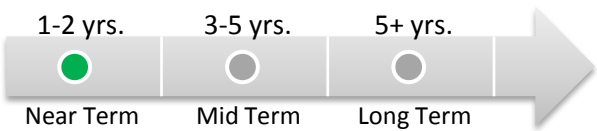
ALIGNMENT TO GOALS

- Strengthen Relationship between Education and Science & Technology Industry

SUCCESS MEASUREMENT

- TBD

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

Steps

1. Educate current GA organizations of existing target workforce training programs
2. Determine annual cost
3. Develop legislative support
4. Gain buy-in from Office of Workforce Development



SUMMARY

Computer programming is fundamental for students to develop practical computational and critical thinking skills. Thus, it is important to increase the number of students in Georgia exposed to a quality curriculum in computer programming.

STAKEHOLDERS

- **Sponsor (s):** University System of Georgia, Georgia Department of Education, Technology Association of Georgia (TAG), CODE.ORG

COST

TBD

JUSTIFICATION

Computing technology is an essential part of our emerging culture and is transforming how people interact with each other and the world they live in. Computing has revolutionized industry, establishing new fields of commerce, driving innovation, and raising productivity. To ensure Georgia's competitiveness in the 21st century it is vital to provide our students the opportunity to take a quality computer programming course no matter what grade level or school to develop the students computation and critical thinking skills.

WHO ELSE IS DOING IT?

States: Illinois, Texas, California

Countries: Estonia, UK, China, Japan, India

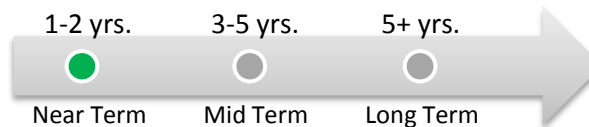
ALIGNMENT TO GOALS

- Increase the quantity and quality of Science, Technology, Engineering, and Mathematics (STEM) faculty, programs, and curricula

SUCCESS MEASUREMENT

- Number of students taking computer programming courses
- Number of students taking the AP CS exam
- Number of High School graduates pursuing a degree in computer programming/graduation college with a computer science degree

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

Steps

1. Create a Joint House/Senate Resolution
2. Day of Coding at the Capitol to generate interest in students, community, and the state
3. If DOE doesn't act, generate legislation requiring DOE to add/strengthen computer programming courses in K-12 education



GOAL OVERVIEW



Goal Five: Increase the Quantity and Quality of STEM Faculty, Programs, and Curricula

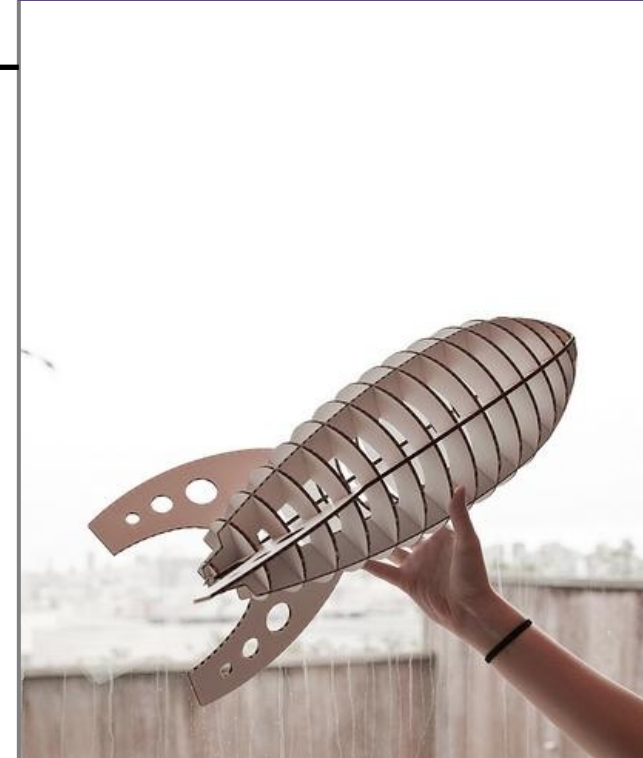
- Recommendation 1: **Statewide STEM Clearinghouse**
- Recommendation 2: **STEM Teacher - Industry Exchange Program**
- Recommendation 3: **Expand STEM Teacher Preparation Programs**
- Recommendation 4: **Increase Number of STEM Certified Schools**

