



# INNOVATE GEORGIA 2025

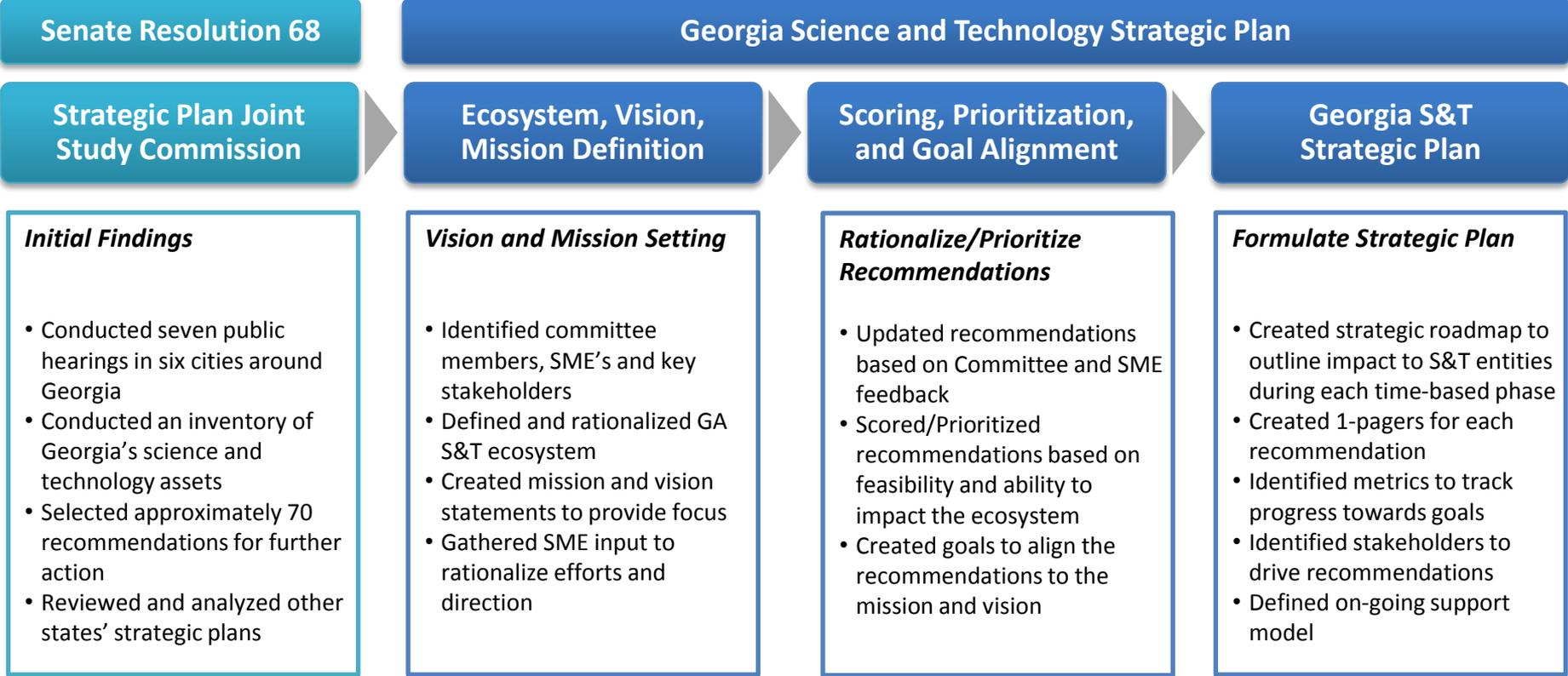
THE GEORGIA SCIENCE AND TECHNOLOGY STRATEGIC PLAN



