

July 2011

To the Members of the State of Georgia's Science and Technology Strategic Initiative Joint Study Commission:

This orientation packet has been compiled to help prepare you to fulfill the charge of SR68 to explore the need for strategic plan for science, technology and innovation in Georgia. The contents of this packet are intended to provide baseline information and establish a starting place for discussion. It is anticipated that more reports, interviews, and research will be needed to complete the goals of the Commission.

The Georgia Tech Research Institute's Office of Policy Analysis and Research (OPAR) is collaborating with the Technology Association of Georgia (TAG) to provide support to the members of the Study Commission as they work to fulfill the charge of SR68. TAG will have primary responsibility for meeting logistics and OPAR will be available for research requests.

This orientation packet contains:

- SR68, the legislation establishing the Study Commission
- Innovative Indicators: Where Georgia Stands
- Questions to consider
- Outline of a Strategic Plan
- Useful terms

Thank you for your service to Georgia.

Senate Resolution 68

By: Senators Loudermilk of the 52nd, Rogers of the 21st, Staton of the 18th, Hill of the 32nd, Albers of the 56th and others

ADOPTED

A RESOLUTION

1 Creating the Science and Technology Strategic Initiative Joint Study Commission; and for
2 other purposes.

3 WHEREAS, the field of science and technology is an important and growing sector of the
4 state economy; and

5 WHEREAS, it is imperative that the state develop policies to encourage and facilitate the
6 growth and vigor of this vital field; and

7 WHEREAS, the General Assembly is determined to study the best and most efficient path
8 to that goal.

9 NOW, THEREFORE, BE IT RESOLVED BY THE GENERAL ASSEMBLY OF
10 GEORGIA that there is created the Science and Technology Strategic Initiative Joint Study
11 Commission to be composed of 12 members as follows:

12 (1) One member of the Georgia General Assembly Senate Science and Technology
13 Committee and one member of the Georgia General Assembly Senate Economic
14 Development Committee appointed by the chairperson of the respective committee;

15 (2) One member of the Georgia General Assembly House Committee on Science and
16 Technology and one member of the Georgia General Assembly House Committee on
17 Economic Development appointed by the chairperson of the respective committee;

18 (3) Three individuals from the private sector with a background in science and
19 technology, with one such member each being appointed by the Governor, the President
20 of the Senate, and the Speaker of the House of Representatives;

21 (4) The commissioner of Economic Development or his or her designee;

22 (5) The Georgia Technology Authority Chief Information Officer or his or her designee;

23 (6) The State School Superintendent or his or her designee;

24 (7) The chairperson of the Board of Regents or his or her designee; and

25 (8) The chairperson of the State Board of Technical and Adult Education or his or her
26 designee.

27 The Speaker of the House of Representatives and the President of the Senate shall each
28 appoint a co-chair of the commission. The commission may establish various subcommittees
29 with subject matter expertise to advise the commission on specific matters, which shall be
30 chaired by a member of the study commission. Members of the subcommittees must be
31 experts from Georgia's science and technology community.

32 BE IT FURTHER RESOLVED that the commission shall:

33 (1) Inventory Georgia's existing assets in the science and technology sectors to determine
34 current strengths and capabilities;

35 (2) Conduct review of state and national policies to discern best practices and lessons
36 learned with regard to public policy that encourages advancement of the science and
37 technology sectors;

38 (3) Hold meetings around the state to solicit input from science and technology
39 stakeholders, with a specific interest in identifying barriers to growth and progress; and

40 (4) Develop specific recommendations with regard to the scope and content of a strategic
41 plan for science and technology in Georgia. Such recommendations shall stipulate what
42 the commission recommends should be excluded from such a plan.

43 BE IT FURTHER RESOLVED that all executive departments, agencies, boards, and
44 commissions and other divisions of the executive branch of state government shall fully
45 cooperate with the commission, and any nonprofit entities designated by the commission that
46 promote and support technology initiatives may assist the commission in the performance
47 of its duties and may provide staff assistance and any other assistance as requested.

