Georgia Science and Technology Strategic Initiative Joint Study Commission Meeting

Georgia Health Sciences University
Augusta, GA
November 15, 2011
10:00 AM – 4:00 PM

Commissioner Binders

AGENDA: Science and Technology Study Commission

November 15, 2011 10:00 AM – 4:00 PM
Georgia Health Sciences University, Augusta, GA

Timing	Activity
10:00	**Arrival for Commission Members** – *Georgia Health Sciences University*
10:00 – 11:00	**Commission Planning/Discussion Meeting**
11:00 – 12:00	**Tour –** *Georgia Health Sciences University*
12:00 - 1:00	**Lunch for Commission Members**
12:30 – 1:00	**Registration & Check-In –** *General Public*
1:00 – 1:10	**Welcome Remarks** - GHSU Representative - Commission Co-Chairs
1:10 – 1:55	**PANEL A –** *Topic* - Communication Services/Telecom
1:55 – 2:00	**Panel Transition**
2:00 – 2:45	**PANEL B** – *Topic* - R&D and Commercialization
2:45 – 2:55	**Break & Panel Transition**
2:55 – 3:40	**Panel C –** *Topic* - Bio/Life Sciences
3:40 – 4:00	**Public Comment**
4:00	**Adjourn Meeting**

AGENDA: Science and Technology Study Commission

November 15, 2011
12:30 PM – 4:00 PM
Georgia Health Sciences University
Alumni Center
919 15th St., Augusta, GA

Timing	Activity
12:30 – 1:00	**Registration & Check-In**
1:00 – 1:10	**Welcome Remarks** - Dr. Ricardo Azziz
1:10 – 1:55	**Communication Services/Telecom Panel** - Lee Conner, SGRITA - Kevin Curtin, AT&T - Chris Jones, Verizon - Bill Weber, CBeyond
1:55 – 2:00	**Panel Transition**
2:00 – 2:45	**Research and Development – Commercialization Panel** - Mike Cassidy, Georgia Research Alliance - Dr. Steve Cross, Georgia Tech Institute of Technology - Dr. Mark Hamrick, Georgia Health Sciences University - Lee Herron, Georgia Research Alliance
2:45 – 2:55	**Break & Panel Transition**
2:55 – 3:40	**Bio and Life Sciences Panel** - Seth Millican, Brock Clay Government & Public Affairs - Stan DeHoff, Georgia Medical Center Authority - Beata Kochut, UGA Selig Center for Economic Growth - Stacey Williams Shuker, Center of Innovation for Life Sciences
3:40 – 4:00	**Public Comment**
4:00	**Adjourn Meeting**

Communication Services/Telecom Panel

1:10 – 1:55 PM

- **Lee Conner, SGRITA**
- **Kevin Curtin, AT&T**
- **Chris Jones, Verizon**
- **Bill Weber, CBeyond**

Leon Mitchell Conner – Short BIO

Lee Conner was born and raised in Arlington, Georgia, received his Bachelor of Business Administration from Georgia State University before returning home.

Mr. Conner is the founding Chairman and now serves as Executive Director of South Georgia Regional Information Technology Authority.

He is also President of Conner Agency Inc, an insurance agency with offices in Arlington, Blakely and Newnan, Georgia.

Mr. Conner, has served over 22 years on the Arlington City Council, is founding president and now Board member of the Calhoun County Development Council. He is the Chairman of the Downtown Development Authority of the City of Arlington as well as serves on Early County 2055 Advisory Council.

- Founding Chairman and now Executive Director of South Georgia Regional Information Technology Authority
- President of Conner Insurance Agency
- 20+ years on Arlington City Council
- Founding President and now member of Calhoun County Development Council
- Chairman of Downtown Development Authority of the City of Arlington
- Member of Early County 2055 Advisory Council (a private non-profit economic development agency)

South Georgia Regional Information Technology Authority | Brief History and Purpose

In 2005 a group of local business owners came together to find a solution for the vast inadequacy of communication infrastructure investment in our region. 97% of our geographic area had only dial up Internet service. Our school systems and other anchor institutions were required to operate with less Internet capacity than that afforded a typical residence in Atlanta.

As a result of this local endeavor, in 2007 the South Georgia Regional Information Technology Authority (SGRITA) was created by State Legislation to provide telecommunications and information technology services in five rural southwest Georgia Counties; Baker, Calhoun, Early, Miller and Mitchell County. In 2010 Legislators expanded SGRITA to include Seminole and Terrell County.

In 2008 SGRITA received an OneGeorgia Authority BRIDGE grant investment to begin building core communication infrastructure. From this initial investment SGRITA has continued to build and grow in our communities.

SGRITA is a “best practices” model for local communications infrastructure investment. Although a public Authority, SGRITA operates solely as a free enterprise business. We have no ability to issue bonds or access tax base and are not tax exempt, paying sales tax on all goods acquired and those taxable services sold. We must approach lending institutions to borrow funds and compete on the open market for employees. Our operations budget is solely dependent on the competitive sale of services within an unregulated industry. Every morning we wake up knowing we have to be better and faster than the competition or we do not get paid. That said; SGRITA has operated at a profit since inception while nearly doubling our net assets after depreciation each of our operating years.

To meet our rural residential Internet needs, SGRITA purchased a 700MHz frequency license in our region and is now deploying next generation 4G LTE wireless broadband technology to provide Internet service across more than 2,000 square miles of southwest Georgia. We have also moved all of our educational facilities from the bottom 3% in Georgia for speed and capacity ranking to the top 1% in the world! More importantly, SGRITA’s engineers and technology employees live in our rural communities and by doing so, represent a unique asset to our region. Instead of ownership capital leaving our State and knowledge base coming from out of State, SGRITA reinvests within our community and brings much needed technology jobs to rural southwest Georgia.

SGRITA has a simple technology plan for the next 10 years. Internally we call it “having the biggest pipe”. Simply, whatever bandwidth capacity we are now providing is already not enough. We must continually provide more bandwidth at a lowest possible cost. To achieve this plan, SGRITA is now investing $15,000,000 in our region building a next generation Internet2 capable fiber network to serve the needs of our communities over the next 50 years.

What can the State do for SGRITA? We want the State offices and facilities in our region to be our customer. We already serve the telephone and Internet needs of most of our County and City governments by lowering their communication costs and increasing their available services. But we run into issues when dealing with the State. Where available, promote local purchasing of communication services.

Recommendations | Communications & Science and Technology

Policy Recommendation	Recommendation Details, Specifics & Reasoning
<u>Communications</u>: **State agencies need to look to regional or local providers for communication services instead of just relying on exclusive Statewide contracts.**	Exclusive statewide contracts for communication services do not address the specific needs of local communities while also disbursing State funds that otherwise would more directly benefit the local agency and local economy. Three Examples: 1) Our local community college must maintain UGA Peachnet service through an inadequate T1 (1.5 Mbps) line purchased through an out-of-state Incumbent provider but in order to actual provide service for their faculty and students, separately pays for Internet service through SGRITA. 2) Our 911 centers must maintain telephone service through a state contract provider yet separately buys SGRITA's Internet and phone service required to actually operate the center. 3) Our schools are offered minimum Internet access service through a DOE statewide contract. However, all the school systems in our territory each directly purchase Internet service through SGRITA in order to obtain the needed bandwidth. While not specifically disallowed, State policies and procedures make it difficult for local providers to work with State agencies to provide communication services.
<u>Communications</u>: **Re-capitalize the OneGeorgia Authority BRIDGE Grant program**	Funded through non-tax based revenue, the OneGeorgia Authority BRIDGE program provided critical funding to jump start rural broadband deployment. This funding was instrumental in SGRITA's accomplishments. Now many other rural communities eagerly seek to replicate SGRITA's success but are stymied because the State has removed BRIDGE funding to balance other agency's budgets. The BRIDGE program is a core infrastructure funding program that must be reinstated to offer rural communities the ability to compete in today's economy.

<u>Science and Technology</u>: **Add technology planning to existing regional planning process**	Cities and Counties are required to develop then operate under regional plans. These plans include planning for land usage, water and sewage infrastructure, housing, transportation and other needs. The intent is to foster a higher standard of living and boost economic development. But these master plans do not include any technology planning. It is important that communities plan for the technology needs of their own government operations as well as their communities. A solution is to have the Regional Commissions, who presently help develop the regional plans for our communities, specifically address in their planning process the communication and technology needs of their communities.
<u>Science and Technology</u>: **Promote Technology (IT & IS) courses in schools. Start by at least offering STEM "Science Technology Engineering and Math" programs in ALL schools.**	While this may not be an issue in urban or suburban schools, none of 11 county school systems in our rural region offer Information technology (IT) or Information Systems (IS) courses. At best, students receive keyboarding (typing) instructions. To illustrate the issue, SGRITA posted a customer service job opening and had 148 applications. Of those, only four had the minimum IS skills required for an entry level customer service position. A solution may be in promoting STEM "Science Technology Engineering and Math" programs in all schools. STEM is already promoted through Georgia Tech in selected schools but does not reach into most rural schools. As well, UGA has an Office of STEM Education but their programs also never reach our rural school systems. The DOE has Educational Technology Centers who meet with teachers to promote technology in the classroom. Both the personnel and organizational resources appear to be in place to bring STEM programs into all our schools but the processes are fractured and territorial. There needs to be a central plan to push science and technology education in ALL our schools by coordinating these existing programs for more effective delivery.

SR 68 – Strategic Plan for Science & Technology

Kevin F. Curtin – AT&T

1. AT&T: *AT&T Inc. (NYSE:T) is a premier communications holding company and one of the most honored companies in the world. Its subsidiaries and affiliates – AT&T operating companies – are the providers of AT&T services in the United States and around the world. With a powerful array of network resources that includes the nation's fastest mobile broadband network, AT&T is a leading provider of wireless, Wi-Fi, high speed Internet, voice and cloud-based services.*

   AT&T employs almost 22,000 Georgians. Atlanta is the headquarters for AT&T Mobility.

2. Please address the following points:
   a. What policies have aided in your company/organization's success?
      i. General business climate is favorable
         1. Georgia ranks #5 in Internet & Telecom Jobs
         2. Atlanta ranked #2 in America's most wired cities survey in 2009 & 2010
      ii. Generally favorable policy environment
         1. SB 120 – 2006 (no PSC regulation of Broadband, Wireless & VoIP)
         2. HB 227 – 2007 (statewide video franchise legislation)
         3. SB 379 – 2008 (telecom franchise reform)
         4. HB 168 – 2010 (eliminate telecom subsidies)
         5. Amendment 1 – 2010 Ballot – Employment Covenants
   b. What policies are currently in place that are barriers to your company/organization's success?
      i. Lack of standardized sales tax system that eliminates double taxation on business inputs – Communications Flat Tax is solution.
      ii. Lack of statewide rules on construction/regulation of Government Owned Networks – suppresses private investment.
      iii. Comparatively weak Metals Theft statutes that lead to growth in theft losses for telecom carriers statewide.
      iv. State telecom subsidies still too high (Universal Access Fund) - $16 Million to some 17 applicant companies in '11 vs. $12.4 Million to 15 applicant companies in '10.
      v. Need to eliminate any remaining outdated and discriminatory regulatory rules that require carriers to invest in outdated technologies.
      vi. Emerging issue: taxation and regulatory burdens established by local governments for the placement and maintenance of cell towers.

c. Where do you want to see your company/organization in ten years?
    i. As an organization that allows Georgians to enhance their quality of life and the competitiveness of their businesses via use of advanced communications technologies.

d. How can the state of Georgia help your company/organization realize this goal?
    i. By adopting public policies that will bring about additional opportunities to invest and grow in Georgia.

Recommendations for the Commission: Please use the template below to make any policy or program recommendations to the Commission on actions the State can take to improve Georgia's Science and Technology Industry. They may be specific or broad, but the more details the better. Feel free to provide any additional or supporting documents you deem appropriate. You may make as few or as many recommendations as necessary.