By 2018, Georgia will need to fill 211,000 technology jobs, but our pool of qualified workers is diminishing. In order to maintain Georgia's leadership position in technology and innovation, we need to invest in our future workforce: today's student. The science and technology industry is dependent upon students trained and educated in Science, Technology Engineering and Math (STEM) based skills. Studies have shown the state will need 211,000 new workers in STEM related careers by 2018. Increasing the quality and quantity of STEM opportunities will help engage students and provide them with the skills needed to succeed in a 21st century workforce. The recommendations offered here focus on the roles of teachers, students, parents and the business community.

Education \ Workforce Development

Benchmark

- 211,000 = the number of STEM-related jobs Georgia will need to fill by 2018
- Share of Public H.S. School Students Taking Advance Placement Exams 2008 (%): GA = 19.8%, US = 25%



SUMMARY

To develop and maintain a seamless P-20 curriculum and coordinate statewide STEM programs/initiatives, create a STEM Clearinghouse of teachers, parents, administrators, and local business leaders.

STAKEHOLDERS

– **Sponsor (s):** Georgia Department of Education

COST

TBD

JUSTIFICATION

In order to leverage the critical mass of teachers, parents, administrators, and local business leaders towards the development of a streamlined P-20 curriculum, a committee or group is necessary to organize, develop, and coordinate statewide STEM programs. This would increase the effectiveness of the curriculum and leverage input from a diverse and representative sample of individuals.

WHO ELSE IS DOING IT?

States: STEM Connector.org, Pathways to Science

Countries: Research ongoing.

ALIGNMENT TO GOALS

– Increase the quantity and quality of Science, Technology, Engineering, and Mathematics (STEM) faculty, programs, and curricula

SUCCESS MEASUREMENT

- Number participating in clearinghouse
 - STEM programs
 - Students
 - STEM teachers
- Number of businesses
- Types of businesses

STRATEGIC ROADMAP PHASE

1-2 yrs.



Near Term

3-5 yrs.



Mid Term

5+ yrs.



Long Term

IMPLEMENTATION PLAN

Steps

1. Find sponsor/housing entity and develop partnership with Dept of Ed
2. Seek project manager to begin cataloging
3. Promote Clearinghouse throughout the state



SUMMARY

To provide mentorship and other support to STEM teachers, create a STEM exchange program (e.g. GIFT at GA Tech), which allows industries to come into the classrooms and teachers to gain real world experience in local science and technology companies.

STAKEHOLDERS

- **Sponsor (s):** Georgia Department of Education

COST

TBD

JUSTIFICATION

A gap currently exists between STEM teachers and industry professionals. Although certain programs such as GIFT and similar programs target this gap, more assistance is necessary for teachers to gain real world experience. A STEM exchange program is necessary to allow industries access to teachers as well as the classroom environment in order to facilitate the exchange between real world experience and curricula.

WHO ELSE IS DOING IT?

States: George Washington University Teachers in Industry Project
Countries: Research ongoing.

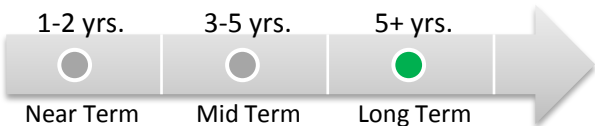
ALIGNMENT TO GOALS

- Increase the quantity and quality of Science, Technology, Engineering, and Mathematics (STEM) faculty, programs, and curricula

SUCCESS MEASUREMENT

- Teachers involved in exchange experience
- Companies offering exchange experience
- New curriculum developed

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

Steps

- 1.
- 2.
- 3.