## **PROJECT OVERVIEW**

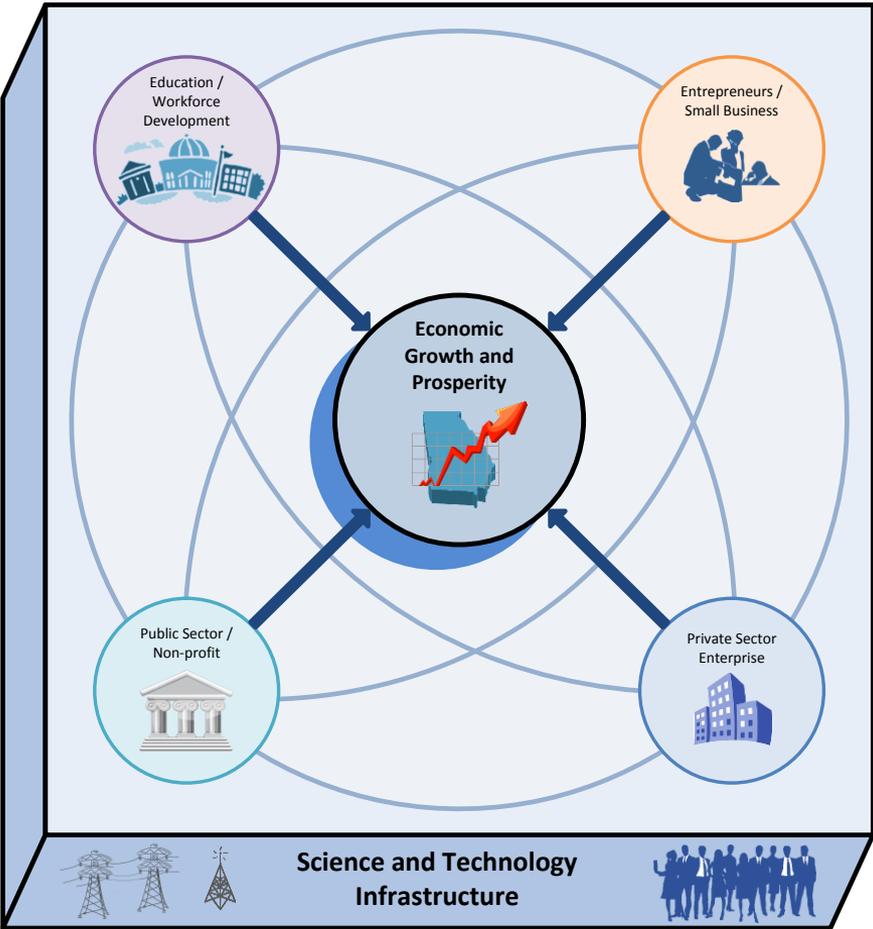
# PROJECT APPROACH AND BACKGROUND

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**  
Publicly 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.

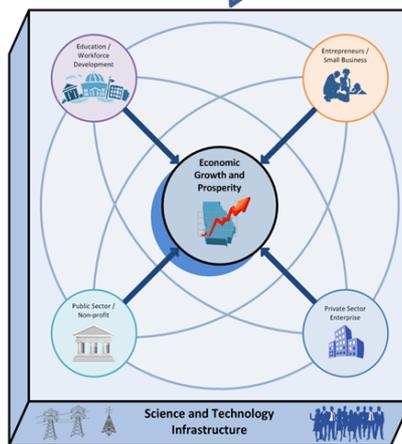
# HOW CAN WE OPTIMIZE THE ECOSYSTEM?