Policy Recommendations	**Specifics**
Enact the Communications Flat Tax (Including the Elimination of Double Tax on Investment)	This was a recommendation of Tax Council in '11 – would spur additional telecom investment in Georgia (see one-pager for details)
Enact Government Owned Networks Legislation	This would eliminate the regulatory disadvantage private providers face when competing against a government-owned network - stop suppression of private investment
Strengthen Existing Metals Theft Statutes	This would allow carriers to focus resources on core mission – delivering state-of-the-art services
Eliminate Any Remaining Barriers to Moving to "All-IP" Networks in Future	We are currently developing a list of outdated statutes that may act as barriers to deployment of more efficient technologies

Potential Emerging Issues	**Specifics**
Additional Efforts to Minimize Telecom Subsidies – State Universal Access Fund	$16 Million to some 17 applicant companies in '11 vs. $12.4 Million to 15 applicant companies in '10.
Local Regulation and Taxation of Cell Towers	This is becoming a more serious issue as many jurisdictions look to enhance tax revenues via wireless ordinances

Kevin F. Curtin

Brief Bio

Kevin F. Curtin is Director of Legislative Affairs for AT&T Georgia. In that role, Kevin is the company's Chief Lobbyist before the Georgia General Assembly and the Executive Officers of Georgia. Curtin also supports the company's advocacy with Georgia's Federal Congressional delegation. In addition to his AT&T responsibilities, he currently serves at the Chairman of the Governmental Affairs Council of the Georgia Chamber of Commerce.

Previously, Curtin was Director of Corporate Communications for BellSouth Corporation. Kevin was responsible for handling all public and external communications for Georgia Operations including serving as the state spokesperson. Curtin also handled regional corporate communications for the company's state regulatory and legislative efforts.

From 1999 to early 2004, Kevin was BellSouth's Regional Manager - External Affairs in Savannah. In this role, Kevin was BellSouth's regional executive responsible for overseeing customer relations, public relations, government relations, economic development activities and media relations in southeast Georgia.

Curtin is a graduate of the Leadership Savannah Class of 2002, the Leadership Georgia Class of 2003 and was named as one of Georgia Trend Magazine's "40 Under 40" in 2003.

Before joining the BellSouth in 1999, Kevin held several public affairs and public relations positions. His work included positions as Executive Assistant and Director of Communications for Georgia's Commissioner of Insurance, Legislative Affairs Representative with Blue Cross and Blue Shield of Georgia, Southeast Regional Manager with the Alliance of American Insurers and Executive Director of the Georgia Association of Health Plans.

Kevin grew up in Atlanta and graduated from the University of Georgia in 1990 with a BBA from the Terry College of Business. He received his Master of Science Degree from the J. Mack Robinson College of Business of Georgia State University in 1998.

August '11

Georgia

AT&T is investing in our Georgia communications networks, our people and local communities—all of which contribute to the state's economy and quality of life.

Employment

AT&T employed **21,916 people** working in Georgia as of June 2011, and our **payroll represented more than $1.9 billion** in 2010. We operate 62 company-owned retail locations in the state.

Building for Tomorrow

Across the country, we're investing billions to build the advanced networks that will create jobs and fuel economic growth.

From 2008 through 2010, **AT&T invested more than $3.3 billion in its Georgia wireless and wireline networks.** We also offer our advanced Internet Protocol TV service, AT&T U-verse® TV, in Georgia.[1]

Local Support

In 2009*, AT&T operations in Georgia generated **more than $417 million in local and state taxes.** These taxes, paid by AT&T or our customers, help support vital programs.

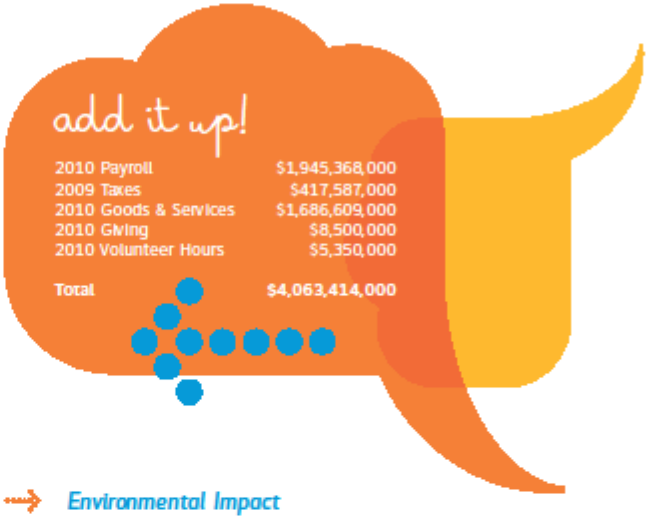
Spending Where We Live

AT&T spent **more than $1.6 billion on goods and services** purchased from suppliers based in Georgia in 2010. This spending supports jobs and economic activity in the state.

People Power

Each year, more than 300,000 of our employees and retirees work to enhance their communities by taking part as AT&T Pioneers and volunteering millions of hours.

In 2010, AT&T employees and retirees in Georgia donated **250,000 hours of personal time** to community outreach activities—**worth more than $5.3 million.**



Environmental Impact

We are committed to operating in a way that increases our efficiency and minimizes our impact on the environment. For example, as of December 2010, we operated **64 alternative-fuel vehicles** in Georgia. And in 2010, we **invested $3,607,099 in 287 energy-efficiency projects** in the state, resulting in an expected 37,399,316 kilowatt hours of annualized energy savings.

Giving Back

For more than 25 years, the AT&T Foundation has been committed to advancing education, strengthening communities and improving lives. In 2010, AT&T and its employees contributed **more than $8.5 million** through corporate, employee and AT&T Foundation giving programs in Georgia.

In 2008, we launched AT&T Aspire, a $100 million philanthropic program to help strengthen student success and workforce readiness. As part of this commitment, last year we awarded **13 single or multi-year grants in Georgia, valued at $809,797. We also provided the opportunity for 3,176 students** in Georgia to job shadow our employees, giving them the chance to see first-hand the skills they need for future success.

Connect. Communicate. Contribute.

*Most recent data available.

[1] "Geographic and service restrictions apply to AT&T U-verse services. Call or go to www.att.com/u-verse to see if you qualify."

Rethink Possible

Investing in Georgia…Driving Innovation

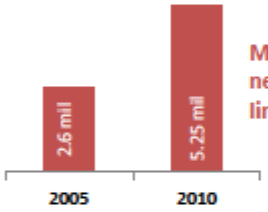
Telecom Reform Legislation Benefits Georgians:

Innovation and Investment Lead to High-Tech Jobs, Which Spur Economic Development

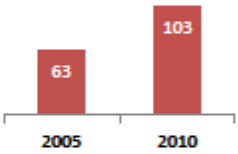
Georgia saw increased investments and innovation, following telecom reform legislation including:

- SB 120 – Competitive Emerging Technologies Act
- HB 227 – Consumer Choice for Television Act
- SB 379 – Telecom Franchising Reform
- HB 168 – Telecom Jobs & Investment Act

Now, Georgia ranks #1 nationwide in DSL availability



More than 2.65 million new broadband access lines in Georgia



40 new Georgia broadband providers

Georgia ranks #5 in Internet and telecom service jobs

Atlanta ranked #2 in America's most wired cities survey in 2009 and 2010 – Atlanta also ranked #1 in broadband adoption and #2 in broadband access options in 2010.

Today, investment in Georgia by communications companies continues to grow…

- From 2008 to 2010, AT&T invested more than **$3.1 billion** in its wired and wireless networks in Georgia. (Source: AT&T)
- Since 2000, the cable industry has invested **$1.6 billion** in Georgia. (Source: CTAG)
- Verizon Wireless invested more than **$1.9 billion** in their Georgia wireless network since 2000. (Source: Verizon Wireless)

Additional Sources: FCC, Cyberstates 2011 and Forbes.

The way Georgians communicate has changed over the past decade…

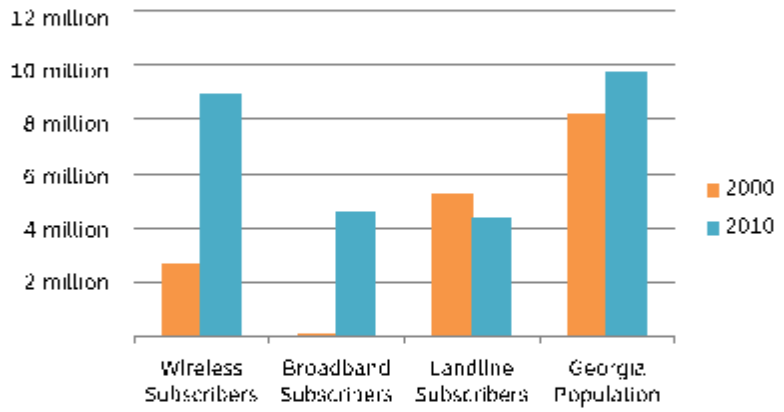
From 2000 to 2010 in Georgia, we've seen:

330% increase in wireless subscribers

3,530% increase in broadband subscribers

17% decrease in landline subscribers

18% increase in Georgia's population



Wireless subscriber penetration by city

Albany:	101 percent
Macon:	95 percent
Columbus:	95 percent
Augusta:	94 percent
Savannah:	94 percent
Atlanta:	94 percent

Broadband availability in Georgia

DSL Broadband – 94 percent of the population…highest percentage of any state in the nation

Cable Modem – 92 percent of the population

Sources: FCC Reports, 6/30/2000 and 6/30/2010 and U.S. Census Bureau

georgia communications flat tax

today, communications services are being taxed at different rates creating an unlevel playing field that prevents true competition which is stifling investment and job creation

Different rates distort the market for these services by giving some competitors an advantage based on their tax status. This situation has developed over time as telephone, cable and satellite companies have begun competing in each others' markets. Some state laws have been modernized to reflect the convergence of technology but Georgia's tax code has not.

- Customers whose telephone service is provided over the internet (also known as over the top VoIP) pay no state taxes while customers who have traditional landline service or cable VoIP service can pay more than 10% in state/local sales taxes and franchise fees.
- Those customers who have video from a cable or telecommunications company can pay more than 5% in local franchise fees while satellite customers pay no taxes or fees.

Georgia tax policy should encourage investments that lead to the creation of good jobs and expand communications networks in Georgia. Companies that invest in infrastructure for communications and broadband services in Georgia are taxed on their capital investments at the rate of 7%, which is the average combined rate for state and local sales tax.

the solution: encourage competition and investment by moving to a flat tax for the communications industry which will replace multiple taxes and fees at the state and local level

CFT would replace the multiple taxes and fees currently being charged at the state and local level (such as sales taxes and franchise fees) creating a uniform, flat 7% tax on the retail sale of communications services. By covering all communications services, the tax base would be broader and would allow the CFT to replace both the state and local taxes and fees currently being charged while also providing a tax exemption for communications infrastructure to avoid the issue of pyramiding of taxes (taxing inputs).

Local governments would be made whole by distributing 3/7^{ths} of the total tax dollars collected from the CFT by the state to them. The funding would be distributed to local governments on a replacement basis to cover the revenue currently received from communications taxes and fees that would be repealed. Additional local revenue would then be distributed based on jurisdictional population.

- Replace multiple local and state taxes and fees with one uniform statewide communications flat tax.
- Enact a machinery exemption for communications infrastructure to avoid pyramiding of taxes and to encourage investment and job creation in the state.
- Efficient – municipalities and the state have lower administrative burdens through a simplified tax system.
- Tested in other states – North Carolina, Virginia and others have successfully reformed their telecommunications tax code with a CFT.
- Eliminate tax disparity between communications services – competitively neutral tax – freeing consumers to choose services based on value, not level of taxation.

Chris Jones
Executive Director, State Government Affairs
Verizon

Chris Jones is Executive Director, Public Policy for Verizon Communications Corporation's South Area, responsible for state regulatory and legislative policies and issues advocacy in 11 Southeastern states. Jones has held various telecommunications industry public affairs positions in Georgia, Pennsylvania, Washington, DC and Texas since 1982.