TBD



SUMMARY

To increase the number and quality of industry proficient STEM teachers, institute more programs like UTeach (University of Texas) and ATOMS (Kennesaw State) in USG institutions.

STAKEHOLDERS

- **Sponsor (s):** University System of Georgia, Georgia Department of Education

COST

TBD

JUSTIFICATION

Programs like UTeach and ATOMS currently play a pivotal role in maintaining the quality of industry proficient teachers. Due to a shortage in this type of program, the quality and quantity of industry proficient teachers with STEM qualifications is decreasing. To adequately staff the emerging demands of STEM fields, the supply of educators is imperative.

WHO ELSE IS DOING IT?

- States:** University of Texas, University of Colorado
- Countries:** Research ongoing.

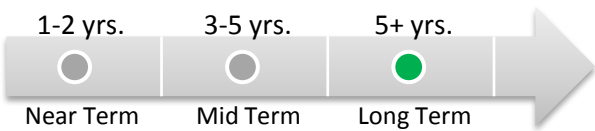
ALIGNMENT TO GOALS

- Increase the quantity and quality of Science, Technology, Engineering, and Mathematics (STEM) faculty, programs, and curricula

SUCCESS MEASUREMENT

- Number of STEM preparation programs and resources available
- Number of teachers graduating with in STEM-related fields

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

- | Steps |
|-------|
| 1. |
| 2. |
| 3. |
- TBD



SUMMARY

Increase the number of STEM Certified Schools in order for Georgia to meet the workforce demand for STEM occupations. Out of the over 2,000 elementary, middle, and high schools only 9 schools are STEM certified and 46% of school districts are working on STEM Certification.

STAKEHOLDERS

- **Sponsor (s):** University System of Georgia, Georgia Department of Education, STEM Georgia

COST

TBD

JUSTIFICATION

To prepare students for the 21st century workplace careers, it is important to provide high quality education opportunities in science, technology, engineering, and mathematics (STEM) fields. In Georgia, STEM education is defined as an integrated curriculum that is driven by problem solving, discovery, exploratory project/problem-based learning.

WHO ELSE IS DOING IT?

States: University of Texas, University of Colorado

Countries: Research ongoing.

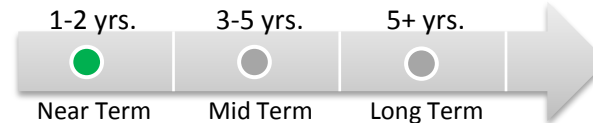
ALIGNMENT TO GOALS

- Increase the quantity and quality of Science, Technology, Engineering, and Mathematics (STEM) faculty, programs, and curricula for Elementary, middle, and High Schools

SUCCESS MEASUREMENT

- Number of STEM Certified Schools

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

Steps

1. Meet with CTAE, Math, and Science departments to determine interest, commitment, and instructional capacity
2. Meet with industry/business partners and potential STEM faculty to determine interest/need/commitment
3. Determine who their STEM director would be
4. Set collaborative planning meetings with STEM faculty and industry/business partner to plan the STEM program
5. Determine what professional learning for the faculty needs to occur
6. Faculty engages in on-going integrated collaborative lesson planning