48 BE IT FURTHER RESOLVED that the committee shall undertake a study of the conditions,
49 needs, issues, and problems mentioned above or related thereto and recommend any actions
50 or legislation that the committee deems necessary or appropriate. The committee may
51 conduct such meetings at such places and at such times as it may deem necessary or
52 convenient to enable it to exercise fully and effectively its powers, perform its duties, and
53 accomplish the objectives and purposes of this resolution. The legislative members of the
54 committee shall receive the allowances authorized for legislative members of interim
55 legislative committees. The members of the commission shall serve without compensation.
56 The funds necessary to carry out the provisions of this resolution shall come from the funds
57 appropriated to the Senate and the House of Representatives. No later than January 9, 2012,
58 the commission shall submit its recommendations for the development of a strategic plan to

59 the Governor, President of the Senate, and the Speaker of the House of Representatives. The
60 committee shall stand abolished on January 9, 2012.

Innovative Indicators: Where Georgia Stands

Benchmarks	Year(s)	Georgia	US	Rank	State's share of US total	Source
Number of Patents Granted (all types)	2010	2,194	121,179	17 th	1.81%	US Patent Office
US Venture Capital Invested by State	2010	\$333,351,000	\$21,823,380,100	13 th	1.53%	PricewaterhouseCoopers Moneytree Report
SBIR Phase I number of Awards out of total number of Proposals	2010	41 out of 368	4,388 out of 26,286	25 th	0.93%	State Science and Technology Institute
SBIR Phase I Rank based on percentage of awards out of the total of proposals received	2010	n/a		45 th	n/a	State Science and Technology Institute
Federal R&D funding by State (Dollars in millions)	2007	\$1,326.10	\$111,428.40	23 rd	1.19%	National Science Foundation
Per Capita Personal Income	2010	\$35,490	\$40,584	38 th	n/a	US Department of Commerce, Bureau of Economic Analysis
Science and Engineering Graduate Students enrolled (out of 52, includes DC and PR)	2007	11,436	516,128	15 th	2.22%	National Science Foundation
Middle-Skill Job Growth Rate	1	9.40%	4.80%	11 th	n/a	"Enterprising States: Recovery and Renewal for the 21st Century", US Chamber of Commerce and the National Chamber Foundation (2011)
STEM Job Growth Rate		<2.3%	2.30%	Not given		
Largest Cluster in Georgia: Business and Financial Services		589,312 jobs	n/a			
Entrepreneurial Activity		<i>OPAR is trying to locate the data to support the rankings in column D. The report does not contain the detailed data.</i>		1st		
High School Advanced Placement Activity				5th		
Growth in share of National Exports				6th		
High-Tech as a Share of All Businesses				8th		
Business Birth Rate				8th		
Higher Ed Efficiency				9th		
State and Local Tax Burden				19th		
Small Business Survival Index				20th		
Median Family Income				22nd		
College Affordability				23rd		
Business Tax Climate		25th				

¹ These indicators and accompanying rankings are found on pg 47-48 of the June 2011 "Enterprising States" report. The report does not include the date of the data on which the rankings are based. It is likely that the data is the most recent, but it could be a couple of years old, depending on how frequently it is collected.

Possible Questions to Consider

The following list of questions has been developed for use by the State of Georgia's Science and Technology Strategic Initiative Joint Study Commission. Many of these questions were taken or inspired from the 2005 report [Measuring Regional Innovation](#), prepared by the Council on Competitiveness and funded by the US Economic Development Administration. These questions are intended to provoke discussion, ideas, and more questions. It will be at the discretion of the Study Commission as to which questions need to be answered.

Broad Questions

- What is the role of an innovation strategy?
- What assumptions will be made? E.g. These recommendations assume the current economy will recover in 24-36 months.
- What is the overall vision for the plan and its impact on Georgia?
- How will Georgia be different in 10, 20 or 30 years as a result of a strategic plan for science, technology and innovation?
- What is the definition of a science, technology and innovation industry?