Before entering the telecommunications industry, Jones worked in radio broadcasting and was an award winning news and sports reporter with WRFC radio in Athens, Georgia and with Atlanta's WSB Radio. He assisted with UGA football broadcasts and provided "color" analysis for the Georgia Basketball Network, 1970-1975. He was public relations manager for the Waycross City Schools and staff planner for the Southeast Georgia Area Planning and Development Commission.

An Accredited Member of Public Relations Society of America, Jones is a former Director of the Florida Telecommunications Industry Association, former president of the Wireless Industry Association of the Southeast and former Vice President of the Cellular Carriers Association of California.

Leadership roles and recognitions Jones has held and received over the course of his career include:

- 1971 President UGA chapter of Sigma Delta Chi, professional journalism society
- 1972 President UGA chapter of Di Gamma Kappa broadcasting society
- 1983 Chairman United Way Campaign Colquitt County, Georgia
- 1984/1985 founded Leadership Development programs in Moultrie & Dalton, GA
- 1985 Leadership Georgia
- 1986 Program Chairman – Leadership Georgia
- 1992 PRSA Silver Anvil Award winner, for Excellence in Business Services (Telco/Cable), for GTE Telephone Operations campaign with Ketchum Public Relations
- 1993 Graduate of Public Affairs Council's Institute for Public Affairs
- 1993-1996 Served on GTE's Core Team for Federal Telecom Act of 1996
- 1998 GTE Wireless President's Council Award
- 1999 GTE Chairman's Award
- 2008 Inaugural Class of The Grady Fellowship, UGA's College of Journalism and Mass Communications' top honor society
- 2011 Chairman of UGA's Grady College of Journalism & Mass Communications Board of Trust

Personal:
A 1973 graduate of the University of Georgia, Jones is a licensed broadcast engineer, Vice President of the Board of Visitors of Grady College of Journalism and Mass Communications at UGA and serves as wireless industry representative to the Georgia Governor's Advisory Committee on 911. He earned an A.A. degree from South Georgia College in 1970.

He is married to Toni Elliston of Waycross, GA. They are parents of two children: Lawton, Minister at Grace Fellowship Church in Johnson City, TN; and Zach, graduate student at Georgia Southern University in Statesboro, GA.

SR 68 Strategic Plan for Science & Technology
Chris Jones - Verizon (Nov. 15, 2011)

I. Background/Company Overview: Verizon Communications Inc. (NYSE, NASDAQ: VZ), headquartered in New York, is a global leader in delivering broadband and other wireless and wireline communications services to consumer, business, government and wholesale customers. A Dow 30 company, Verizon has two business units operating in Georgia…Verizon Wireless and Verizon Business…employing approximately 6000 Georgians.

II. Please address the following points:

a. What policies have aided in your company/organization's success?
   i. Georgia's general business climate
   ii. Georgia SB 120 (effective 1/1/2006) – §46-5-202 (PSC "shall not have any jurisdiction, right, power, authority, or duty to impose any requirement or regulation relating to the setting of rates or terms and conditions for… wireless service.")
   iii. Recently passed Streamlined Tower Siting law

b. What policies are currently in place that are barriers to your company/organization's success?
   i. Lack of incentive for investment in rural areas.
   ii. Double taxation of telecommunications.
   iii.

c. Where do you want to see your company/organization in ten years?

   i. In the communications business, there's something called the "network effect," which means the more connections you have on a network, the more valuable it is to its users. This network effect is the driving force of our business. In the past, we thought of those connections in terms of people. If a network is useful when it connects you to a hundred users, it's exponentially more valuable when it has a hundred million users. **But going forward, networks will also connect people-to-machines, as well as machines-to-machines – creating billions of potential nodes on this increasingly intelligent, increasingly valuable grid.**

   ii. As a company, we want to see the investments we've made in fiber and wireless network technology to unleash every sector of the economy to reinvent itself to provide new services, hire more workers and create sustainable economic growth. The hope is that with a nearly unlimited number of connections in the both the urban and rural environments, the benefits of broadband will be available to everyone. Ubiquitous connectivity will be the laboratory of innovation, and a magnet for intellectual capital

SR 68 Strategic Plan for Science & Technology
Chris Jones - Verizon (Nov. 15, 2011)

d. How can the state of Georgia help your company/organization realize this goal?
   i. Recognize telecommunications as integral part of the state's infrastructure.

Incentivize investment in through a sales tax exemption, specifically and through good communications tax policy in general. Georgia should continue to guard against any attempts to target this innovative industry with discriminatory taxation. **Recommendations for the Commission:** Please use the template below to make any policy or program recommendations to the Commission on actions the State can take to improve Georgia's Science and Technology Industry. They may be specific or broad, but the more details the better. Feel free to provide any additional or supporting documents you deem appropriate. You may make as few or as many recommendations as necessary.

Policy Recommendation(s)	Recommendation Details, Specifics & Reasoning
Recommendation #1 (insert summary statement/descriptor)	Sales tax exemption for Equipment: Not only do wireless services benefit the communications sector but the spillover effects in Georgia are profound. • Broadband investment incentives benefit more than communications providers and their customers. Broadband increases productivity for all businesses and industries and is in itself a tax multiplier. Broadband allows businesses to grow, bringing additional income, sales and use and property tax revenues.
Recommendation #2 (insert summary statement/descriptor)	Strengthen existing "metals theft" statutes. The telecommunications industry is still plagued by theft of copper and other precious metals that are utilized at cellsites and related technical facilities. Some surrounding states have begun strengthening those initial statutes passed a few years ago to make it harder to illegally sell these metals.
Recommendation #3 (insert summary statement/descriptor)	Clarify Digital Technology in Education. Georgia Law that allowed local school boards to determine whether or not mobile phones could be used at school mistakenly prohibited the use of wireless devices during curriculum instruction hours. This code section should be updated to reflect digital learning and new devices that aide student learning.

Bill Weber
General Counsel
CBeyond

Mr. Weber grew up in Decatur, Georgia. He attended the United States Naval Academy where he received a B.S. in English in 1987, graduating with honors and accepting a commission as a second lieutenant in the United States Marine Corps. As a Marine tank platoon commander stationed in Camp Pendleton, California, Mr. Weber completed deployments to Okinawa, Japan and to Korea. Later, during Operations Desert Shield and Storm, he served as a platoon commander in the 1st Light Armored Infantry Battalion. Following the conclusion of hostilities, Mr. Weber was awarded the Bronze Star Medal with Combat "V" for his actions in the Al Burquan oil fields on February 25, 1991. Five other Marines under his command were also awarded the Bronze Star Medal.

The Marine Corps sent Mr. Weber to law school at the University of Georgia where he graduated cum laude in 1996. He practiced law for the Marine Corps at Parris Island, South Carolina, but acted as military defense counsel in numerous courts martial in other parts of the country. In 1999, he served as lead defense counsel for Captain Richard Ashby, the Marine pilot whose jet severed a gondola cable 370 feet off the ground in Cavalese, Italy, killing 20 people. Captain Ashby was charged with 20 counts of negligent homicide among other crimes. After a six week trial, Captain Ashby was found not guilty of all charges by the military jury.

After leaving the Marine Corps as a major in 1999, Mr. Weber taught trial and appellate advocacy at the law school at the University of Georgia before moving to a commercial litigation practice at a large Atlanta law firm in 2000 and moving to an in-house position in 2002 at Covad Communications, a publicly traded, Silicon Valley based technology company.

He spent four years at Covad in various positions including Senior Counsel and Regional Vice President. When he left Covad in 2006, Mr. Weber was the Vice President of Regulatory Affairs & Operations with responsibility for leading the five regional teams controlling all of the company's regulatory and legislative affairs in 35 states.

Mr. Weber joined Cbeyond in early 2006 as the company's first in-house counsel. Cbeyond is an Atlanta-based public company delivering cutting-edge communications applications to small businesses across the country. Today, as General Counsel, he leads Cbeyond's Legal and Regulatory Departments with a primary focus on maintaining the federal laws and regulations supporting a competitive telecommunications marketplace in the United States. He has spoken about the telecommunications regulatory landscape to government organizations across the country including the California, Florida and Georgia Public Utilities Commissions, the Nevada and Illinois legislatures and the National Association of Regulatory Utility Commissioners (NARUC); he has served as a panelist at gatherings including the Chicago SuperConference and various COMPTEL and CompSouth annual meetings.

Mr. Weber serves on the Board of Directors and the Legal Advisory Board of the Georgia Innocence Project.

SR 68 Strategic Plan for Science & Technology Joint Study Commission
Panelist Comment Outline

Bill Weber – General Counsel – Cbeyond, Inc.
November 15, 2011

I. Background/Company Overview

Cbeyond, Inc. (NASDAQ: CBEY) is among the largest telecommunications companies headquartered in Georgia. Over the last ten years, we have grown from a start-up with less than ten people to a company that now employs more than 1200 Georgians at our Atlanta headquarters and provides more than 1000 other jobs at locations across the country. We are growing and profitable, and our 2011 revenue will be nearly $480 million.

Cbeyond is a leading provider of IT and communications services to more than 61,000 small businesses throughout the United States. Serving growing entrepreneurs, Cbeyond offers more than 30 productivity-enhancing applications including local and long-distance voice, broadband Internet, mobile voice and data services, voicemail, email, Web hosting, fax-to-email, data backup, file-sharing, virtual private networking and cloud services. In addition, Cbeyond's new Cloud Services division offers virtual and dedicated services and cloud PBX services to small businesses worldwide. Winning over 50 awards for product innovation, growth and providing a quality customer experience, Cbeyond continues to focus on helping small businesses succeed and grow through high-performance technology, superior services and world-class support.

II. Please address the following points:

a. What policies are currently in place that are barriers to your company/organization's success?

Like any company, the need for capital for investment is a limiting factor on Cbeyond's ability to innovate. Under current Georgia law, we are not allowed to pass the cost of Georgia's Universal Access Fund (UAF) on to our customers. In calendar year 2011, that number will total more than $300,000.00.

The Georgia UAF is designed to subsidize the cost of providing telephone service to high-cost customers, and the vast majority of states (and the federal government) allow telecom companies to pass this cost through to their customers and thereby preserve capital for innovation and investment. Georgia should do the same.

b. What policies have aided in your company/organization's success?

Cbeyond was founded in Atlanta specifically because Georgia has the kind of vibrant technology community that we needed to build our company. The cornerstone of this community is Georgia Tech, and we hire its graduates in a steady stream, often drawing on their skills while they are still in college in the form of internships. In short, a vibrant Georgia Tech is an absolute necessity if Georgia is to continue maturing into a science and technology leader.

The Georgia Public Service Commission (PSC) has been a force supporting regulatory stability within the state, and stability is what businesses need to invest. Attracting investment in the telecommunications sector requires that it be allowed to continue doing its job with a broad enough mandate to protect competition.

c. Where do you want to see your company/organization in ten years?

Ten years from now Cbeyond will have annual revenue of more than $2 billion and be a leading provider of secure cloud services delivered over a private network to small and medium businesses across the country and the world.

d. How can the state of Georgia help your company/organization realize this goal?

Georgia has historically been a good state for technology, and we would like to see that continue. To Cbeyond this means maintaining (1) a vibrant technology community, (2) fair tax policies that support both our growth and the growth of our customers, (3) fair employment policies including our Right to Work status and (4) a reasonable regulatory environment that supports competition.

SR 68 Strategic Plan for Science & Technology Joint Study Commission – Panelist Guidelines

Bill Weber
General Counsel
CBeyond

I. Background/Company Overview

Cbeyond, Inc. (NASDAQ: CBEY) is among the largest telecommunications companies headquartered in Georgia. Over the last ten years, we have grown from a start-up with less than ten people to a company that now employs more than 1200 Georgians at our Atlanta headquarters and provides more than 1000 other jobs at locations across the country. We are growing and profitable, and our 2011 revenue will be nearly $480 million.