GOAL OVERVIEW



Goal Six: Increase the Number of Students in STEM Career Pathways

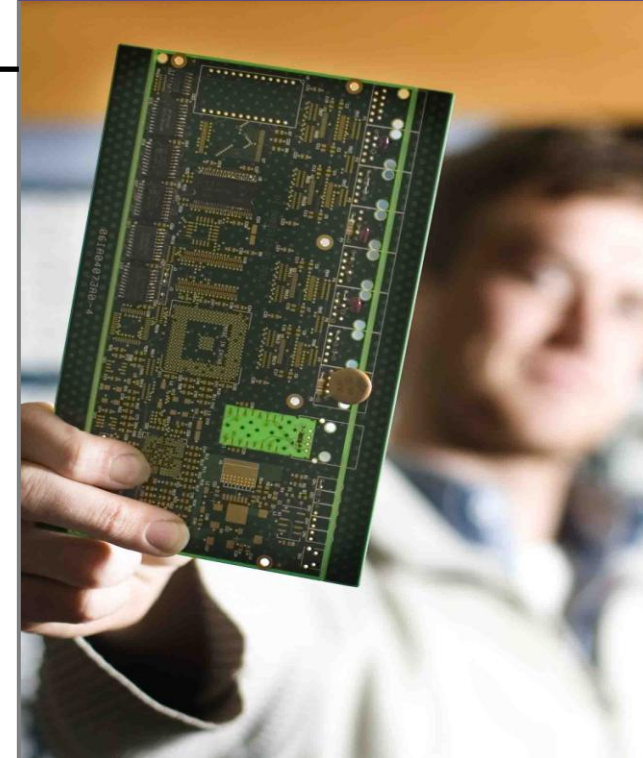
- Recommendation 1: **Promote Science and Technology Education through Budget Allocation**
- Recommendation 2: **Concentrated STEM Awareness Program**

The science and technology industry is dependent upon students trained and educated in Science, Technology Engineering and Math (STEM) based skills. Studies have shown the state will need 211,000 new workers in STEM related careers by 2018. Increasing the quality and quantity of STEM opportunities will help engage students and provide them with the skills needed to succeed in a 21st century workforce. In order to effectively encourage more students into STEM programs we must ensure financial incentives encourage them as well as an awareness campaign to ensure STEM opportunities are acknowledged and realized by students.

Education \ Workforce Development

Benchmark

- \$74,958 = Average annual compensation of STEM occupations 2005-2008
- 91% of U.S. STEM jobs will require some college or better by 2018



SUMMARY

Incent institutions to educate students in subjects that meet industry needs through the allocation of state budgets and reward students building skills in demand within the economy through the STEM Scholarship Fund.

STAKEHOLDERS

- **Sponsor (s):** General Assembly

COST

TBD

JUSTIFICATION

Students in higher education are currently incentivized to stay in Georgia through in-state financial aid programs such as the HOPE scholarship. In order to focus on retaining and rewarding technology education in Georgia, budget allocation programs such a STEM scholarship fund to incent students who to major in STEM related degree programs will help grow our pipeline for the necessary workforce.

WHO ELSE IS DOING IT?

States: Most states.
Countries: Research ongoing.

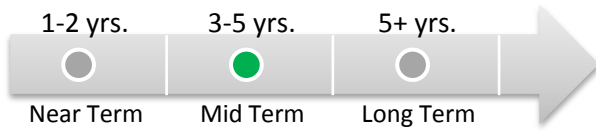
ALIGNMENT TO GOALS

- Increase the number of students in STEM career pathways

SUCCESS MEASUREMENT

- Students in STEM career pathways
- Number of students in STEM undergraduate programs
- Students in STEM graduate programs

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

- Steps**
1. Determine budget and cost
 2. Gain buy-in from education and executive leadership
 3. Seek legislative support



SUMMARY

To increase the number of students enrolled in STEM-based majors, communicate the importance of opportunities STEM education offers to Georgia's economy through a concentrated awareness campaign.

STAKEHOLDERS

- **Sponsor (s):** Georgia Department of Education and University System of Georgia; Technology Association of Georgia

COST

TBD

JUSTIFICATION

A concentrated STEM awareness program is necessary to combat the current lack of awareness of STEM-based majors among the student body and their parents. In general, students currently do not possess sufficient knowledge of the value and availability of STEM based majors. To stimulate the economy through a STEM qualified workforce, Georgia's student body and their parents should know the existence of STEM and understand its availability and value as a vehicle for career success.