Georgia Context

- What is Georgia's STI history?
- What are Georgia's current STI assets? These include businesses, universities, programs, etc. Is it possible to quantify the impact of these assets?
- What STI industries/sectors are Georgia already good at? What does Georgia want to be good at?
- Who are the major players in each industry sector identified above?
- What are the new and emerging regional growth priorities? What are the criteria for identifying these priorities in the future?
- What are the existing gaps?
- What are the main issues facing Georgia STI businesses today? E.g. Limited access to seed stage/venture capital, shortage of qualified workforce, difficulty with intellectual property licensing.
- How will Georgia demographics and geography shape the recommendations?
- Does Georgia need any new institutions to execute an innovation strategy? E.g., a Chief Innovation Officer, Innovation Council, etc?
- How does the work of this committee complement the work of the Competitiveness Initiative?

Southeast Context

- What are neighboring states doing in terms of STI policy? Is there opportunity for collaboration?
- How can Georgia leverage the strengths of neighboring states?
- How can Georgia develop a competitive advantage based on the weaknesses of neighboring states?
- When is it appropriate to collaborate versus compete? What are the criteria for discerning that question?

National Context

- What national policies and programs need to be considered in the development of the recommendations?
- Where does Georgia stand on major innovation metrics as compared to other states? Where is Georgia excelling? Where is Georgia lagging?

Global Context

- How does Georgia compare to other countries on traditional innovation indicators such as R&D investment as a percentage of GDP and STEM performance?
- What can we learn from other countries with regard to how they approach innovation? For example, South Korea has a goal of increasing its federal R&D investment to close to 5% of GDP (the current average is less than 3% of GDP).

For use at Regional/Local Meetings

- Why is your firm located in this region?
- What barriers do you see to expansion in this region?
- How does your company foster innovation?
- Do you partner in R&D with other companies in your industry?
- How do the universities in this region interact with businesses?
- Are research partnerships with businesses prevalent?
- Are the partnerships focused around basic research or technology commercialization?
- Has your company licensed technology from a university, private research institution, or federal lab?
- How aggressive are the universities in commercializing applied research (licensing, equity investor, incubators)?
- How effective is your state and local government in fostering the development of innovative firms?
- What policies directly impact your innovation process/results?
- Which policies have helped firms innovate?
- Which policies have hindered innovation?
- Does your state or local government work with the private sector to attract suppliers, manufacturers, and service providers related to your business? Provide examples.
- Does the state or local government sponsor or support forums to bring together government, industries, and universities? Provide examples.
- Are there any other important government or non-profit organizations that support business development?
- How does new business formation happen in your region? Is it predominately internal or do you attract most new companies from outside the region?
- Are the founders typically from the region or people who have moved to the area to start a business?
- Is there a strong group of local business support and strategic advising services for start-ups? How have they been helpful to you?
- What alliances or networks provide access to capital?
- How rapidly can new ventures or expansions be financed locally?
- Does the regional culture foster start-up ventures and entrepreneurship? If so, how?
- How does government in your area support the particular needs of start-up companies? (Incubators, financing, enterprise zones?)

Commission Procedure

- How will the Study Commission make decisions?
- What or who determines if a topic will be covered in a public meeting versus a session “behind closed doors”?
- How will the subcommittees operate?
- How will information be shared with the public?
- What measures will be employed to make sure a broad set of views/perspectives are included in the discussions?

Outline of a Strategic Plan for Science, Technology, and Innovation

The following outline has been developed for use by the State of Georgia’s Science and Technology Strategic Initiative Joint Study Commission. It was derived from a comparative analysis of other state-level strategic plans for science, technology, and innovation. This document is meant to aid the Study Commission as they determine what types of information might be needed to support the development of a strategic plan.