Cbeyond is a leading provider of IT and communications services to more than 61,000 small businesses throughout the United States. Serving growing entrepreneurs, Cbeyond offers more than 30 productivity-enhancing applications including local and long-distance voice, broadband Internet, mobile voice and data services, voicemail, email, Web hosting, fax-to-email, data backup, file-sharing, virtual private networking and cloud services. In addition, Cbeyond's new Cloud Services division offers virtual and dedicated services and cloud PBX services to small businesses worldwide. Winning over 50 awards for product innovation, growth and providing a quality customer experience, Cbeyond continues to focus on helping small businesses succeed and grow through high-performance technology, superior services and world-class support.

II. What policies are currently in place that are barriers to your company/organization's success?

Like any company, the need for capital for investment is a limiting factor on Cbeyond's ability to innovate. Under current Georgia law, we are not allowed to pass the cost of Georgia's Universal Access Fund (UAF) on to our customers. In calendar year 2011, that number will total more than $300,000.00.

The Georgia UAF is designed to subsidize the cost of providing telephone service to high-cost customers, and the vast majority of states (and the federal government) allow telecom companies to pass this cost through to their customers and thereby preserve capital for innovation and investment. Georgia should do the same.

SR 68 Strategic Plan for Science & Technology
Joint Study Commission – Panelist Guidelines

III. What policies have aided in your company/organization's success?

Cbeyond was founded in Atlanta specifically because Georgia has the kind of vibrant technology community that we needed to build our company. The cornerstone of this community is Georgia Tech, and we hire its graduates in a steady stream, often drawing on their skills while they are still in college in the form of internships. In short, a vibrant Georgia Tech is an absolute necessity if Georgia is to continue maturing into a science and technology leader.

The Georgia Public Service Commission (PSC) has been a force supporting regulatory stability within the state, and stability is what businesses need to invest. Attracting investment in the telecommunications sector requires that it be allowed to continue doing its job with a broad enough mandate to protect competition.

IV. Where do you want to see your company/organization in ten years?

Ten years from now Cbeyond will have annual revenue of more than $2 billion and be a leading provider of secure cloud services delivered over a private network to small and medium businesses across the country and the world.

V. How can the state of Georgia help your company/organization realize this goal?

Georgia has historically been a good state for technology, and we would like to see that continue. To Cbeyond this means maintaining (1) a vibrant technology community, (2) fair tax policies that support both our growth and the growth of our customers, (3) fair employment policies including our Right to Work status and (4) a reasonable regulatory environment that supports competition.

SR 68 Strategic Plan for Science & Technology
Joint Study Commission – Panelist Guidelines

Policy Recommendation(s)	Recommendation Details, Specifics & Reasoning
Recommendation #1 (insert summary statement/descriptor)	**Allow telecommunications providers to pass through the Georgia Universal Access Fund (UAF) cost to their end users.** The Georgia UAF is designed to subsidize the cost of providing telephone service to high-cost customers, and the vast majority of states (and the federal government) allow telecom companies to pass this cost through to their customers and thereby preserve capital for innovation and investment. Georgia should do the same.
Recommendation #2 (insert summary statement/descriptor)	**Eliminate the Georgia UAF entirely.** It is no longer appropriate to maintain the Georgia UAF at all. As mentioned above, this fund is designed to subsidized old-style telephone networks, and it is no longer necessary or appropriate for Georgia to be doing this. Virtually all the costs of the narrow-band telephone network were fully depreciated years ago, and Georgia should examine the cost to keep the existing, paid-for network in a "steady state" with no deterioration but no new construction. The Federal Communications Commission is in the process of adopting a plan for deployment of broadband, and there is no evidence that additional state subsidy is needed. The current Georgia UAF is a tax that rewards rural phone companies simply for the fact that they exist, but does nothing to foster innovation or drive broadband deployment. Universal Service is a laudable goal that needs to be preserved, but the existing fund does nothing to make sure that the taxes collected are the "right amount" for that social goal, as opposed to a private reward for rural telecom investors. Cable companies are deploying advanced technologies across the state with no need for public subsidies, and there is no reason to believe that rural telecom companies continue to have a need for their old-style networks to be propped up with taxpayer dollars. In fact, such subsidies do nothing but provide a negative incentive toward deploying a more forward-looking network.
Recommendation #3 (insert summary statement/descriptor)	**Stop tinkering with the authority of the Georgia Public Service Commission.** Businesses and investors value certainty and predictability. But every several years a bill is introduced to radically alter the authority of the Georgia PSC. This kind of uncertainty is bad for business, bad for investors and bad for the state. Telecommunications companies in

	particular often make choices about where to invest based on the regulatory climate in a given state. Cbeyond, for instance, has specifically avoided expanding into certain states simply because their regulatory bodies were either actively hostile to competitive telecommunications providers or faced an uncertain future because of legislative action. The Georgia PSC has historically been a fair forum that has served to foster competition in the state and create a stable environment for investment; the legislature should not tinker with its authority absent concrete evidence that it is abusing its mandate.

R&D and Commercialization Panel

2:00 – 2:45 PM

- **Mike Cassidy, GRA**
- **Dr. Steve Cross, Georgia Tech**
- **Dr. Mark Hamrick, Georgia Health Sciences University**
- **Lee Herron, GRA**

GEORGIA RESEARCH ALLIANCE

C. Michael Cassidy
President and CEO
Georgia Research Alliance

Mr. Cassidy shapes and guides the strategic direction of the Georgia Research Alliance, a private, non-profit organization that brings together the state's academic, industry, and government leaders to grow Georgia's economy through scientific discovery. Since its founding in 1990, the Alliance has directed more than $700 million of public and private investment into targeted research, development, and commercialization programs at its six member universities and leveraged over $2 billion in federal and private investment forming a foundation for the creation of more than 150 new companies. Mr. Cassidy also serves as Administrator of the GRA Venture Fund, LLC, a private investment fund created by the GRA to help finance promising companies that emerge through GRA's commercialization programs.

Before joining the Alliance in 1993, Mr. Cassidy managed the Advanced Technology Development Center (ATDC), Georgia's technology incubator and earlier worked for the IBM Corporation. Mr. Cassidy holds a Master's degree in Technology and Science Policy from the Georgia Institute of Technology and a BBA degree in Marketing from Georgia State University. He serves on the Board of Directors of the State Science and Technology Institute, the Southern Technology Council, the Health Care Ethics Consortium of Georgia, the Georgia Cancer Coalition, Georgia Advanced Technology Ventures, the Global Center for Medical Innovation, the Georgia Chamber of Commerce, and the Technology Association of Georgia.

C. Michael Cassidy
Executive Director
Georgia Research Alliance

Good afternoon. This panel will be addressing the topic of research commercialization, a field in which the Georgia Research Alliance has been very active for over a decade. The panelists joining me today each bring a unique perspective to the topic. They will provide insight into how the process works, what's been working, and issues to be addressed.

Over the years, Georgia has done many things to help create conditions under which our research universities can drive job creation. One of those is the organization I represent – the Georgia Research Alliance.

The GRA oversees a number of activities. We create capacity in our universities to conduct frontier research. We develop highly specialized laboratories. We fund the commercialization of technology. We provide seed and venture capital to launch early stage ventures.

In partnership with the Georgia Department of Economic Development we direct a set of innovation centers that are helping grow key industry clusters in our state.

And recently we assumed responsibility for a set of programs designed to make Georgia a leader in cancer research and care.

I want to single out one particular aspect of our organization, our most important function, and that is our role in strengthening the capabilities of our research universities to attract the smartest people from around the world. Smart people are the most critical resource to any economy, and especially to the rapidly growing knowledge-based economy on which our future rests.

Over the last twenty years the GRA has worked closely with leaders in business, academia, and state government to fund 64 endowed chairs at our research universities. They are Georgia Research Alliance eminent scholars and they are the backbone of our overall strategy to position Georgia among the top states in the nation with a technology-driven economy.

In recruiting GRA Eminent Scholars, we look for the brightest minds, of course. But we also seek scholars who have a commitment to translating their science into high-value, innovative companies and to helping established companies develop new technologies to keep them competitive in today's global marketplace. Steve Cross and Mark Hamrick will touch on the impact of the talent base of our universities.

To leverage this significant talent pool at our universities, the GRA has created a series of initiatives that, taken together, are VentureLab. Lee Herron will talk about this program in more detail.

Steve, Mark and Lee will share with you their thoughts and recommendations on how to enhance commercialization of research at our universities. Let me offer just a few broad-brush ideas.

First, I think that the evidence is overwhelming that continuous, and in some areas, accelerated investment in recruiting world-class scientific talent is an imperative and our experience to date shows that the strategy is working.

Investment capital is imperative – investment that understands the long and risky product development cycle for science intensive companies. Availability of venture capital overall has decreased greatly in Georgia during the last ten years. The board of the GRA took a small step two years ago in partnership with the state and created a modest $20 million venture capital fund to fuel companies being launched by our universities. But we are seeing competitor states establish venture capital funds in the $100 million range. And Georgia remains the only state in the nation that prohibits the ability of its pension funds to invest in venture capital. Georgia will need to improve its capital markets and we believe there are roles for both the public and private sectors to make this happen.

As companies graduate from the incubators located on our campuses, specialized growth space is needed – space that can support the unique product development and testing needs of young technology companies. Investments and perhaps policies are needed to ensure that Georgia's startup companies can keep growing and creating jobs in Georgia.

Georgia's base of management experienced in growing science intensive companies is weak. Strategies are needed to recruit and retain strong bankable management.

The time has come to develop and implement a research park strategy as a focal point for the sciences industry. This needs to be an identifiable location that would enable in-state and out-of-state entrepreneurs, investors, CEO's and academics to network and to form or relocate companies.

And while we are growing our own, we need to be strategic in targeting and recruiting larger, established, science intensive firms to Georgia to help attract additional talent and serve as an "anchor" that would improve Georgia's image as a vibrant hub. Since Georgia is not yet known as one of the leading technology capitals, strategies are needed to offset the perceived risk for companies that decide to establish major operations here. These strategies should include tools like allowing sales tax exemptions on energy, construction materials and equipment used in R&D and manufacturing and allowing monetization of R&D tax credits.

K-12 education, math and science especially, must be improved.

And we need to focus. Focus must start with building on a few areas where we can become regarded as “best in class.”

Finally, we need to calibrate our expectations. When people look at Silicon Valley and Route 128 they conclude that the university alone has powered economic development there. A belief of sorts has emerged that assumes that there is a linear pathway from university science and research to commercial innovation to an ever expanding network of newly formed companies in the region. This is a mechanistic and naïve view of the way that the university contributes to economic development. Bottom line, the university plays a magnetic role in the attraction of talent. Smart people attract other smart people and places with a lot of smart people attract firms who want access to that talent, creating a self-reinforcing cycle of growth.

Finally, we need to invest. Innovation is not inevitable — it is not self-perpetuating. Its momentum must be sustained by a steady infusion of talent and of resources.

This requires attention, cognizance, and investment.

Georgia Tech's Strategy for Research and Economic Development

Dr. Stephen E. Cross, Executive Vice President for Research
Georgia Institute of Technology, Atlanta, GA (cross@gatech.edu)

November 16, 2011

INTRODUCTION

This white paper provides a brief overview of Georgia Tech and its strategy for leveraging research and innovation into economic development impact. Examples are given of recent innovation initiatives. Four recommendations are made on how the State can better support its research universities to realize more economic development impact.

The Georgia Institute of Technology (Georgia Tech) was created in 1885 during the "New South" movement to develop an educated cadre of technical leaders to support industry and economic development in Georgia. In 1934, through an act of the General Assembly, the Engineering Experiment Station (now the Georgia Tech Research Institute, GTRI) was created to focus on research and transition to industry. Three years later, through another legislative act, Georgia Tech created an affiliated non-profit company, the Georgia Tech Research Corporation (GTRC), to hold and license intellectual property (IP) and to manage research contracts from government and industry. In 1996, the Enterprise Innovation Institute was spun out of GTRI to provide a more visible and dedicated focus for economic development in Georgia.