WHO ELSE IS DOING IT?

States: Research ongoing.
Countries: Research ongoing.

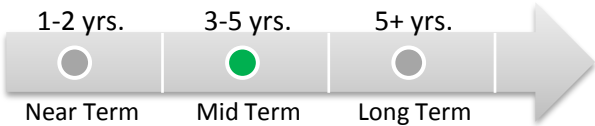
ALIGNMENT TO GOALS

- Increase the number of students in STEM career pathways

SUCCESS MEASUREMENT

- Students in STEM career pathways
- Number of students in STEM undergraduate programs
- Students in STEM graduate programs

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

Steps

1. Seek 3rd party resource to manage awareness program through partnerships with educational institutions
2. Determine scope of program and strategy to penetrate schools
3. Hire executive director or PR director to implement strategy



Benchmark

- Georgia has more than 500,000 fiber optic lines across the state
- 93.6% of Georgia’s population is covered by DSL technology. The national average for the same coverage is 88%



GOAL OVERVIEW



Goal Seven: Support Community Infrastructure to Enable Better Access to Technology

- Recommendation 1: **Ensuring Student Access to Digital Learning through Virtual Schools and Electronic Textbooks**
- Recommendation 2: **Technology Certification for Georgia Schools (Public and Private)**
- Recommendation 3: **Local Planning of Technology Infrastructure**
- Recommendation 4: **Digital Georgia Program**
- Recommendation 5: **Data Center Tax Credit**

Most states struggle with challenges to provide services equally to urban and rural communities. This results in disparities in healthcare, education levels, and economic growth. Access to a statewide advanced communications network will equip Georgia to educate children, attract new businesses, and provide opportunities for new learning methods and delivery of digital content throughout Georgia. Students who have the ability to access educational materials from around the globe via digital or virtual learning will be exposed to new opportunities, inspiring them and equipping them as citizens of a global economy and society. This goal sets forth recommendations that will help create more digital learning opportunities through both content and infrastructure deployment throughout the state.

SUMMARY

Ensure that every student (K-12) has access to sufficient technology (such as mobility devices and virtual learning centers) to be prepared for 21st century opportunities.

STAKEHOLDERS

– **Sponsor (s):** Georgia Department of Education/Local School Systems

COST

TBD

JUSTIFICATION

In 2012 the state passed legislation that required all students to take at least one online course to graduate, as well as legislation allowing BYOD in classrooms when approved by teachers and administrators. This was a strong step forward in ensuring students have access to digital learning; however more is needed. Building Wi-Fi and other wireless connection locations into every school will help, as well as providing teachers with the training to use digital learning methods. It is critical that a holistic approach be taken to ensure that not only do students have access, but that the content is delivered in an effective manner

WHO ELSE IS DOING IT?

States: Research ongoing.

Countries: Research ongoing.

ALIGNMENT TO GOALS

– Support community infrastructure to enable better access to technology

SUCCESS MEASUREMENT

- Number of schools with virtual learning programs
- Number of computers per student
- Bandwidth available to each school

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

Steps

1. Collaborate with Department of Education to align with current efforts



SUMMARY

To support 21st century techniques of teaching and learning, establish technology certification to incent P-20 schools to support connectivity based learning.

STAKEHOLDERS

- **Sponsor (s):** Georgia Department of Education
- **Participant(s):**

COST

TBD

JUSTIFICATION

TBD

WHO ELSE IS DOING IT?

States: None found, but search terms have multiple meanings.
Countries: Research ongoing.

