

“The University and the Southern City”  
Remarks by Georgia Tech President G. Wayne Clough  
Center for Society and Industry in the Modern South, March 31, 2001

It is an honor for me to participate with you in this conference on “Growth and Change: The Southern City since 1960.” Yesterday Chancellor O’Brien gave you the New Orleans perspective on “The University and the Southern City.” Today I’m pleased to have an opportunity to revisit that topic, with Georgia Tech and Atlanta serving as the case study.

You have already been discussing many of the key issues facing southern cities: the growing role of technology in all aspects of our lives... the global economy in which business now operates... the evolving population demographics that have changed us from black-and-white to multi-ethnic... and the transportation and sustainability problems that have come with urban sprawl. All of them are very real here in Atlanta, and all of them touch Georgia Tech and our involvement with this city.

Before I begin describing those involvements, however, I want to emphasize that Atlanta is blessed with several outstanding universities. In addition to Georgia Tech, we also have Georgia State University, Emory University and the institutions that make up the Atlanta University Center. In many ways our efforts are both complementary and coordinated to achieve the best possible results for this city, and my talk will highlight some of the ways in which we collaborate.

Georgia Tech’s interaction with its home city is incredibly complex and multi-faceted, and my goal is to try to touch on enough of it to get you a sense of its breadth and depth. Our most fundamental impact has always been economic. Following the Civil War, the South was decimated; only 10 percent of the nation’s manufacturing base was located here. So Georgia Tech was created in 1885 by an act of the state legislature for the expressed purpose of moving the state from an agrarian to an industrial economy.

Georgia made that transition. During the 20<sup>th</sup> century, Georgia and the South combined our resources of cheap labor and land with fairly straight-forward incentives like tax breaks and site-specific infrastructure to attract large manufacturing companies from other states or countries. This policy had its merits at the time, but it was based on a premise whose time is now past.

The challenge for Georgia Tech today is a reiteration of our original mission to reshape Georgia’s economy. This time we are deliberately focused on moving the state from an industrial to a technology-based economy.

The economic paradigm of the 1970s and 80s was to be competitive. Similar companies made similar products, and the winner was the one that consistently delivered the best quality at the lowest price. The watchwords were “faster, better, cheaper.”

Being a tough competitor is still important, but today’s winners are the companies that are also nimble and build alliances in the world of competing technologies. In the global Internet

economy that is opening up around us, the market sets the price. With cut-throat competition squeezing down profit to virtually nothing, the only way to grow and make money is by creating a new product and getting it to market faster than anybody else.

Economist and former Treasury Secretary Lawrence H. Summers described this New Economy by saying, “If there is one fundamental change at its heart, it must be the move from an economy based on the production of physical goods to an economy based on the production and application of knowledge.”

Generating new knowledge and making scientific breakthroughs requires hands-on work in research labs, which makes it a very location-specific activity. The Internet may make geographic location irrelevant in many ways, but innovation is not one of them. Innovation is heavily concentrated in a relatively small handful of locations, which economists call “clusters.” It’s a term they borrowed from chemists, who use it to refer to a group of atoms that are highly interactive.

Clusters are fueled by innovation and become hotbeds of technology incubation and investment. They serve as engines of wealth creation for their cities, and by extension for their states and nations. They generate start-up companies and provide the resources those companies need to thrive. They are places where the success of one company attracts another company to locate there.

The clustering of leading-edge industries at particular locations is determined by a number of factors, but the core of the cluster and its primary source is invariably one or more universities. During the course of my career I have lived and worked in Silicon Valley, the Research Triangle Park, and Seattle. All of these locations have vibrant high-tech economies, and while there are some differences in why they are successful, the common factor in each case is the presence of strong research universities that reach out to the community. The same is true here in Atlanta.

What makes Atlanta stand out among cities in the South is its presence close to the top of every list of up and coming high-tech centers. Georgia Tech and our partner institutions Emory University, Georgia State University, and the Atlanta University Center, are the driving force that has made Atlanta the high-tech heart of the South.

The new knowledge-based economy requires a strong cadre of scientists and engineers with advanced degrees who drive the research and development process, and it requires a broader pool of skilled workers who can make something, literally, of those ideas. In this New Economy the long-term prognosis for any city in the South or around the world will depend to a great extent on its ability to produce an educated workforce and conduct the research that will yield innovation.

At least with respect to science and technology, Georgia Tech gives Atlanta a considerable edge in both of these tasks. During the 1990s, the percentage of growth-company CEOs who reported the lack of skilled workers as their top barrier to growth has increased from one-third to two-thirds. And that problem will intensify. The Department of Labor projects that new science,

engineering and technical jobs will increase by 50 percent by 2008 – roughly four times faster than the national rate of job growth.