Today, Georgia Tech is recognized as one of the top research universities in the world as evidenced by its recent top ten listing by Thomas Reuters.[1] Its six exceptional colleges include the largest engineering college in the United States. It provides direct support to industry in Georgia through federally sponsored programs managed on behalf of the State of Georgia including the Manufacturing Extension Partnership (MEP)[2] and the Occupational Health and Safety Program (OSHA).[3] It ranks as the #3 producer of patents in Georgia,[4] behind AT&T and Kimberly Clark, and #8 in the country among research universities in economic development impact.[5] Its incubator has launched more than 75 companies in the past 10 years. Specific data related to Georgia Tech's technology transition activities are shown Table 1.

Since 2006, Georgia Tech's research awards have increased by 60 percent. The Huron Group is currently updating its 2006 report, and while their analysis is not yet completed, their preliminary finding indicates that Georgia Tech's impact is at least 60,000 jobs - through direct and indirect employment, and at businesses founded, attracted or supported around the state by Tech people, technology and programs. Remarkably, Georgia Tech's investment into economic development activities leverages external funding in a ratio of 26:1 to state funding (both state appropriations for economic development support and state funded competitively selected awards).

	FY2011	**FY2010**
Research expenditures	$641 million	$603 million
Disclosures	383	407
Patents	78	58
Technologies transferred	127	85
Research contracts with industry	980	843
Licenses	83	90
New incubated companies	17	16
Investment into incubated companies	$100 million	$61 million
Jobs created by new incubated companies	513	483

Table 1: Indicators of Georgia Tech's economic development impact

Increasingly, Georgia Tech is recognized for its thought leadership in research, innovation, and the transformation of research results into direct economic development impact. The president of Georgia Tech serves on a White House steering committee on advanced manufacturing and a Department of Commerce advisory committee on innovation. Many Georgia Tech faculty serve in influential advisory board positions at the federal and State level. For example, a Georgia Tech vice president, who also serves as the director of GTRC, is the current president of the University-Industry Demonstration Partnership (UIDP),[7] a body of leading universities and companies that advise the federal government on competitiveness issues related to transitioning research results into direct economic impact. Georgia Tech's partnering with the State and public-private partnerships (e.g., Technology Association of Georgia, Metro Atlanta Chamber of Commerce) to attract high tech companies to Georgia are well documented.[8]

Georgia Tech intends to do much more as described in its recently published 25 year strategic vision and plan, *Designing the Future*.[9]

TRANSFORMING RESEARCH RESULTS INTO ECONOMIC DEVELOPMENT IMPACT

The Georgia Tech strategic vision and plan was published in September 2010. Innovation is an integral part of this blueprint for the future including innovation in educating the technological leaders of the world, innovation in research, innovation in its business practices, and innovation in innovation itself. Research is critical to fostering innovation and economic development.

As part of the strategic vision and plan, Georgia Tech defined an industry facing research strategy focused both on leading-edge research and economic development. While most universities pursue a linear, sequential flow of discovery-based research to occasional declaration of intellectual property followed by licensing or company formation/spin-out; Georgia Tech pursues a **concurrent strategy** focused on **12 strategic theme areas** as illustrated in Table 2.

Concurrency means that teams of faculty, graduate students, application and economic development experts, and professional staff work together to define and pursue grand challenges, foster early engagement with industry, and accelerate the maturation and transition of technology to the marketplace. It should be noted that to accomplish, this balance is required between high risks, discovery focused research, and economic development activities. Not every research task is successful. As Charles Kettering once said, "One fails forward toward success." Research is an experimental pursuit where new insights and fundamental learning come from failure. The balance sought is to engender and support a culture that blends high risk, discovery-focused research with early identification of commercialization potential.

The value to industry, besides access to know-how and technology, is that research universities, through their innovation processes, provide a venue for exploring and realizing disruptive innovations outside the constraining and often bureaucratic confines of their profit/loss units. A disruptive innovation is a true game changer (e.g., electronic copiers replacing carbon paper, calculators replacing slide rules). Results during the past two years have been striking as illustrated previously in Table 1.

This concurrent strategy is based on three objectives: to *create transformative opportunities*, to *strengthen collaborative partnerships*, and to *maximize economic and societal impact*.

Create transformative opportunities: The first objective means that members of the faculty pursue high-risk research grounded in grand challenges facing our society. The results of this kind of research when it solves those kinds of challenges will engender significant economic as well as societal impact. Members of the faculty are encouraged to provide thought leadership at the national and international levels. Recent examples include the creation of a national robotics roadmap,[10] the definition of a health information exchange and focus on state-wide use of electronic patient records,[11] leadership in information security and logistics on behalf of the World Economic Forum,[12] and innovative new ideas

"Big Data" – *information security, high performance computing. …*
Biomedicine and Biotechnology – *devices, vaccine delivery, …*
Electronics and Nanotechnology
Manufacturing, Trade, and Logistics
Materials – *composites, polymers, graphene, bio-inspired materials, …*
National Security
Paper Science and Technology
People and Technology
Public Service, Leadership, and Policy
Robotics
Sustainable Infrastructure – *energy, transportation, smart buildings, water, …*
Systems – aerospace, *electrical, mechanical*

Table 2: Georgia Tech strategic theme areas for research and economic development

related to next generation materials and their manufacture.[13] These and other initiatives are pursued in ways where the Georgia Tech campus, and even the State, provide the infrastructure (commonly called test bed or pilot plant) for conducting the scalable and relevant research in the real world.

Strengthen collaborative partnerships: Clearly, the problems addressed through this research agenda are so massive that they cannot be accomplished by Georgia Tech alone. Partnering with other State universities and technical colleges, national and international universities, major corporations, local nonprofits, and State agencies is key. The Georgia Research Alliance (GRA) has been a key partner of Georgia Tech, and other research intensive universities in Georgia, helping us to attract top talent, and to pursue critical issues to society and to the State's economic vitality. Partnerships with the Georgia Department of Economic Development, Children's Healthcare of Atlanta, Emory University, IBM, Boeing, NCR, and Kimberly Clark are but a few of the key strategic partnerships that Georgia Tech has sought to strengthen in the past year with promising outcomes.

Maximize economic and societal impact: The third objective means that research success is not measured by papers published or other standard measures of faculty achievement, as important as they are to the academy. Success is predicated on research results having demonstrable impact beyond the laboratory and classroom in the real world. A few measures have already been presented in Table 1 and other equally important, though perhaps qualitative measures are dependent on the value Georgia Tech's strategic partners put on the work conducted under this strategy (e.g., increased support from the State of Georgia for Georgia Tech's economic development support activities to reverse a five year decline).

In FY2011, Georgia Tech expended $610 million on research and economic development activities. More than $550 million was from industry and federal support that provided a significant 27:1 amplification to the $23 million in State of Georgia appropriations that support economic development activities. Figure 1 illustrates the breakdown of research investment by the state, the federal government, industry, the Georgia Research Alliance (GRA), and the Georgia Tech Foundation (GTF). Interestingly, Georgia Tech is starting to track foreign

investment as part of its overall research and economic development impact. Significantly more than 90 percent of Tech's research and economic development funding come into the State from external sources and directly support the employment of more than 6,000 faculty, graduate students, and support professionals.

Central to the results cited is a technology transition model illustrated in Figure 2. As already discussed, Georgia Tech seeks early commercialization opportunities via its concurrent strategy. Valuation of these commercialization opportunities can be operationalized through the creation of spin-out companies, technology licensing, or continued investment in further development of the technology.

RECENT INNOVATION INITIATIVES

Innovation is at the core of how Georgia Tech pursues research and integrates that research into both its educational offerings and its economic development efforts.

Georgia Tech defines innovation as *invention plus insight plus implementation*. This very definition underscores the concurrent strategy described in the previous section. As part of its strategic planning activities, in July 2010 Georgia Tech convened an innovation task force to assess the current state of innovation across its enterprise and to propose new initiatives. The goal was to accelerate promising research results into use and to fundamentally address the state of practice in innovation by applying the precepts of the new research strategy to the field of innovation itself. Numerous new stories about the economic development impact of Georgia Tech's research and innovation work have been published in the past year.[14] Several examples are presented here.

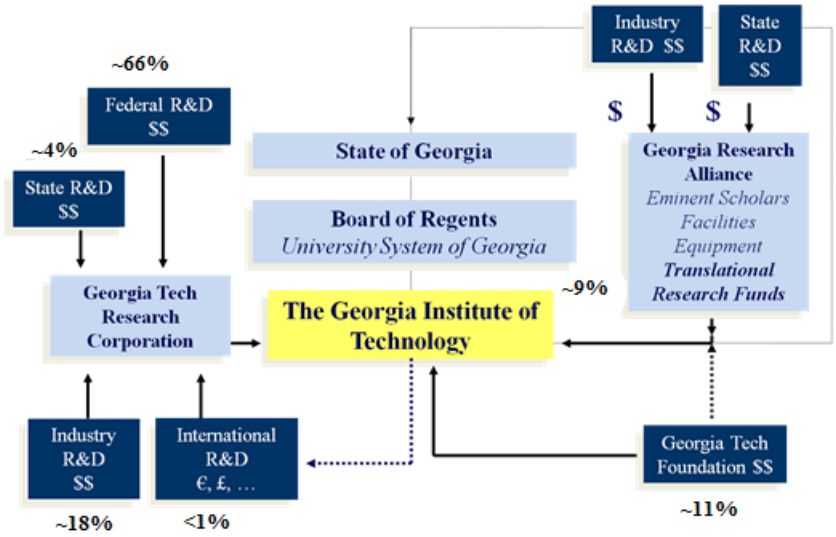
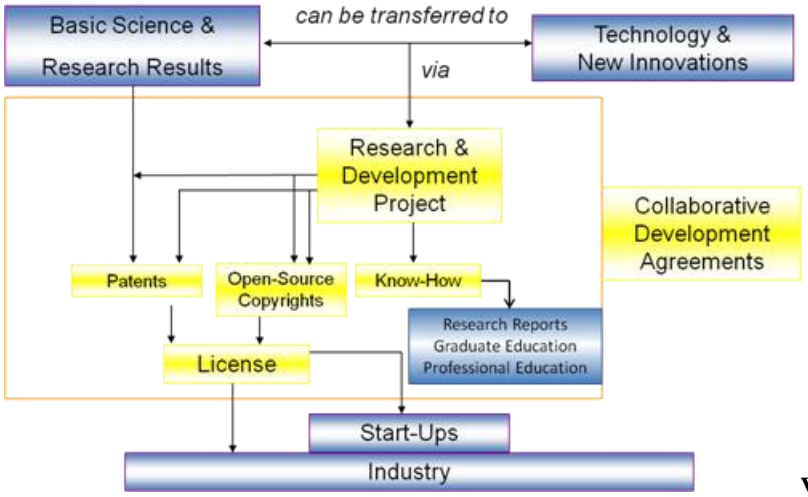


Figure 1: Approximate breakdown of Georgia Tech's research expenditures by source of funds

Georgia Tech Integrated Programs for Start-ups (GT:IPS)[15] – This new program supports faculty who wish to create a spin-out company. After participating in a training course where the basics of business planning, fundraising, and regulatory and policy issues related to company formation are discussed, faculty receive a "right of use" license for Georgia Tech held IP. An innovative aspect of this program was the development of a template and streamlined licensing document. This document was vetted by four local law firms that have represented start-up companies and sought to license Georgia Tech IP over the years. The Georgia Tech Office of Technology Licensing and staff at the Enterprise Innovation Institute worked with these local law firms to

develop this streamlined licensing process. The reviews have been generally favorable since it was announced in the summer of 2011.