Section	Purpose	Example from the 8 state-level STI plans ¹	Length
Letter from leader of authoring entity	Explains document purpose and significance.	Nebraska, Oregon	1 page
List of Study Commission Members	Demonstrate stakeholder participation and legitimacy. This is sometimes an appendix.	Maine, Oregon	1 page
Principles	To establish “ground rules” about how the plan was developed	Possibilities might include inclusivity, honesty, simplicity, etc. Did not see this in any of the existing plans.	Less than 1 page
Vision	Typically a high-level statement, the vision offers a new and/or improved state for the plan’s target audience.	From WV, “By 2015, research and innovation will be the number one driver of West Virginia’s new, diverse, and prosperous economy.”	One succinct, but specific sentence
Executive Summary	Summarizes major points from all sections with a focus on goals.	Idaho	1-2 pages
Situational Analysis	Establishes the current environment and may include benchmark data to compare to other states/countries. This may also include brief discussion of accomplishments and lessons learned.	North Carolina	2-5 pages
Statement of need	Based on the situational analysis, makes the case for the need for a strategic plan.	North Carolina	Less than 1 page

¹ The eight state-level STI plans are from AL, ID, ME, NC, NE, OK, OR, and WV.

Statement of scope	Explicitly stipulates what the authors intend to include in the plan. To the extent possible, the authors may try to state what has been deliberately excluded.	Did not see this in any of the existing plans.	Less than 1 page
Goals	Articulates precise goal and explains how it will be accomplished, by whom, by when, and with what resources.	North Carolina	Varies, but 3- 5 is average
Subsection of Goals: Metrics	States how each goal will be measured in order to evaluate progress; metrics can be coupled with goals as opposed to being explained in a separate section.	West Virginia	Included with goals
Acknowledgments	Recognizes any other contributors to the development and creation of the document (sponsors, general public, focus group participants, etc.)	Most	Varies
Appendices	Varies	Types of appendices include advisory group members, meeting dates, glossaries, surveys, survey results, etc	Varies

Useful Terms for Science, Technology and Innovation

The following list of terms has been developed for use by the State of Georgia's Science and Technology Strategic Initiative Joint Study Commission.

Angel Investor is an investor who provides equity investment to start-up businesses.

Benchmarking is a term that refers to quantifiable measures or indicators of economic competitiveness and quality of life that can be collected on a regular basis. These indicators are used to measure a region's economic status and progress to comparable regions.

Business Incubator is an entity that nurtures and supports young companies until they become viable, providing them with affordable space, technical and management support, equity and long-term debt financing, and employment. The objectives of an incubator are to spur technology-based development; to diversify the local economy; and to assist in community revitalization.

Business Recruitment and Attraction is a traditional approach to economic development to entice companies to relocate or to set up a new branch plant or operation in a state or locality.

Business Retention is a systematic effort designed to keep local companies content at their present locations which includes helping companies cope with changing economic conditions and internal company problems.

Clusters are collocation of firms in the same or similar industries to foster interaction as a means of strengthening each other and enhancing the community's competitive advantage.

Commercialization is the process or cycle of introducing a new product or production method into the market. It can also refer to the stage in the product development process where the decision to order full-scale production and launch is made.

Competitiveness is the ability of a firm or a nation to offer products and services that meet the quality standards of the local and world markets at prices that are competitive. Innovation is frequently cited as the path to achieving and maintaining competitiveness.

Economic Gardening an economic development model that suggests that entrepreneurs drive

economies. The model seeks to create jobs by supporting existing companies in a community.

Entrepreneur is a person who has possession of a new enterprise, venture or idea and is accountable for the inherent risks and the outcome of a product.

Gap Financing is a loan required by a developer to bridge the gap, i.e. financing that covers the difference between what a project can support and the cost of development or purchase.

"Green" is a relatively recent term that refers to ideas, activities, programs etc that have a positive (or do not have a negative) influence on the environment.

Human Capital the stock of competences, knowledge and personality attributes embodied in the ability to perform labor so as to produce economic value. It may include health, knowledge, motivation, and skills.

Incentives are benefits offered to firms as part of an industrial attraction strategy. Examples include tax abatements and credits, low interest loans, infrastructure improvements, job training, and land grants.