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

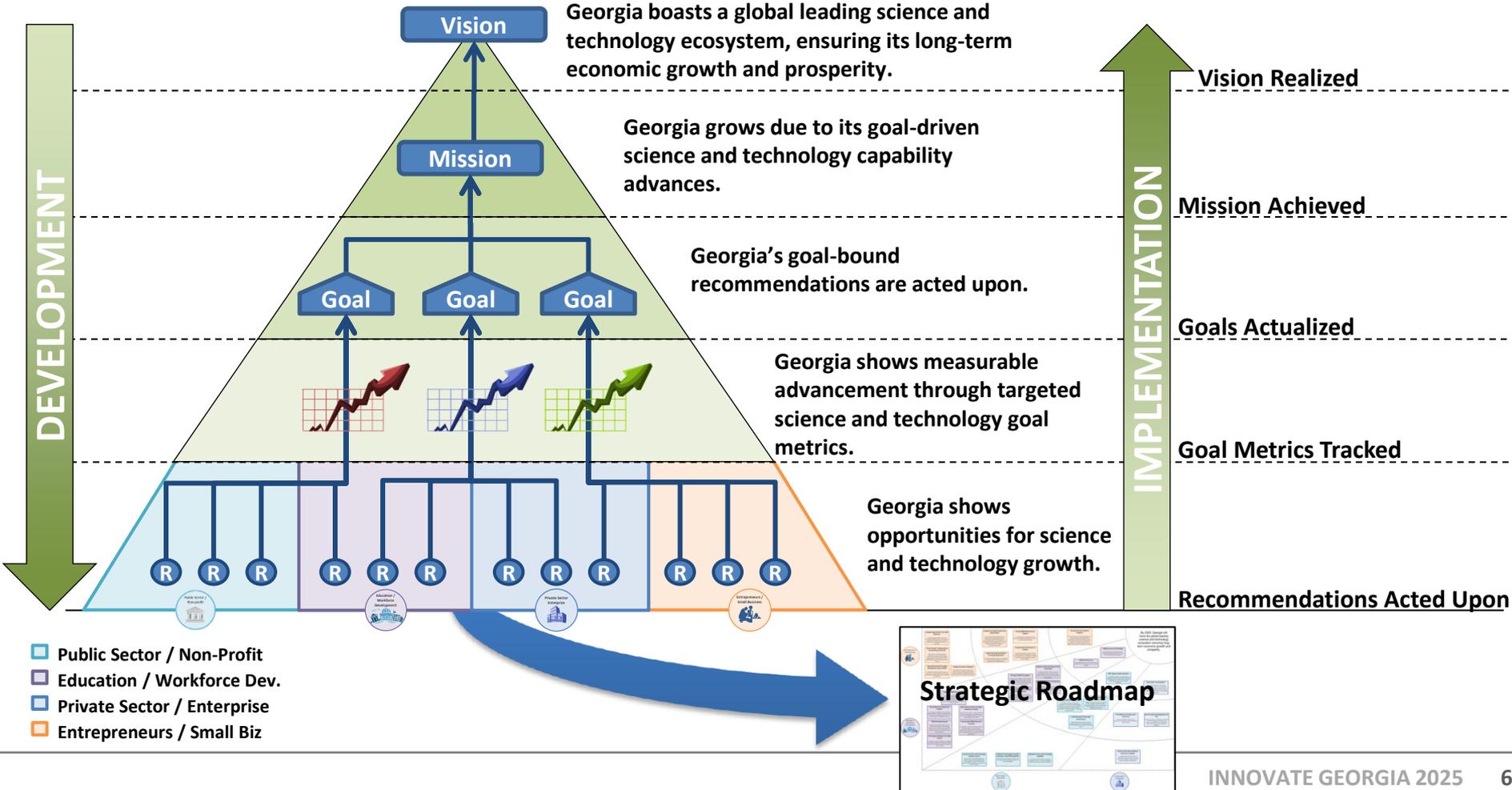
Marketing the great business climate and science and technology assets that Georgia has to offer will attract science and technology companies, skilled labor, and investment.

### 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



# INNOVATE GEORGIA 2025

## VISION AND MISSION



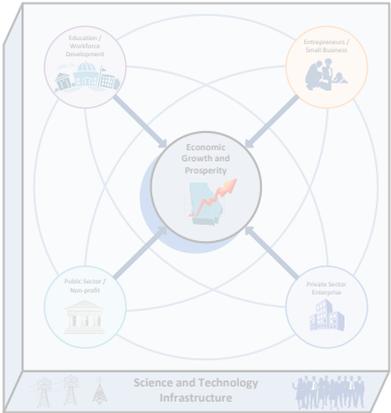
The Vision and Mission of **INNOVATE GEORGIA 2025** is important to the long-term direction and sustainability of the effort as many changes will occur overtime (leadership, priorities, resources etc.).