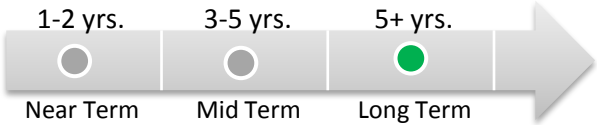
ALIGNMENT TO GOALS

- Support community infrastructure to enable better access to technology

SUCCESS MEASUREMENT

- Total # of schools with technology certification (new metric)

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

- Steps**
1. Define “technology certification” and promote the advantages
 2. Develop criteria for eligibility



SUMMARY

Add technology infrastructure planning to the Department of Community Affairs audit to ensure local communities include it within their normal comprehensive development planning cycles.

STAKEHOLDERS

- **Sponsor (s):** Department of Community Affairs

COST

TBD

JUSTIFICATION

Currently, local governments are required by law to submit a comprehensive plan that provides guidance for economic development, land use, transportation, capital improvements, and housing. At present, there is no provision for a strategy for technology infrastructure in the community. By considering the role of technology in the overall strategy, local communities can be equip their businesses, schools and health systems for growth and success.

WHO ELSE IS DOING IT?

States: Colorado, Washington.
Countries: Research ongoing.

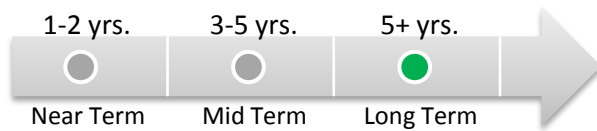
ALIGNMENT TO GOALS

- Support community infrastructure to enable better access to technology

SUCCESS MEASUREMENT

- New businesses
- Increase in distance applications (e.g. telehealth) from rural communities

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

- Steps
- 1.
 - 2.
 - 3.
- TBD



SUMMARY

The Digital Georgia Program provides funding and resources to increase Georgia’s participation and benefit from the digital economy. Digital Georgia is funding projects in three areas: State Capacity Building, Regional Planning Teams, and Data Development.

STAKEHOLDERS

- **Sponsor (s):** Georgia Technology Authority (GTA)

COST

TBD

JUSTIFICATION

The grant provides funding, information and technical resources to assist and enable businesses and government institutions in the State to achieve those goals. This program helps to connect with local governments, businesses and institutions to evaluate the digital economic and broadband needs of the state and identify resources to meet those needs.

WHO ELSE IS DOING IT?

States: TBD
Countries: Research ongoing.

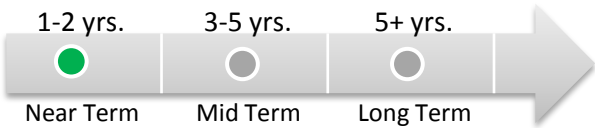
ALIGNMENT TO GOALS

- Support Georgia’s Digital Economy

SUCCESS MEASUREMENT

- Number of local governments, businesses and institutions that utilize this program
- Economic impact of providing more broadband connectivity

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

Steps	
1.	TBD
2.	
3.	



SUMMARY

Georgia is ranked as one of the premier fiber rich areas with one of the lowest energy costs nationwide. A sales tax exemption would make Georgia the ideal location for data centers, bringing high paying jobs and a rich data fiber infrastructure.

STAKEHOLDERS

- **Sponsor (s):** Technology Association of Georgia (TAG)

COST

TBD

JUSTIFICATION

Data centers require a robust infrastructure including a rich fiber connectivity, reliable power source, and security from operation interruptions. Thus, it is vital for Georgia’s economy to incentivize data center companies to relocate to Georgia, as they provide highly skilled individuals and infrastructure needed for other companies to build upon. Fortunately, Georgia is ranked as one of the premier fiber rich areas, one of the lowest energy cost nationwide, and relatively free from natural disasters. A sales tax exemption or provision to the current exemptions would make Georgia the idea location for data centers, bring high paying jobs and a rich data fiber infrastructure.

WHO ELSE IS DOING IT?

States: TBD
Countries: Research ongoing.