Flashpoint[16] - Georgia Tech seeks to support others outside of the Institute in the accelerated creation of new companies. Flashpoint is a professional development program in startup acceleration; a field that Georgia Tech is helping define as a national leader. With support from an angel fund established by Imlay Investments,[17] that act as the equivalent of an "investment scholarship" for Flashpoint teams, Flashpoint is currently working with 17 teams to create successful start-up companies over a three month period. Each team has a successful entrepreneur as a mentor. The program is motivated by the widely publicized y-combinator program[18] in the Silicon Valley, but significantly is the first such university-based program. This program was referenced in a hearing to the SR68 State Commission in hearings held at the State Capitol on August 16, 2011.



vetted

Figure 2: Georgia Tech's technology transition model

Commercialization Impact Teams – Georgia Tech is in the process of creating professionally staffed teams of industry licensing and contracting, commercialization, communications and marketing, and business development staff around each of its 12 strategic theme areas. For example, in the area of biotechnology and biomedicine, and in partnership with the Coulter Foundation, GRA, Emory University, and Children's Healthcare of Atlanta, Georgia Tech is hiring an executive commercialization director for life sciences. This first of its kind position will be co-located with research-intensive faculty and has authority to make quick reaction decisions about support for potentially valuable IP in areas related to the life sciences. As a result there will be earlier consideration of commercialization opportunities and coordinated support across a vast array of university and community competencies ranging from university research, to support for clinical trials, to pilot plants for FDA qualified manufacture of biomedical devices. For example, the new Global Center for Medical Innovation at Georgia Tech[19], an entity made possible through investment by GRA and the US Department of Commerce will help ensure accelerated maturation and transition of research results to the market.

Internal research and innovation initiatives – Interdisciplinary research centers in manufacturing, biomedicine, and other strategic areas provide shared infrastructure and support to researchers from across Georgia Tech. Two new centers created in response to the new Georgia Tech vision and strategic plan are highlighted here.

- The *Institute for People and Technology (IPAT)*[20] supports the development and application of new digital media technology, along with the development and use of advanced engineering and computational methods to new kinds of enterprises that will transform health care (to patient centered approaches leveraging predictive health concepts), education, entertainment, and other humanitarian systems. IPAT hosts the

annual FutureMedia Fest,[21] a highly acclaimed, industry-focused conference in which new product concepts are discussed and introduced. The event showcases local startup companies to a large audience of industry thought leaders, and is supported by Turner Broadcasting, Coca-Cola, Cisco, AT&T, HP, IBM, Twitter, and many other companies.

- The *Ivan Allen Institute for Advanced Studies (IAI-AS)* is being formed to provide an Institute-wide focus on global citizenship in light of new kinds of threats to society in the 21st century (e.g., water, energy, food safety). One particular emphasis will be how leadership predicated on social courage is crucial to transformation in urban settings. Former United States Senator Sam Nunn participates through his role as a professor in the Ivan Allen College of Liberal Arts. IAI-AS will bring a policy and social science focus to complement the vast technological capabilities Georgia Tech can bring to important societal issues. Addressing and resolving such issues is crucial to providing an environment conducive to innovation as noted in well publicized works of Tech Professor Danny Breznitz.[22]

Relationship to educational offerings: There are numerous other examples of how Georgia Tech's research strategy is influencing education. Georgia Tech recently introduced a Center for 21st Century Universities (C21U) to explore and experiment with innovative concepts aimed at the transformation of higher education. This work manifests itself across the Institute through the traditional academic offerings as Tech's focus on continuing education and life-long study. In addition, problem-based learning is embedded into all undergraduate programs to provide an experiential component. For example, the Translational Research Institute in Biomedical Engineering and Science (TRIBES) supports problem-based education in biomedical engineering. Each year, advanced undergraduates participate in a two-semester course with an industry mentor to address a real-world problem. A similar program sponsored by GE Energy has fostered student involvement in real-world programs associated with intelligent power grids. Tech's Fund for Innovation in Research and Education (FIRE) provides seed funds for faculty to pursue disruptive concepts related to internal programs.[23] Such programs are now embraced across the entire curriculum resulting in many patents and student-owned IP each year. The signature event from these efforts is the InVenture Prize.

InVenture Prize: Commonly referred to with pride as "American Idol for Nerds," the InVenture Prize@Georgia Tech is a faculty-led innovation. Undergraduate students work independently or in teams to develop and present inventions judged by experts. Finals are broadcast live by Georgia Public Broadcasting.[24] Georgia Tech uses philanthropic gifts to invest in start-up opportunities for the winners of the competition by paying for patent costs, assigning the IP to the students, and providing a cash gift that can be used to create a spin-out company. More than twenty patents and three companies have already been formed. Graduate students are also supported through an annual conference on research and innovation.[25]

The above are a few of the recent initiatives Georgia Tech has undertaken in response to its new strategic vision and plan. Leveraging its already highly acclaimed reputation for research and economic development, Georgia Tech seeks to drive innovative thinking into all aspects of its programs and to partner with the State of Georgia and organizations within the State to maximize economic development and societal impact. Recommendations that will help in this regard follow.

RECOMMENDATIONS

Alignment and balance of state-wide efforts: Georgia Tech takes the view that it is a necessary, but by itself not sufficient, entity to foster increased economic development impact throughout the state. Alignment across all means of support to industry in the state, along with appropriate balance, will help achieve sufficiency. Tech's mission to educate future leaders in key areas of engineering, technology, and related areas are crucial for enhanced economic development. But the desired impact in Georgia cannot be achieved in isolation. Alignment of Georgia Tech's strategic theme areas with strategic market areas defined by the Georgia Department of Economic Development is underway. For example the area of manufacturing appears to be an increased focus area for GDEcD and one in which Georgia Tech can provide great assistance. The State should

be commended for aligning GDEcD, GRA, and the existing Innovation Centers. Continued alignment between the University System of Georgia and the Technical College System of Georgia should be encouraged and supported. Recent examples include the program initiated by Suniva (a Georgia Tech renewable energy spin-out) at Gwinnett Technical College (GTC)[26] and the ongoing partnership between GTC and Georgia Tech in health care information technology.[27] Such efforts should continue between all State supported entities and NGOs such as TAG, chambers of commerce and many other state and local entities. Alignment and planning to achieve common goals along with a view to balance and recognize the importance of each partner is a crucial first step in achieving increased economic benefit. As a result, companies and investors considering Georgia will see a coordinated array of support organizations – public and private -- committed to their success.

Support GDEcD and GRA initiatives related to economic development: The "front door" to the State of Georgia for economic development is GDEcD. Its role in supporting industry and attracting new industry to the state is crucial. Programs such as Quick Start, a national model for workforce training, have had a significant impact on companies such as Kia and NCR locating in the state. Persuading more large companies to locate not only their headquarters and R&D facilities, but also manufacturing facilities in the state is important. From Georgia Tech's perspective, it will be easier to keep its spin-out companies in the state and to attract more venture capital funding if there is a well supported innovation eco-system focused on key strategic markets.

Support for the B Budget: The University System of Georgia has an "A" and a "B" budget. The "A" budget supports academic programs across the 35 member institutions. The "B" budget supports non-academic economic development programs at these institutions. For Georgia Tech, this is the base funding for the economic development functions in the Enterprise Innovation Institute – the Advanced Technology Development Center (ATDC) and related initiatives that provide support through 25 locations in the state as shown in Figure 3. This budget line also supports the Georgia Tech Research Institute focus on important industries (e.g., the food processing industry). In this regard, the role of pilot plants (physical infrastructure that can meet the needs of small business for access to equipment, technical colleges for training and workforce development, and accelerated maturation and transition of research results) are cited in the innovation literature as a key means to achieve economic development impact in new growth areas. CNN produced a special "Restoring the American Dream: How to Innovate" discussing this at some length earlier this year that I would highly commend to your viewing to illustrate this need far better than I have for you today.[28]

Reduce costs incurred by duplicate audits: Georgia Tech recognizes the need for and proactively supports compliance requirements associated with every aspect of its operation. However, duplicate annual audits conducted by federal and State officials add cost to research and commercialization projects. As an example, federal auditors frequently review use of research equipment acquired under federal grants and contracts. Approximately 80 percent of the equipment in Georgia Tech research labs is acquired using federal funds. State auditors often repeat the same audits rather than reusing findings from federal audits. Cost savings could be realized both by the State and by research universities if reuse of audit findings and reports was encouraged and duplication eliminated where possible. It is also recommended that State officials advocate along with the State's research intensive universities to federal representatives that costs associated with audits be recognized as recoverable expenses under the federal policies such as in the A-21 Circular.[29] [30] That support would be enormously beneficial to us in maximizing the impact of research grants on more economically productive activities.

CONCLUSION

Georgia Tech is recognized as one of the top research universities in the world. It ranks as the #3 producer of patents in Georgia and #8 in the country among research universities in economic development impact. Its incubator has launched over 75 companies in the past 10 years. Georgia Tech generates a 27:1 return on investment for the state based on its state appropriations for economic development support. Its overall benefits to the state economy are conservatively estimated to be nearly $6 billion annually. Georgia tech's industry-facing research strategy is focused on 12 strategic theme areas and the economic development potential

therein. Georgia Tech has implemented several new innovative initiatives in the past year, including a streamlined licensing program and a spin-out accelerator, as a down payment on its future plans to generate more economic development impact for the state. Enhancing partnerships with industry and continued collaboration with GDEcD, GRA, and numerous other nonprofit industry support organizations is fundamental. Alignment across the work of these entities along with other members of the University System of Georgia and the Technical College System of Georgia is critical if the State of Georgia is to achieve greater economic development impact. Pilot plants and industry friendly infrastructure that can support small to medium enterprises, workforce development, and the acceleration and maturation of research results is viewed as an opportunity to support growth in markets and to attract more industry to the state.

I thank you for your time and attention to these important matters critical to our state, to Georgia Tech and the entire eco-system of innovation we are creating here in Georgia.

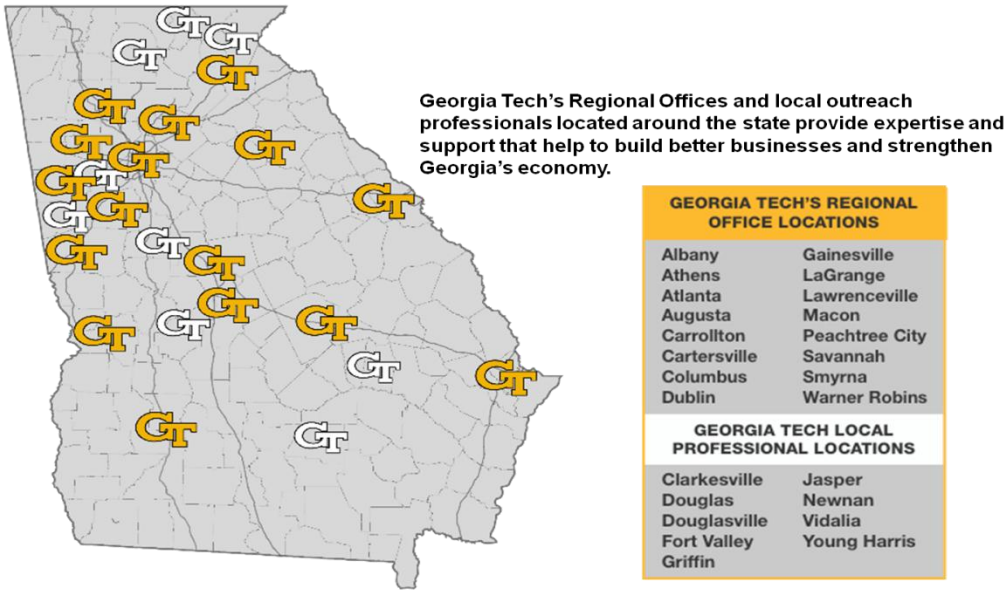


Figure 3: Georgia Tech operating locations throughout the state

Citations listed below (if supported by the General Assembly publication guidelines, please insert the following URLs as hyperlink in the published testimony)