### VISION

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

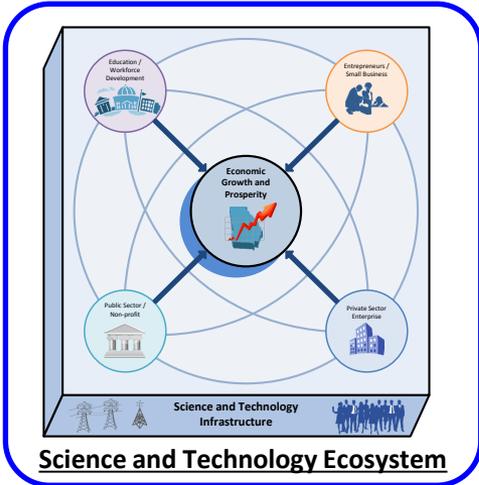
### MISSION

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



**Science and Technology Ecosystem**

## 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 / apprenticeship 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 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: **Georgia Innovation Dashboard**



### Goal Two: Increase Capital Available for Science and Technology Startups

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



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

- Recommendation 1: **Expand Advanced Technology Development Center**
- Recommendation 2: **Develop Start-Up Incubation Programs (Flashpoint; ATDC)**
- Recommendation 3: **Georgia Eminent Entrepreneur Program**



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

- Recommendation 1: **College and Career Academies Industry Partnership**
- Recommendation 2: **Technology Intern / Apprentices Program**
- Recommendation 3: **Targeted S&T Workforce Training Program**



### 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**



### 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**



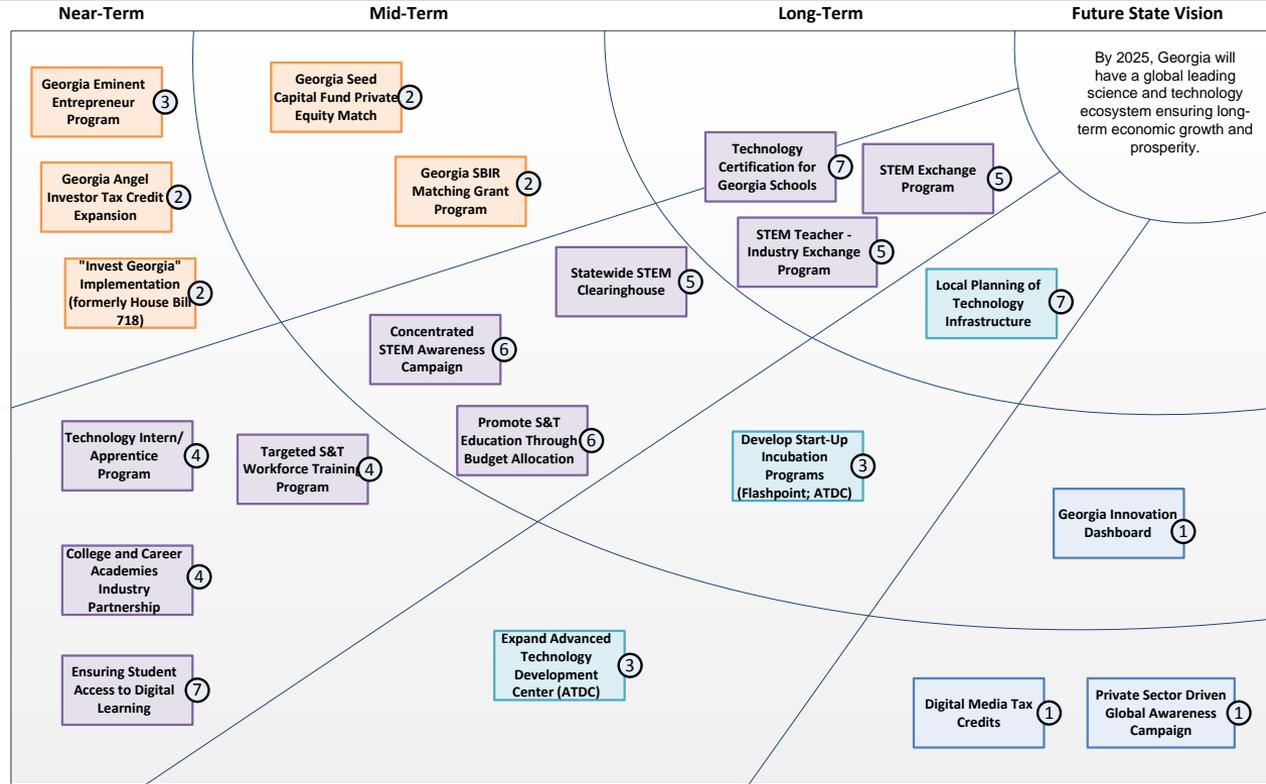
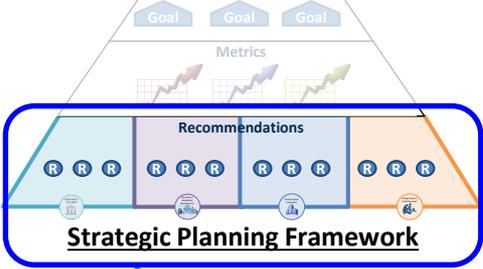
### Goal Seven: Support Community Infrastructure to Enable Better Access to Technology