Income per capita is the total national income (GDP) divided by total population. *This is a common indicator for states and countries to measure progress towards an innovation economy.*

Innovation is the evolution of an idea into a good or service for which people will pay, thereby stimulating the economy. Innovation is touted as the foundation of the 21st century economy. Characteristics of innovation include that it is fast, multidisciplinary, collaborative, democratized and global.

Innovation-Based Economic Development (IBED) is similar to technology-based economic development, but recognizes the need for more than technology. IBED requires the processes and knowledge surrounding advances in technology. (Also see TBED.)

Microenterprise is a business that is "smaller-than-small." It is operated by a person on a full- or part-time basis.

Microloans are very small, short-term unsecured loans given to people without credit history and/or the collateral necessary to obtain a conventional loan.

Research and Development (R&D) is a term used to describe creative work undertaken on a systematic basis in order to stimulate new knowledge. Universities and industries conduct R&D. *Investment in R&D as a percentage of GDP is a common metric states and countries use to compare themselves.*

One-Stop Business Service Centers are facilities where business persons can go to obtain the licenses and permits needed to start-up, operate, and expand their facilities. These centers reduce the number of separate agencies and offices a business must apply to for various licenses and permits, saving public and private time as well as financial resources.

Patent is a property right granted by the government to an inventor to exclude others from making, using, offering for sale, or selling the invention for a limited time in exchange for public disclosure of the invention when the patent is granted. *This is a common indicator for states to use to measure progress towards an innovation economy.*

Seed Capital is equity money supplied to help a company get off the ground. Seed funds are often used to help attract other investment.

Science, Technology, Engineering and Mathematics (STEM) Education refers to the sector of education that many experts believe will be the foundation of the knowledge economy. The US trails behind other countries in academic performance in STEM subjects, therefore compromising our ability to equip our workforce with adequate skills. *Performance in STEM areas is a common indicator for states and countries to measure progress towards an innovation economy.*

Small Business Innovation Research (SBIR) Grants comprise 2.5% of the total extramural research budgets of all federal agencies with extramural research budgets in excess of \$100 million and are reserved for contracts or grants to small businesses. Over half the awards are to firms with fewer than 25 people and a third to firms of fewer than 10. A fifth are minority or women-owned businesses. *SBIR awards are a common indicator for states to measure progress towards innovation.*

Smart Growth refers to the efficient use of all available assets. It involves efficient land use; full use of urban services; mixed use; mass transportation options; and detailed, human-scaled design.

Social Capital refers to linkages between and among business development service providers and the companies they assist.

Start-Up refers to a company in the first stage of the evolution of a business.

Start-Up Capital refers to funds that help nascent enterprises acquire space, equipment, supplies, and other inputs needed to launch a business. (See “seed capital”)

Sustainable Development is a term that describes the effort to manage a location's natural resources in a way that does not deplete them. Sustainable development helps ensure a better, healthier living environment and contributes to an area's quality of life.

Technology-Based Economic Development is the approach used to help create a climate in which regions can foster an economic base composed of firms that constantly innovate and maximize the use of technology in the workplace. (Also see IBED.)

Technology-Transfer is the process of transferring, skills knowledge, technologies, and methods of manufacturing among organizations (including governments) to ensure that scientific and technological developments are accessible to a wider range of users who can then further develop and exploit the technology into new products, processes, applications, materials or services.

Venture Capital (VC) is an investment made where there is a possibility of very substantial returns on the investment within a short period. It is usually invested in dynamic, growing, and developing enterprises. The typical VC investment occurs after seed funding. *Levels of VC funding are a common indicator for states to measure progress towards an innovation economy.*

Sources: These definitions were referenced from the [Business Dictionary](#), [California Association for Local Economic Development](#), [The Economist](#) online, the [Ewing Marion Kauffman Foundation](#), the [International Economic Development Council](#), the [National Center for Technology Innovation](#), [State Science and Technology Institute](#), [US Patent Office](#), and [Wikipedia](#).