Georgia Tech graduates more than 2,000 engineers a year – more than any other university in the United States – and we are steadily increasing our graduates in computer science. That makes Atlanta a very attractive place for leading-edge technology industries to be.

High-tech industries can also find the engineering research they need at Georgia Tech. We are second in the nation in the volume of engineering research we conduct, and much of it is in conjunction with industry. We are third in the nation in the percentage of our research portfolio that is sponsored by industry.

Georgia Tech also spins off new start-up companies based on discoveries and innovations from our research labs. Many of Atlanta's new technology companies have direct connections to Georgia Tech research; some of them have been started by our faculty and even our students. Bioengineering professor David Ku, for example, is developing two new companies to market discoveries from his research lab. Chris Klaus started his multi-million dollar company, Internet Security Systems, in his dorm room as a Tech student.

Georgia Tech is also a magnet that attracts young high-tech companies from other locations to take advantage of our expertise and hire the skilled workforce we produce. E-mail is not enough for these companies. They want to be able to walk across the street and engage professors and graduate students on-site in their research labs. As a result Midtown is becoming Atlanta's high-tech hot-spot as new and relocated technology industries cluster around our campus.

Some of this incredible research activity is due to the Georgia Research Alliance, which was created a decade ago. The Alliance includes Georgia's six research universities – which are the four universities here in Atlanta plus the University of Georgia and the Medical College of Georgia in Augusta. It is a partnership of these universities plus state government, and three high-tech industries – advanced communications, biotechnology, and environmental science and technology.

The goal of the Georgia Research Alliance is to make Georgia a cluster location of innovation for these three industries by funding, promoting, and coordinating research and technology transfer. To date the Research Alliance represents an investment of about a billion dollars. Some \$300 million has come from state government, which is used as seed money to attract federal and corporate investment. The state puts up the first half of the money to create endowments for research chairs at the six universities, providing leverage to raise matching private funds.

State funding also provides equipment, labs, and even buildings like the one we are in now, which was built largely with state funds and houses advanced communications labs. These facilities help to attract internationally known scholars to hold the endowed chairs. In turn, the scholars attract research funding, top-quality graduate students, and high-tech companies, as well as spinning off new start-up companies.

The Alliance's collaborative approach to research makes it attractive for research investments from both the federal government and private industry. Because it embraces the capabilities of six universities, research proposals can be more complete and more carefully tailored, offering federal agencies and industries an opportunity to target their investments for maximum value.

When research generates a discovery or innovation with market potential, we turn to Georgia Tech's Advanced Technology Development Center. The ATDC was created 20 years ago as the nation's first university-based business incubator, and today it is widely recognized as one of the nation's best. It helps researchers harden their ideas into marketable products, assists with management and marketing, and incubates start-up companies in its facilities. The companies "graduate" when they have reached certain benchmarks in earnings and size, or have been acquired by another company which takes over the job of guiding them.

This process makes it easier for start-ups to procure venture capital, because investors know that ATDC has kicked the tires and looked under the hood to make sure that the company's idea has real-world market potential. They also know the company will get the assistance it needs to succeed.

Since its creation in 1980, ATDC has incubated more than 110 companies and graduated more than 70, many of which are now located around our campus. Some 40 percent of the companies nurtured by ATDC have been founded by Georgia Tech faculty – some even by students.

Beyond the Research Alliance, Georgia Tech is engaged in two other partnerships that are driving Atlanta's high-tech business sector forward. We are the lead university in Governor Barnes' Yamacraw initiative, which is designed to make Georgia a major center for the design of the intelligent devices that will underlie virtually all of the electronics, computing, communications and entertainment technology of the future.

If you remember your Georgia history, Yamacraw was the bluff along the Savannah River where the first Georgia pioneers landed and launched a whole new chapter in the life of our state that changed it dramatically. In this new application, Yamacraw is a codeword for the broadband design research and industries that will change all of our lives in the future.

Yamacraw includes research and venture capital for new start-up companies, but its central focus is on education, because a critical part of attracting and creating these industries is the availability of a skilled workforce. So we are hiring new faculty and expanding our computing programs, both for the young students we have on campus and for technology workers in the community who need some additional education to move into this new field.

The other partnership is between Georgia Tech and Emory University, and it is making Atlanta a major center for biotechnology. Georgia Tech has an engineering college, but no medical school; Emory has a medical school, but no engineering program. By ourselves, neither one of us could attract much notice in this hot high-tech field. But together we form a heavy weight contender.

The strength of our joint research programs enabled us to attract the nation's only National Science Foundation Center for Excellence in Tissue Engineering. And our unique joint academic

program – which may be the only joint degree program between a public and a private university in the nation – is ranked among the top ten in the country.