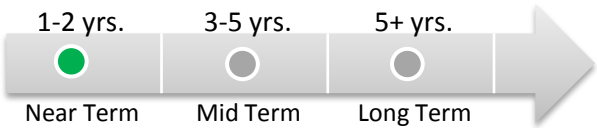
ALIGNMENT TO GOALS

- Support Georgia’s Digital Economy

SUCCESS MEASUREMENT

- Number of new data centers in Georgia
- Economic impact of providing a rich fiber infrastructure

STRATEGIC ROADMAP PHASE



IMPLEMENTATION PLAN

- Steps**
1. Determine the exemption ask and the associated cost/economic impact
 2. Identify Industry Leaders
 3. Identify Legislative Champion



IMMEDIATE FOCUS AREAS

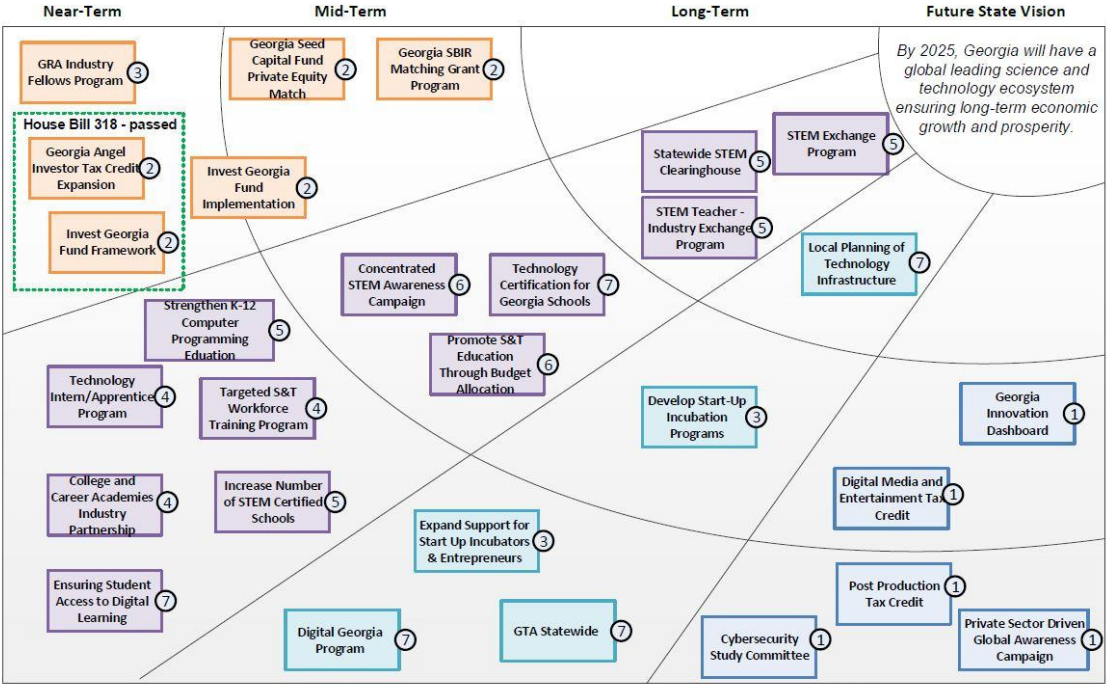
INNOVATE GEORGIA 2025: IMMEDIATE FOCUS AREAS

OPPORTUNITY

- With 45 deals valued at \$300 million in 2009, venture capital investing in Georgia had declined to its lowest level in five years before rebounding the last two years. (*TAG State of the Industry Report*)
- The Georgia Industry Investment Act was established in 2008 to support digital media. Continuous investment is required to ensure growth of our skilled and creative talent within Georgia's digital media industry. (*Georgia.org*)
- Georgia ranks 11th in shortage of Science and Technology workers. (*Dice TechTalentCrunch*)

VALUE

- Georgia's renewed focus on venture capital and angel investments is geared towards providing greater access to capital for entrepreneurs and small businesses.
- Private sector firms within the digital media industry will benefit from the implementation of Georgia's digital media industry tax credits.
- Increasing the pool of Science & Technology talent in Georgia is targeted towards building a highly skilled workforce and meeting needs for existing positions and skillsets in the marketplace.