- Recommendation 1: **Ensuring Student Access to Digital Learning**
- Recommendation 2: **Technology Certification for Georgia Schools (Public and Private)**
- Recommendation 3: **Local Planning of Technology Infrastructure**

# INNOVATE GEORGIA 2025

## 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

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

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

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

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● Near Term Recommendations



## 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: **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

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**
- Recommendation 2: **Georgia Angel Investor Tax Credit Expansion**
- Recommendation 3: **Georgia Seed Capital Fund Private Equity Match**
- Recommendation 4: **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

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



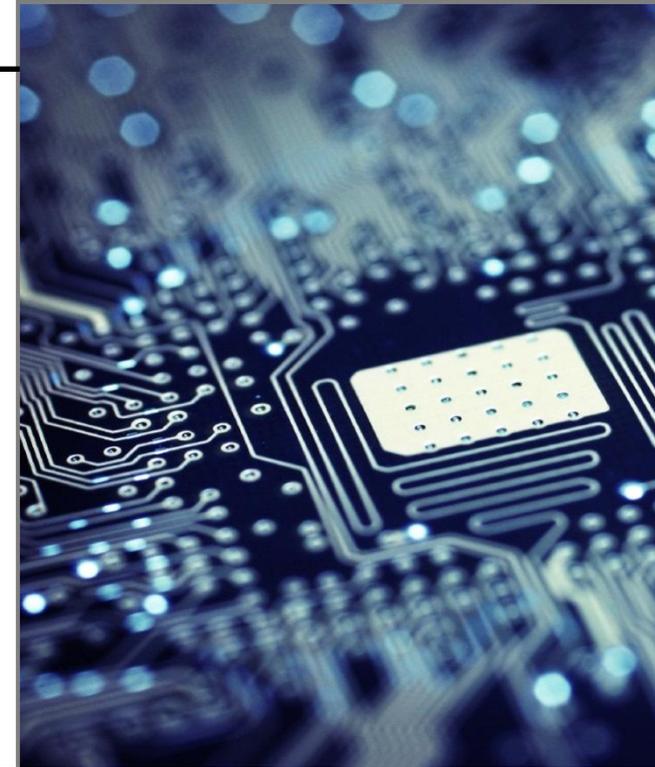
### Goal Three: Expand State Support for Georgia Science and Technology Start Ups

- Recommendation 1: **Expand Advanced Technology Development Center**
- Recommendation 2: **Georgia Eminent Entrepreneur Program**
- Recommendation 3: **Develop Start-Up Incubation Programs (Flashpoint; ATDC)**

### Benchmark

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

Approximately 83.5% of Georgians graduate with a high school degree, while only 24% graduate with a Bachelor's degree. The state boasts the 4<sup>th</sup> 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.



## SUMMARY

To further the capacity and impact upon on start-ups in Georgia, expand Advanced Technology Development Center (ATDC), increase budget to pre-2008 levels.

## STAKEHOLDERS

- **Sponsor (s):** Advanced Technology Development Center (Georgia Tech)

## COST

\$1,000,000/year staff support

## JUSTIFICATION

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. At the same time, ATDC embarked on a geographical expansion that—without investing in bricks and mortar—is intended bring its services to entrepreneurs across Georgia, not just in Atlanta. Although maximizing its leverage through a network of volunteers and corporate sponsors, ATDC has found it difficult to meet demand. Specifically, startup membership ballooned from 35 companies to over 400 in the first two years under the new model.