The newest facet of this bioengineering partnership is EmTech Bio, a commercial research and development center for biotechnology operated jointly by Georgia Tech and Emory University. Its mission is to spark development of a high-tech biotechnology industry and build strength in this sector for Atlanta's and Georgia's economy. FOB Synthetics was the first company to open its doors at EmTech Bio, and NuTec Services, one of the nation's leading companies in the emerging field of bioinformatics, will anchor this biotechnology park. EmTech Bio will also house an incubator for biotechnology companies operated by Georgia Tech's ATDC.

Georgia Tech is also actively engaged with Atlanta's older industries. There is no such thing as a low-tech company anymore. These days every industry needs advanced technology to survive. So the Georgia Tech Economic Development Institute assists small and mid-sized companies improve productivity, reduce costs, plan expansions, start new operations and implement proven manufacturing technologies. This is a statewide service that is delivered through 18 regional offices as well as here in Atlanta.

We also provide continuing education classes to help employees in these industries keep their skills up-to-date. In addition to our 15,000 regular degree students on campus, we have a second student body of more than 25,000 who are taking continuing education and executive education courses both in person and by distance learning technology.

To try to keep some level of consistency and communication among these many efforts, I spend a lot of time in board meetings – serving on the boards not only of the Georgia Research Alliance and Yamacraw, but also of community organizations like Central Atlanta Progress and the Metro Atlanta Chamber of Commerce.

In addition to being a driving force in making Atlanta the economic capital of the South, Georgia Tech is also focused on quality of life issues and problems. The most overt expression of this interest is Atlanta's skyline, which was developed largely by graduates of Georgia Tech's College of Architecture, but the college's involvement goes much farther.

The City of Atlanta is also a literal living laboratory for the Center for Quality Growth and Regional Development, which studies urban quality-of-life problems like land-use, transportation, pollution, and related health care considerations. The center is presently conducting an innovative study that correlates land-use patterns with travel behavior, and interestingly, it was not commissioned by zoning or transportation officials, but by the Centers for Disease Control.

Metro Atlanta tops the nation with an average one-way commute of 34 miles. That has not only created a lot of traffic gridlock, it has also made us the second worst city in the nation for air pollution. As Atlanta's pollution and traffic problems reach unacceptable levels, Georgia Tech is helping to provide the expertise needed to solve these problems. When Governor Barnes needed an executive director to head the work of his Georgia Regional Transportation Authority, he came to Georgia Tech and tapped city planning professor Catherine Ross.

A second quality-of-life issue that involves a wide range of Georgia Tech folks is K-12 education. We don't have a college of education, but we are keenly aware that the world of the 21<sup>st</sup> century will require stronger science knowledge and technology skills from everyone. And we put a lot of energy and effort into offering enrichment opportunities to the children and teachers of Atlanta and Georgia. In fact, it takes a 26-page booklet to list all of the programs, clubs, competitions, summer camps, career days, Internet activities, and teacher training programs that Georgia Tech offers.

Many of them are available through CEISMC, our Center for Education Integrating Science, Math and Computing. Two of CEISMC's most popular programs are SummerScape, a summer camp in math, science, and computing for Atlanta middle schoolers, and GIFT, which puts math and science teachers into summer fellowships in universities and industry to enrich their understanding of the applications of their disciplines.

Georgia Tech also pays a lot of attention to being a good citizen, and that is a goal of Atlanta's other three universities as well. So we formed a partnership called the Atlanta Outreach Consortium. The Consortium allows Georgia State University, Emory University, the institutions in the Atlanta University Complex, and Georgia Tech to coordinate our community outreach efforts for maximum effect.

At the same time, the Consortium enlarges and enriches the opportunities for community participation that we four universities can offer to our students. It develops opportunities for students to engage in service learning, volunteer projects, internships and summer institutes in the broader Atlanta community.

The most intimate part of the relationship between Georgia Tech and the City of Atlanta – the place where the rubber hits the road in daily life – is how we relate to our neighbors. Robert Frost wrote a poem called "Mending Wall," in which he describes how his neighbor insists that they go out every spring and repair the damage Mother Nature has done to the stone wall that separates their properties. His neighbor insists that "good fences make good neighbors," but Frost's own opinion is that something deep in nature does not love a wall.

Some urban universities want a campus that is separate and distinct from its surroundings. A few even try to wall off their campus as a way to promote safety. At Georgia Tech, we side with Robert Frost. We believe that a more durable and reliable way to improve campus safety than building a wall is helping make the neighborhoods around us better.

Today the old Techwood Homes public housing project to the south of our campus is gone, and our campus police work together with the police precinct in the new Centennial Place neighborhood that replaced it. But our interest in the neighborhoods around us goes far beyond safety. Georgia Tech is a partner with our neighbors in developing a model, sustainable urban community in Midtown. And if Carl Patton were making this speech on behalf of Georgia State University, he would tell you that he is involved in that same pursuit in downtown.