NEAR-TERM RECOMMENDATIONS

DRIVE	SUPPORT
<ul style="list-style-type: none">Digital Media Tax CreditsPrivate Sector Driven Awareness Campaign“Invest Georgia” Bill ImplementationExpand State and Private Support for Start up Entrepreneurs, Incubators, and Start UpsStrengthening K-12 Computer Programming EducationCybersecurity Study Committee	<ul style="list-style-type: none">Technology / Intern Apprentices ProgramTargeted Workforce Training ProgramCollege and Career Academies Industry PartnershipEnsuring Student Access to Digital LearningPost-Production Tax Credit

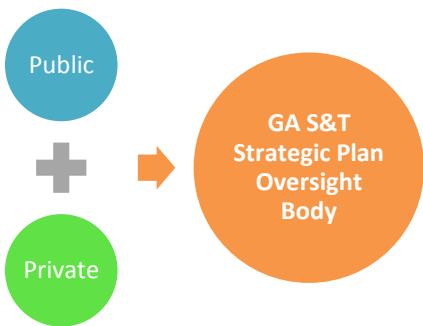
ONGOING SUPPORT MODEL

ONGOING SUPPORT MODEL



To manage and ensure the execution of the strategic roadmap towards the Georgia Science and Technology Strategic Plan’s vision, an oversight body must exist to:

- **Monitor the implementation** status of each recommendation through communication with the recommendation sponsors
- **Assess the status of the overall Implementation Roadmap** and communicate progress to relevant parties (e.g. Governor's office)
- **Communicate the Strategic Plan** and Implementation Roadmap to recommendation owners
- **Be a point of escalation and advisory** for recommendation owners
- **Adjust Implementation Roadmap** as necessary



To most effectively implement the Strategic Roadmap, a public/private partnership must exist.

2013 – 2014 GEORGIA SCIENCE AND TECHNOLOGY EXECUTIVE COMMITTEE

John Albers, State Senator
Georgia State Senate

Barry Loudermilk, State Senator
Georgia State Senate

Butch Miller, State Senator
Georgia State Senate

Mike Dudgeon, State Representative
Georgia State House of Representatives

Barbara Sims, State Representative
Georgia State House of Representatives

Dean Alford, Chairman
Technical College System of Georgia

Michael Cassidy, President and CEO
Georgia Research Alliance

Dr. Steve E. Cross, Executive Vice President for Research
Georgia Institute of Technology

Kevin Costello, President
Ariba

Steve Dickinson, VP Global Corporate Communications
Merial Limited

Stephen Fleming, Vice President
Georgia Tech Enterprise Innovation Institute

Gilda Lyon, STEM Program Manager
Georgia Department of Education

Tino Mantella, President and CEO
Technology Association of Georgia

Heather Miner, Senior Director of Government Relations and Statewide
Technology Association of Georgia

Kelly McCutchen, President and CEO
Georgia Public Policy Foundation

Laura Meadows, Director of the Vinson Institute
The University of Georgia

Irene Munn, General Counsel and Director of Policy
Office of Lt. Governor

Calvin Rhodes, Executive Director and State CIO
Georgia Technology Authority

Glen Whitley, Director- Center of Innovation,
Science and Technology
Department of Economic Development

Joseph Santoro, Associate Director, External Affairs
Technology Association of Georgia

Nigel Zelcer, Founding Partner
Jabian Consulting

Michael Lan, Director
Jabian Consulting

Ryan Applegate, Manager
Jabian Consulting

Will Funderburg, Consultant
Jabian Consulting

Alex Aschenbroich, Consultant
Jabian Consulting

INNOVATE GEORGIA 2025

THE GEORGIA SCIENCE AND TECHNOLOGY STRATEGIC PLAN
Prepared November 2012