## WHO ELSE IS DOING IT?

**States:** Most incubators are funded by corporations.

**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
- 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

To grow the population of entrepreneurial talent, establish a new program to actively recruit highly-successful entrepreneurs globally by providing them adequate financing and access to talent.

## STAKEHOLDERS

– **Sponsor (s):** Georgia Research Alliance

## COST

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

\$200,000/year program management/oversight

## JUSTIFICATION

Successful entrepreneurs wanting to start another company tend to stay in one place because the networks of financial and human resources that fueled their first success will likely support future endeavors. With proper incentives, 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. Georgia should actively seek out such entrepreneurs from Silicon Valley and around the world and enticed them to relocate as "Eminent Entrepreneurs." 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.

## WHO ELSE IS DOING IT?

**States:** Detroit, MI (not-profit project)

**Countries:** Research ongoing.

## ALIGNMENT TO GOALS

– Expand State Support for Georgia Science and Technology Start Ups

## SUCCESS MEASUREMENT

– # of startup companies that use state funded technology incubation centers  
– 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



## 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



## 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**



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



### GOAL OVERVIEW



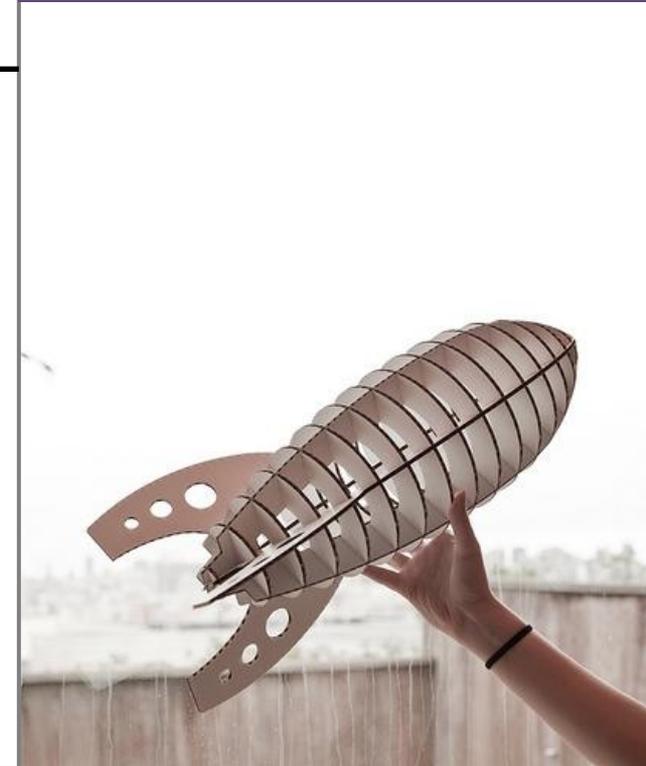
Goal Five: Increase the Quantity and Quality of STEM Faculty, Programs, and Curricula

- Recommendation 1: **Statewide STEM Clearinghouse**
- Recommendation 2: **STEM Teacher - Industry Exchange Program**
- Recommendation 3: **Expand STEM Teacher Preparation Programs**

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 21<sup>st</sup> century workforce. The recommendations offered here focus on the roles of teachers, students, parents and the business community.