[1] http://www.timeshighereducation.co.uk/world-university-rankings/2010-2011/engineering-and-IT.html
[2] http://www.nist.gov/mep/about.cfm
[3] http://www.oshainfo.gatech.edu/
[4] http://patft.uspto.gov/
[5] http://www.autm.net/FY_2009_Licensing_Activity_Survey/5879
[7] http://sites.nationalacademies.org/pga/uidp/index.htm
[8] http://www.ajc.com/news/gwinnett/georgia-welcomes-ncr-to-460184.html
[9] http://www.gatech.edu/vision
[10] http://robotics.gatech.edu/content/national-robotics-roadmap
[11] http://gtresearchnews.gatech.edu/electronic-health-records/
[12] http://www.isye.gatech.edu/news-events/news/release.php?nid=69963
[13] http://www.gatech.edu/calendar/event.html?nid=709483
[14] http://www.gatech.edu/newsroom/newscategories.html?fid=47297
[15] http://www.industry.gatech.edu

[16] http://flashpoint.gatech.edu/things-to-know/
[17] http://www.techjournalsouth.com/2011/08/georgia-tech-flashpoint-accelerator-forms-1m-investment-fund/
[18] http://ycombinator.com/
[19] http://www.bizjournals.com/atlanta/print-edition/2011/05/27/global-center-for-medical-innovation.html?page=all
[20] http://www.ipat.gatech.edu
[21] http://futuremediafest.gatech.edu/
[22] http://www.amazon.com/Dan-Breznitz/e/B001JRRH6S
[23] http://www.gatech.edu/newsroom/release.html?nid=65316
[24] http://www.gpb.org/inventure
[25] http://www.sga.gatech.edu/graduate/GTRIC
[26] http://www.gwinnetttech.edu/content.cfm?PageCode=news&PressReleaseID=333
[27] http://www.gwinnetttech.edu/content.cfm?PageCode=news&PressReleaseID=512
[28] http://www.youtube.com/watch?v=UsxMxXXp-dA
[29] http://www.whitehouse.gov/sites/default/files/omb/.../a021/a21_2004.pdf
[30] http://www.whitehouse.gov/sites/default/files/omb/.../a021/a21_2004.pdf

Georgia's S&T Strategic Plan Joint Study Commission
November 15, 2011

Biographical Sketch: Mark W. Hamrick, Ph.D., Senior Vice President for Research, Georgia Health Sciences University

Dr. Mark W. Hamrick, Senior Vice President for Research, is the Chief Research Officer of the University and the Chief Advisor to the President on the University's research mission. He also holds professorships in Cellular Biology and Anatomy, Graduate Studies and Orthopaedic Surgery. Hamrick, who earned a Ph.D. in biology from Northwestern University and completed postdoctoral studies at Duke University, studies the basic mechanisms underlying age-related bone loss and fracture healing. He is a grant reviewer for the National Institutes of Health, the American Diabetes Association, the National Science Foundation, The Wellcome Trust, the Swiss National Science Foundation and the Biomedical Research Council of Singapore. He currently serves on the editorial board at the Journal of Bone & Mineral Research, is Associate Editor at the Journal of Musculoskeletal and Neuronal Interactions, and is a reviewer for more than 30 different scientific journals. He is currently principal investigator on research grants from the US Army, the Office of Naval Research, and the National Institutes of Health, and he has published more than 90 scientific articles in major peer-reviewed journals. He received the Medical College of Georgia 2009 Innovation in Teaching Award, the 2009 and 2010 Exemplary Teaching Award and the 2005 Outstanding Young Faculty Award in Basic Sciences.

Organization: Georgia Health Sciences University

Founded in 1828, Georgia Health Sciences University is home to the Medical College of Georgia, the 13th-oldest continuously operating medical school in the United States and the third-oldest in the Southeast. GHSU has more than 2,400 students in five colleges: the Medical College, Allied Health Sciences, Dental Medicine, Graduate Studies and Nursing. Students come from most of Georgia's 159 counties. GHSU offers modern classrooms and laboratories, the 478-bed MCGHealth Medical Center, the Children's Medical Center, extensive outpatient clinics, residence halls, a student center, a wellness center and an outstanding medical education library. With approximately 5,000 faculty, staff and residents (9,000 enterprise-wide), GHSU is one of the largest employers in the Augusta area. The University System of Georgia reports that during the 2007 fiscal year, an additional 3,800 jobs resulted from spending related to the institution, and its overall economic impact on the area approached nearly $1 billion.

Outlined Remarks (5 minutes):

The Key Role of Biomedical Research to Georgia's Economy

- The American Association of Medical Colleges (AAMC) released a report this month on the economic impact of research funding to AAMC-member institutions, of which GHSU is one. Research dollars to AAMC-member institutions support 300,000 jobs in the US, or 1 out of every 500 jobs in the country. Research dollars to AAMC institutions in Georgia have created over 6,000 jobs in our state.
- Georgia Bio reported in October that the life sciences industry, not only the private sector but also including university research and the Centers for Disease Control and Prevention, generates $23 billion in annual sales; creates 35,000 direct jobs and 105,000 total jobs; generates $6.2 billion in earnings and $627 million in state and local taxes. The bioscience industry in Georgia had increased 22 percent in the past two years while most industries were flat or in decline.

Resources in Augusta and at GHSU to support Commercialization of Biomedical Innovations

- The life sciences business development center at GHSU is over 1,600 sq ft and includes state-of-the-art wet lab space and core facilities for start-up biotech companies. 4.5 of these suites are currently filled, and all of these start-ups (Luminomix, Jinfiniti, and Camellix) have received GRA VentureLab support. American Bone Cement is our most recent VentureLabAwardee.
- Current technologies that have been licensed out of GHSU include the REACH telehealth platform for stroke, IDO inhibitors for cancer immunotherapy, novel materials for reducing dentin sensitivity, and new molecules for cognitive enhancement.
- The Georgia Medical Center Authority (GMCA) is a second biobusiness resource that is located in downtown Augusta, GA. The GMCA is 17,000 sq ft and is currently home to REACH Call and HealthTronics, both of which first formed at GHSU, as well as Integrated Service Systems. Since 2006, REACH has raised over $8M in public and private equity funding. The company has grown from 2 employees to over thirty.

Response to Queries:

a. What policies are currently in place that are barriers to your company/ organization's success?
Our start-up companies lack access to significant early stage capital, and we would benefit from integration and inclusion within Georgia's Innovation Crescent.

b. What policies have aided in your company/organization's success?
The GRA VentureLab program has been a great asset to our commercialization strategy, and we have benefited tremendously from our Life Sciences Business Incubator and the Georgia Medical Center Authority biobusiness incubator. The GRA's support for our core facilities and our eminent scholars has translated directly into commercialization of our research discoveries.

c. Where do you want to see your company/organization in ten years?
We plan to double our research funding in the next 6-8 years. This will create 800-1000 new jobs in the Augusta region, generate $4-5M in state and local tax revenues, and produce +100 patents and 5-10 new startup companies.

d. How can the state of Georgia help your company/organization realize this goal?
Provide continued and enhanced support for the Georgia Research Alliance and Georgia Cancer Coalition, which are key to our recruitment and expansion efforts.

Policy Recommendation(s)	**Recommendation Details, Specifics & Reasoning**
Recommendation #1 Grow Support for the GRA and GCC	GRA support has been reduced with the economic downturn nationally and in our state. GRA & GCC support are key for us to attract top talent to our institution and to Georgia. Furthermore, all of our GRA eminent scholars at GHSU have been actively involved in commercialization of their research innovations.

H. Lee Herron, D.V.M.
Vice President of Commercialization
Georgia Research Alliance

Dr. Herron serves as the Vice President of Commercialization for the Georgia Research Alliance. Prior to joining the GRA in July 2008, Dr. Herron worked with two units of the Enterprise Innovation Institute at the Georgia Institute of Technoplogy, the Advanced Technology Development Center ("ATDC") and VentureLab. From 1999 to 2001, Dr. Herron founded and served as Managing Partner for BRAHMS Diagnostica LLC, a United States based spin out of a Berlin Germany manufacturer of in vitro diagnostic products. Prior to founding BRAHMS Diagnostica, Dr. Herron founded SeaLite Sciences, Inc. in 1991 and served as its President and CEO. SeaLite Sciences was based on technology licensed from the University of Georgia. The company developed a range of clinical diagnostic products and research reagents. From 1988 to 1991, Dr. Herron was Managing Director of Biopool International, Inc., a manufacturer of clinical diagnostic products. While employed by CytRx Corporation (see below), Dr. Herron was one of the founders of CytRx Biopool Ltd. in 1987. In 1986, with a group of other individuals, Dr. Herron founded CytRx Corporation, a biopharmaceutical company based on technology developed at Emory University and served as its Vice President, Product Development. Prior to founding CytRx, Dr. Herron was a founder of Nuclear Medicine, Inc. a start-up based on technology licensed from the Georgia Institute of Technology. Nuclear Medicine Inc. later changed its name to Theragenics, Inc. and undertook a successful public offering. Dr. Herron received a Doctor of Veterinary Medicine Degree from the University of Georgia.

GEORGIA RESEARCH ALLIANCE

I. GRA VentureLab Background and Program Overview

VentureLab Purpose

The primary business of the Georgia Research Alliance is strengthening the research enterprise of the state's six research universities by building a strong research engine that will boost economic growth around the state. To accomplish this goal, the Research Alliance partners with the universities to recruit world-class scientific talent and build state-of-the-art laboratories around those scientists, called Georgia Research Alliance Eminent Scholars. Since 1990, the Research Alliance has invested over $560 million to improve and expand Georgia's university-based research complex. The universities have leveraged that investment to attract over $2.6 billion in new federal and industrial funding.

Building on this foundation of Eminent Scholars and infrastructure development, the Georgia Research Alliance launched a commercialization program in 2002 to create companies around university research results. This program, VentureLab, has as its goals (a) to move university technologies out of the lab and into commercial markets, and (b) to grow university-based start-up companies in Georgia to create a vibrant industrial base and high-quality jobs.

Georgia's university-based research enterprise has created a wealth of commercial opportunities. The VentureLab program fills a critical gap in Georgia's commercialization ecosystem by proactively identifying the most promising university technologies and inventions. Through VentureLab, GRA offers competitively-awarded grants to explore and develop each technology's potential. Commercial strategies are developed, management structures are put in place, and pre-incubator companies are formed with investment from GRA's VentureLab program.

VentureLab Awards and Loan Program

VentureLab achieves its mission through a milestone-based, competitive grants program. GRA awards grants in phases, with Phase I and II funding decisions based on the submission of meritorious proposals and a subsequent evaluation of those proposals by a team of university-based VentureLab Directors, led by GRA staff. Phase III loan proposals are approved based on the recommendation of VentureLab Directors, followed by recommendation from GRA's external advisory committee.

VentureLab Management

Governance and management of the VentureLab Program is centralized and housed within the Research Alliance. Dr. Lee Herron, Vice President of Commercialization for the Research Alliance, directs the VentureLab Program. GRA relies on a "franchise" model of local university-based coordination because each campus manages its intellectual property portfolio in a slightly different way. Centralized management and governance of the program has been in place since VentureLab's inception in 2002.

Each university has dedicated VentureLab staff – a campus-based VentureLab Director manages the portfolio of VentureLab projects on his/her campus. VentureLab staffing varies across the universities, with Georgia Tech devoting the greatest staff resource to the program. GRA's investment in VentureLab does not cover personnel costs of the university-based network.

Since 2003, the state has provided an annual appropriation to GRA to support the VentureLab program. GRA uses the state funds to award competitive grants to the universities to advance intellectual property having significant commercial potential.

National Recognition

In October 2007, the Georgia Research Alliance VentureLab Program received a "best practice" award from the State Science and Technology Institute (SSTI), a national organization working to improve the economy through science and technology. In SSTI's inaugural Awards for Excellence, GRA's VentureLab took top honors in the Commercializing Research category.