Georgia Tech's vision statement calls for us to "create an enriched, more prosperous and **sustainable** society for the citizens of Georgia, the nation and the world." The first step is to live up to that goal in our own daily life. We want to help create the complete urban live-work-learn-play environment in Midtown, where people can find quality housing, quality jobs, quality educational experiences, quality retail, and quality entertainment, all without leaving the neighborhood.

A few years ago we developed a Campus Master Plan as a tool to help us shape a livable, sustainable campus that meets our needs as a university. At the same time, the Midtown Alliance was developing its Blueprint for the Midtown neighborhood, so we collaborated with each other on these plans.

We are now beginning to see our plans come to fruition. In addition to the many small high-tech businesses clustering in Midtown, BellSouth is consolidating its Atlanta workforce here, with several new office towers near the North Avenue MARTA station. And it will offer its employees MARTA subsidies rather than subsidized parking. The Federal Reserve has a new building going up on 10<sup>th</sup> Street, and Crawford-Long Hospital is expanding as well.

As Midtown increasingly evolves into a high-tech business center, the quality of its life is improving. We have more and higher quality restaurants, and plans are on the drawing board for about 11,000 quality housing units, which will trigger expanded retail offerings and strengthen the arts component of the neighborhood. As this new environment takes shape, Georgia Tech is reaching out into the community, and it is not always clear anymore where campus ends and the surrounding community begins.

I've already mentioned that we were a partner in replacing the Techwood Homes housing project with a mixed-income neighborhood called Centennial Place, and we helped to design the math and science curriculum at Centennial Place Elementary School and stocked it with computers. A Georgia Tech co-op student now works at the school, maintaining the computers and helping the students and teachers understand and use them. As these students grow up, we will follow them, first to Inman Middle School, then to Grady High School, continuing to infuse hands-on technology usage into these inner-city schools.

To the southwest of our campus, we reached out into a pretty derelict part of town on the south side of Marietta Street, and purchased vacant lots and crack houses. We are building the Georgia Tech North Avenue Research Area in this area – we've already opened four new buildings, and a fifth is under construction. Our goal is to be an anchor and a driving force in the long-term process of improving this area.

The GCATT building where we are gathered today, together with athletic fields west of here along 14<sup>th</sup> Street, represents an integration of our campus with the Home Park neighborhood which lies between 10<sup>th</sup> and 14<sup>th</sup> Streets. And we are collaborating with the Home Park Neighborhood Association on a childcare center, which we are going to build to serve our own faculty and staff as well as neighborhood residents.

To the east, we are making a bold leap across I-75/85 at 5<sup>th</sup> Street to build a \$150 million complex we call Technology Square, which, like the North Avenue Research Area, will be an anchor and driving force in rehabilitating in a run-down part of Midtown that has been dominated by vacant lots and abandoned buildings.

Directly across the Fifth Street bridge from our campus is the Biltmore Hotel, which stood empty and deteriorating for 15 years. It has now been renovated by a Georgia Tech alumnus, and its office space has attracted high-tech firms that want to be close to Georgia Tech and in the middle of the high-tech community that is emerging in Midtown. Technology Square will be located on the south side of Fifth Street between the expressway and the Biltmore. And on the north side will be a broadband design center for Yamacraw and an ATDC facility and incubator.

“Global techno-preneurship,” is a newly emerging buzzword that means technology-based business entrepreneurship that has a global focus. Technology Square will be the heart of global techno-preneurship at Georgia Tech – a striking center focused on global learning, technology, and entrepreneurship, located in the middle of Midtown’s emerging high-tech corridor and serving businesses around the globe.

Technology Square will include a new facility for Georgia Tech’s DuPree College of Management, which is not your father’s business school, but focuses on entrepreneurship and the management of technology. This location will create a higher level of synergy between the college and Midtown’s high-tech business community that will serve both of them well.

Technology Square will also include a Global Learning Center full of distance learning technology as well as classrooms for on-site continuing education classes. Other components include an executive education center, hotel, and conference center, and space for community-oriented research like the Center for Quality Growth and Regional Development, which I mentioned earlier. And it will feature light retail and restaurants that will serve the community as well as our students, faculty and staff.

As you can see, Georgia Tech is a very active participant in shaping Atlanta for the 21<sup>st</sup> century in a wide variety of ways. We are an educational institution, but we are also an economic engine, a partner with the business community, a problem solver for urban issues, a citizen of the wider community, a collaborator with Atlanta’s other universities, and a neighbor.

Together these relationships give us a wonderful opportunity to be fully engaged with the city in a multi-faceted way. They represent an opportunity to be very practice oriented in the education we offer our students. They represent an opportunity to participate with our peer universities in the discovery of new knowledge and the development of new innovations, and to participate with industry in putting those ideas to work to serve society.

Added together, these relationships are what enable Georgia Tech to realize our potential and achieve our goal to help create a stronger, more prosperous city, state, and society.