### 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



## 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. TBD
- 3.



## 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



### GOAL OVERVIEW



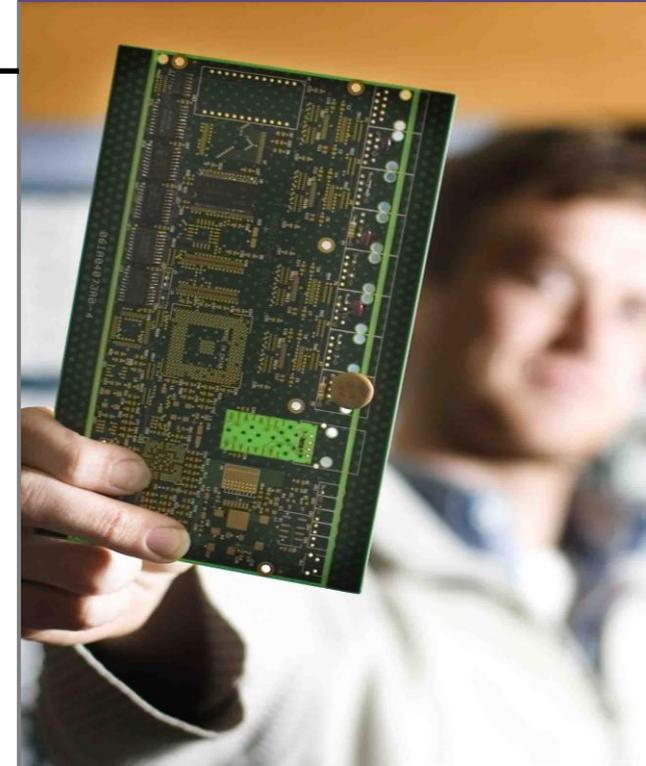
#### Goal Six: Increase the Number of Students in STEM Career Pathways

- 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.

### 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 as 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



The Georgia  
**HOPE**  
scholarship  
Georgia

## 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 3<sup>rd</sup> 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**
- Recommendation 2: **Technology Certification for Georgia Schools (Public and Private)**
- Recommendation 3: **Local Planning of Technology Infrastructure**

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



## IMMEDIATE FOCUS AREAS

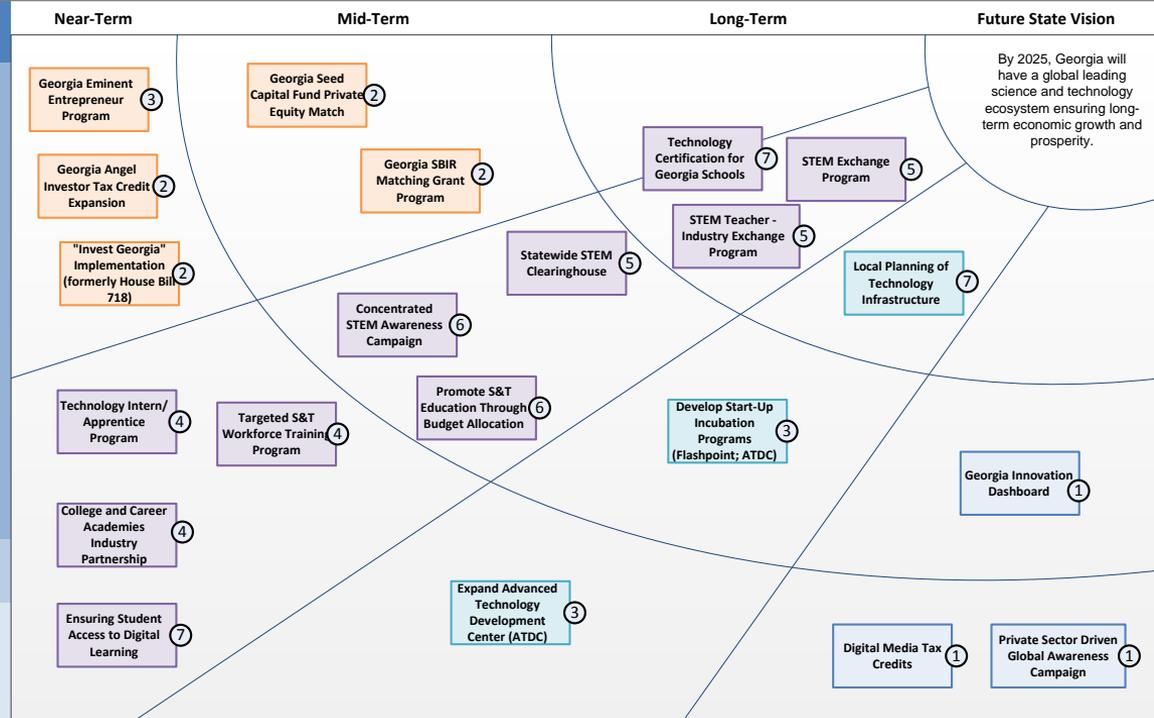
# INNOVATE GEORGIA 2025: IMMEDIATE FOCUS AREAS