VentureLab Metrics

The following represents 289 Phase I, II and III VentureLab awards to 107 active VentureLab companies/projects and 92 inactive companies/projects from program inception (FY 2003) through December 31, 2010. Note that certain currently inactive companies raised equity, grant funds and debt.

To date, GRA has invested over $20 million in VentureLab grants and loans.

Total employees at December 31, 2010 (full and part-time)	641
Total employees at January 1, 2010 (full and part-time	456
Total equity raised in 2010	$127,368,651
Total grant funding 2010 (excludes VentureLab	$10,184,122
Total debt funding 2010 (excludes VentureLab)	$5,081,000
Total equity raised since inception	$460,267,420
Total grant funding since inception (excludes VentureLab)	$26,830,582
Total debt funding since inception (excludes VentureLab)	$16,539,291
Total revenue 2010	$22,396,001
Total revenue since inception	$76,922,595

II. Policy Comments

a. What policies currently in place are barriers to success?

VentureLab, the commercialization program of the Georgia Research Alliance, would not exist were it not for funding from the state of Georgia. Although completely understandable and reasonable, the reduction in the GRA's budget for the 2011 and 2012 fiscal years has had a material impact on the number of projects entered into the VentureLab program. In FY 2010 through October 31, 2009, 52 companies had received VentureLab grants. In FY 2011 through October 31, 2010, this number dropped to 40 and through October 31, 2011, the number of companies receiving grants dropped to 32. The impact of this funding will be felt in the future through a reduction in the number of jobs created by these start-up and early stage companies.

b. What policies have aided in your organization's success?

Based on measured outcomes, the success of the VentureLab program is unquestionable. Policies enabling the investments by the GRA in VentureLab companies are providing a return to the state in jobs created and by increasing the tax base.

c. Where do you see your organization in 10 years?

Ten years hence, the GRA VentureLab program expects to have demonstrated its value to the state of Georgia through enabling the creation of technology-based companies with a number of employees that contribute in a meaningful way to payroll tax revenue and quality jobs for citizens of the state. By taking advantage of the tremendous opportunities coming from the research base found in our universities, VentureLab will continue to evolve as it becomes a sustainable model of technology-based economic development.

d. How can the state of Georgia help your organization realize this goal?

Achieving its goal of impactful commercialization of university-derived inventions and technologies will require an ecosystem comprised of various elements including experienced management, knowledgeable investment capital and a support infrastructure. The latter includes incubator facilities as well as service providers such as attorneys and accounts that are familiar with the needs of start-up and early stage companies. The state can help by restoring GRA funding in the future as well as facilitating the creation of investment capital targeted to Georgia companies.

III. Policy Recommendations

a. Recommendation #1 – facilitate formation of entrepreneurial support and advisory programs

Perhaps the most significant limitation to creating a vibrant start-up ecosystem is the lack of domain-experienced management talent, particularly for life science companies. Anecdotal evidence as well as scholarly studies have demonstrated the importance of management to successful companies. In addition, it is a fundamental requirement of investors looking to put capital at risk. Due to the state's history of legacy information-technology companies, experienced management for these companies is resident in the state. The same cannot be said for life-science companies. To take advantage of the significant commercial opportunities emanating from university research in the life sciences, action should be taken

to encourage entrepreneurial development. State initiatives that would encourage the development of entrepreneurs as fundable managers and facilitate recruitment of experienced management to the state would be expected to have a measurable impact on new company formation. The Entrepreneur-in-Residence program of the i2e program in the state of Oklahoma is a relevant example.

b. Recommendation #2 – Create a more favorable environment for venture capital firms and a reason for venture capital firms to look in the state of Georgia for investment opportunities

It is well recognized that Georgia has insufficient investment capital to support a robust innovation economy. This investment capital usually comes from venture capital firms. A strategy successfully employed by many states to increase the number of venture capital firms active in a particular state is to invest a portion of the alternative asset allocation of pension funds in a fund-of-funds or directly as a limited partner in VC funds. With this investment comes the understanding, express or implied, that the funds will look at companies within that particular state as investment candidates. Public pension reform is needed in the state of Georgia to enable this type of investment.

Bio and Life Sciences Panel

2:55 – 3:40 PM

- **Seth Millican, Brock Clay Government & Public Affairs**
- **Stan DeHoff, Georgia Medical Center Authority**
- **Beata Kochut, UGA Selig Center for Economic Development**
- **Stacey Williams Shuker, Center for Innovation for Life Sciences**

Georgia Medical Center AUTHORITY

Stan DeHoff

Executive Director
Georgia Medical Center Authority

As Executive Director, Mr. DeHoff is accountable for the execution of a continued growth strategy for the state authority; the issuance of $300 Million in revenue bonds for life sciences R&D and manufacturing facilities; and the development of business accelerators to support start-up and post-incubator life sciences companies statewide.

Mr. DeHoff is the former University Project Portfolio Manager for the Georgia Health Sciences University (GHSU) where he facilitated the successful and efficient completion of the university's strategic and operational initiatives. He also served as GHSU's Customer Service Champion and Lean Six Sigma Process Innovation Champion, receiving statewide honors and recognitions.

Previously, Mr. DeHoff served in progressive leadership roles within NCR Corporation's Worldwide Customer Services division including Manager of Finance and Administration, Manager of the Americas Customer Care Center, Global Human Resources Consultant, and Global Discipline Manager of Operational Performance Management (Quality, Metrics & Reporting). At NCR, he led multiple international Lean Six Sigma projects for improving customer satisfaction and streamlining the global customer service metric reporting processes, which contributed to over $54 Million in cost savings.

Mr. DeHoff is the past president and member of the board of directors of the Lexington County (SC) Arts Association and currently serves on the board of directors of The Augusta Players. He earned a bachelor's degree in mathematics from Rose-Hulman Institute of Technology (Terre Haute, IN).

Stacey Williams Shuker
Director
Centers of Innovation for Life Sciences

Georgia's Centers of Innovation provides unique, technology-oriented support to businesses and start-ups in the areas of aerospace, agribusiness, energy, life sciences, logistics and advanced manufacturing. Each of the six centers provides direct access to university and technical college applied research, commercialization resources, technology connections, matching grant funds, potential investor networks and key government agencies. Client companies are connected with industry-specific experts who are on the leading edge of technology and new ideas. A common goal across all of the centers is to cut red tape, streamline connections and seek technology solutions to industry-led challenges; within this framework the Centers create a pro-growth, innovative business environment for industries critical to Georgia's expansion.

Stacy Williams Shuker comes to the Center of Innovation (COI) for Life Sciences with entrepreneurial and research-oriented experience. After graduating from the University of Georgia with a chemistry degree and a doctorate in inorganic chemistry from Carnegie-Mellon, she launched a science toy company and invented a crystal growing kit for children. She received a patent on the kit in 2004 and sold it on children's websites and via a major retailer. Her experience also includes securing intellectual property rights and navigating the product approval process for retail sale. Prior to coming on board with the Center, she spent two years as a scientific advisor for in an intellectual property law firm. As an inventor who has been on both sides of the patent process, she understands first-hand the conception to commercialization process.

After taking leadership of the COI for Life Sciences, Stacy pioneered the use of social media to connect and inform the life science industry. By using tools such as Facebook, Twitter and Ning, she has created a growing network of professionals from scientific, business, legal, regulatory and marketing backgrounds. Stacy is also an active member of GeorgiaBio, Southeastern Medical Device Association and the Southeast BIO Investor Conference.

Georgia Medical Center AUTHORITY

" World Class Resources for Georgia's Life Science Enterprises"

Georgia Medical Center Authority
973 Broad Street
Augusta, GA 30901-7214
(706) 432-4040
info@GeorgiaMedicalCenterAuthority.org
http://www.GeorgiaMedicalCenterAuthority.org

Stats:

- Founded: July 1, 2000
- Industry: Life Sciences
- FY2012 State Funding: $171,500
- Employees: 1

Board of Directors:

Chairman:
Dr. George N. Snelling of Columbia County
Owner, Snelling Properties
(Governor Appointment)

Vice Chairman:
Dr. William G. Brundage of Chatham County
Chief Executive Officer
Advanced Materials Development Group
(Governor Appointment)

Secretary/Treasurer:
Mr. Patrick G. Blanchard of Richmond County
Vice Chairman, First Bank of Georgia
(Governor Appointment)

Mr. Barry A. Fleming of Columbia County
Attorney at Law, Fleming & Nelson, LLP
(Speaker of the House Appointment)

Mr. Gerald W. Woods of Richmond County
Attorney at Law, Gerald W. Woods, LLC
(Lieutenant Governor Appointment)

Dr. Annie Hunt Burriss of Dekalb County
Special Assistant to the President
Georgia Health Sciences University
(Governor Appointment)

Mr. R. Edward Perkins of Oconee County
Principal, Coventry Consulting
(Governor Appointment)

For more information contact:

Stan DeHoff, Executive Director
Georgia Medical Center Authority
(706) 922-5400
sdehoff@GeorgiaMedicalCenterAuthority.org

Executive Summary

The Georgia Medical Center Authority (GMCA) was established by the Georgia General Assembly on July 1, 2000 for the provision of biomedical and biotechnical research centers, facilities, and programs based in Augusta, Georgia, and the promotion of continuing investment in the intellectual capacity of the Georgia Health Sciences University (formerly the Medical College of Georgia).

In subsequent years, the "Georgia Medical Center Authority Act" (Title 20, Chapter 15 of the Georgia Code) was revised giving the authority additional responsibilities as well as a statewide mission.

MISSION

To advance Georgia's life sciences industry through the provision of research, development, and manufacturing facilities and programs.

VISION

The Georgia Medical Center Authority will be instrumental in the growth of the life sciences industry through the creation of numerous biomedical jobs with substantial impact on Georgia's economy and the health of its citizens.

Programs & Services

- **$300M Statewide Bonding Authority**: The GMCA's $300 Million statewide bonding authority provides a valuable tool to all Georgia communities in securing the necessary financing to construct or renovate research, development and manufacturing facilities suitable for the life sciences industry.
- **Life Sciences Business Development Center (LSBDC) at the Georgia Health Sciences University (GHSU)**: In 2004, the Georgia Medical Center Authority partnered with GHSU to establish the LSBDC with 1,600 square feet of incubator space to house up to five entrepreneurial life sciences businesses. The GMCA provided $500,000 in furnishings and equipment through a One Georgia Authority grant.
- **Augusta BioBusiness Center (ABBC)**, the authority's flagship business accelerator facility, was opened in 2007 to serve post-incubator and start-up life sciences companies. The ABBC has 16,652 square feet of low-rent, furnished and equipped wet and dry laboratories, offices, and conference rooms. The ABBC currently hosts three life sciences companies, two of which were "born" at the Georgia Health Sciences University.

Client Companies

HEALTHTRONICS LABORATORY SOLUTIONS™	**HealthTronics Laboratory Solutions (HLS)** is a post-incubator company out of GHSU's LSBDC specializing in urology related pathological services for prostate and bladder cancers. HLS processes 5,500 biopsies per month from 150 urology practices nationwide.
INTEGRATED SCIENCE SYSTEMS	**Integrated Science Systems (ISS)** is a female-owned, start-up company manufacturing infectious disease (staph) diagnostic kits and reagent buffers. ISS produces and ships 1,000 kits and 2,000 buffers per month.
REACH™	**REACH Health** is a start-up company out of GHSU providing emergency telemedicine services for rural hospitals in stroke detection and treatment. REACH Health has 116 customer installations in 20 states.

Performance Metrics

45 Biomedical Jobs Created	**$70,000** Average Salary	**$8.2 Million** Annual Revenues (Nearly Doubled)	**$240,800** Georgia Tax Revenues
2 Countries Served (USA and Canada)	**10+** States/Provinces Served	**48** Georgia Counties Served	**140%** ROI of state funding self-generated by GMCA