## 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 11<sup>th</sup> 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

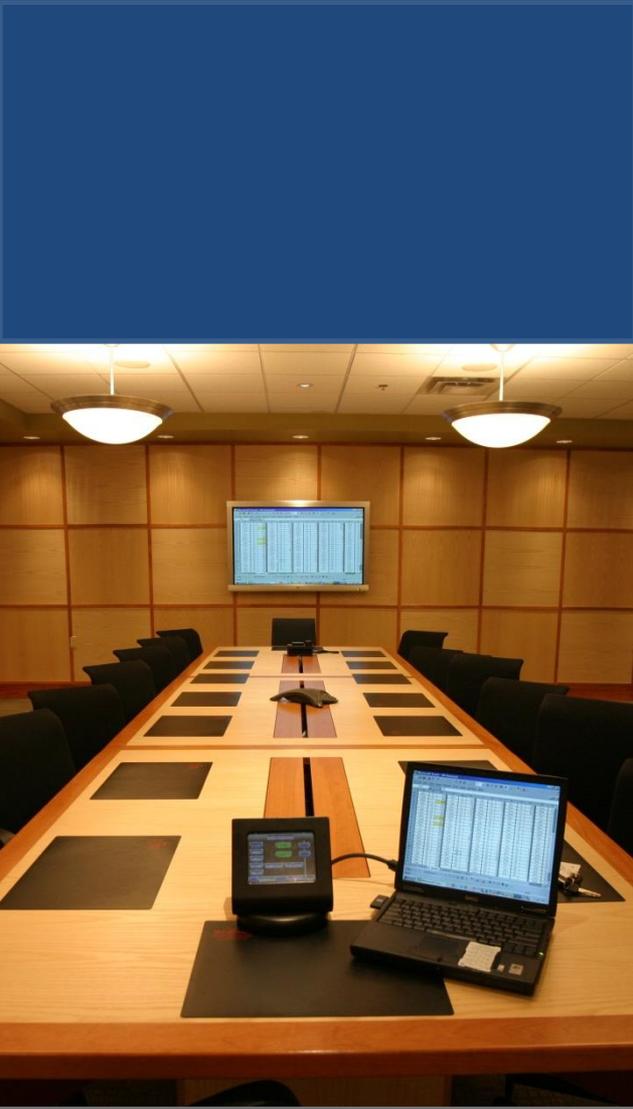
- Digital Media Tax Credits
- Private Sector Driven Awareness Campaign
- Georgia Eminent Entrepreneur Program
- Georgia Angel Investor Tax Credit Expansion
- "Invest Georgia" Bill Implementation
- Expand Advanced Technology Development Center

### SUPPORT

- Technology / Intern Apprentices Program
- Targeted Workforce Training Program
- College and Career Academies Industry Partnership
- Ensuring Student Access to Digital Learning

## **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.**

# 2011 – 2012 GEORGIA SCIENCE AND TECHNOLOGY EXECUTIVE COMMITTEE

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*Georgia State Senate*

**Barry Loudermilk**, State Senator  
*Georgia State Senate*

**Charlice Byrd**, State Representative  
*Georgia State House of Representatives*

**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*

**Carol Henderson**, Director- Health, Science &  
Advanced Technologies  
*Department of Economic Development*

**John Krueger**, Senior Vice President, Public Policy  
*Georgia Chamber of Commerce*

**Gilda Lyon**, STEM Program Manager  
*Georgia Department of Education*

**Tino Mantella**, President and CEO  
*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*

**Cory Ruth**, Outreach Director  
*Governor's Office of Workforce Development*

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

**Larry Williams**, Vice President, Technology  
Industry Development  
*Metro Atlanta Chamber*

**Marlit Hayslett**, Director, Office of Policy  
Analysis and Research  
*Georgia Tech Research Institute*

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**Will Funderburg**, Consultant  
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**Alex Aschenbroich**, Consultant  
*Jabian Consulting*

## INNOVATE GEORGIA 2025

THE GEORGIA SCIENCE AND TECHNOLOGY STRATEGIC PLAN  
Prepared November 2012