

New York State Senate *NextGen* Task Force

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I. Introduction

By promoting pro-competitive policies and championing aggressive development programs, the New York State Senate Majority has demonstrated a longstanding commitment to economic growth. In recent years, many states and foreign nations have recognized the tremendous job-creation potential of high-technology and biotechnology. Globally, these dynamic industry sectors have been identified as the key to 21st century economic development and job creation. A fierce, interstate and international competition is ongoing to attract and retain these high paying jobs. Notwithstanding this emerging trend, the Senate Majority has endeavored to foster the expansion of these dynamic industries for more than 20 years, beginning with the development of the Centers for Advanced Technology (CAT) program in 1982.

Through the leadership of Majority Leader Joseph Bruno, the Senate has accelerated this investment with two landmark programs--“Jobs 2000”(J2K) and “Generating Employment Through New York Science”(Gen*NY*sis). When coupled with Governor Pataki’s “Centers of Excellence” initiative, Gen*NY*sis allocated over \$1 billion to fund new high-technology and biotechnology capital projects across New York State. In conjunction with the State’s leading universities and research institutions, these programs utilized an innovative public-private model leveraging over \$4 billion in new investment and revolutionizing New York’s research and economic development capacities.

However, this capital investment is only a first step. New York State needs to compliment these initiatives with the necessary tax, regulatory and financial climate to allow new discoveries to be translated into new technologies and new jobs. To this end, Senator Bruno created the *NextGen* Task Force on December 30, 2003. Chaired by Senate Deputy Majority Leader Dean G. Skelos, the Task Force includes Senators James S. Alesi, John J. Bonacic, Martin Golden, Kenneth P. LaValle, Raymond Meier, Michael F. Nozzolio, Joseph Robach and Nicholas A. Spano. The *NextGen* Task Force was charged with developing a comprehensive strategy to establish New York State as the foremost venue for the emerging industries. By analyzing the business-development issues confronting the State’s high-technology and biotechnology communities, the *NextGen* Task Force was designed to address the microeconomic (or firm-specific) considerations that remain critical to the viability of these companies. Because involved professionals, entrepreneurs and industry executives are acutely aware of those challenges and impediments confronting their respective businesses, the *NextGen* Task Force solicited their direct involvement through a regional public hearing process.

Between January 13, 2004 and February 4, 2004, the *NextGen* Task Force conducted a series of five regional public forums across New York State (Albany, Long Island, Rochester, New York City and Hudson Valley regions) involving the State's leading high-technology and biotechnology academic researchers, entrepreneurs, industry executives and business associations. This exhaustive process provided a forum for both government and business leaders to highlight ongoing capital investments (Gen*NY*sis and Centers of Excellence), while discussing the tax considerations and other operating challenges impeding continued economic growth and job creation in the emerging industry sectors.



Various key obstacles were repeatedly cited as considerable barriers to the growth of the emerging industries in New York State. Specifically, these included: (1) a dearth of venture and “angel” investment capital for early-stage and expansion-stage companies; (2) the lack of a “phase II” technological infrastructure, including available and affordable laboratory space and state-of-the-art broadband connectivity; (3) the absence of a streamlined, user-friendly and comprehensive mechanism to efficiently catalogue governmental programs and business resources and nationally market New York State’s high-tech success; (4) the need for new curricula and workforce training programs; (5) the need for better targeted business development and tax incentives to attract and retain high-technology and biotechnology firms and (6) the need to maximize the local economic benefit (through commercialization) of academic intellectual property created by New York’s universities and research institutions.

To address these critical needs, the *NextGen* Task Force has generated a comprehensive set of policy recommendations that will promote the continued development of the Empire State’s high-technology and biotechnology industries. As such, the Task Force suggests the implementation of a ten-year plan which includes: new tax incentives for high-technology and biotechnology companies, mechanisms to encourage the accessibility of venture capital and other forms of financing, targeted State investments and assistance designed to bolster early and mezzanine-stage companies and a more efficient means of administering New York State’s economic development policy for the emerging industries.

These recommendations reflect the Senate Majority’s ongoing commitment to sustained job creation and economic growth in New York State through the attraction, retention and expansion of high-technology and biotechnology companies. The following material provides an overview of the importance of the emerging industries in New York State, a presentation of the Task Force’s findings and an enumeration of the Task Force’s policy recommendations.

II. The Economic Impact of High-Technology and Biotechnology

A. The Global Economy

Today, the global economy is in uncharted territory. Throughout history, the world has never experienced economic integration on a level comparable to its present interdependence and the proliferation of information and technology. Spurred by international trade agreements and the development of world markets, globalization means that no community or company in today’s economy is immune to macroeconomic conditions. In the developed world, industrial production has continually shifted away from labor-intensive manufacturing processes towards those dependent on cutting-edge technology and a highly-trained and educated workforce. According to the United States Economic Development Administration, successful firms in the 21st Century will be those companies that emphasize creativity, speed and flexibility by adapting to an ever-changing economic climate.¹

¹ “Strategic Planning in the Technology-Driven World Innovation Report” U.S. Economic Development Administration, 2001: 6.



B. The National Economy

The question of whether and how the United States' economy will adapt to the evolving global markets invariably leads to a discussion of the need for companies and regional economies to innovate. In his discussion of America's industries, Ross C. Devol writes, "what we call new economics of place is driven by the ability to attract and expand science and technology assets and leverage them for economic development. Thus, a region's economic performance is largely determined by how effectively it uses comparative advantages...to create and expand knowledge assets and convert them into economic value."² Devol's discourse serves to illuminate a main challenge facing the development of high-technology industries: identifying how a regional economy is competitive at the international level with respect to various factors such as skilled workforce, access to capital, proximity of universities/research institutions and the community's entrepreneurial culture.

Further, a recent U.S. Department of Commerce report on American manufacturing stressed the growing need for the nation's companies to "continue investment in research and development of new products to remain ahead of the competition" and to lead the global high-tech economy.³ The report also places emphasis on the development of advanced labor skills as a decisive factor in determining the ability of our nation's companies to stay competitive. Without such efforts, Commerce concludes that U.S. companies will lag behind in their endeavor to reinvent America's manufacturing economy.

C. The New York State Economy

Throughout the past ten years, New York State's economy has experienced a significant evolution. Between 1988 and 1997, traditional manufacturing employment declined by more than 20% Statewide, with this trend continuing to the present.⁴ In aggregate Statewide data, however, the Greater New York Metropolitan area's creation of non-manufacturing jobs has--to a notable degree--masked staggering manufacturing losses across Upstate New York. Because Upstate historically possessed a greater concentration of manufacturing than the State as a whole, the sector's decline disproportionately affected this region. For example, Western New York's loss of Bethlehem Steel and the continued emigration of Kodak's manufacturing operations resulted in a more pervasive and lasting economic impact than Long Island's loss of Northrop Grumman (and the majority of its aerospace industry). Because of manufacturing's historic share of Upstate's economic base and robust nonmanufacturing sectors in New York City, Long Island and the Lower Hudson Valley, this overall 20% decline has generated greater job displacement outside the Greater New York Metropolitan area.

This is especially troubling because manufacturing employment tends to be higher-paying than that of the services industry and, with every new business closing Upstate, New York loses another valued employer.⁵ The recent announcement by Kodak that it would lay off up to 15,000 workers internationally--with, perhaps, more than a third of those in Rochester--underscores the

² Devol, Ross. "Institute Review". The Milken Institute Review. Fourth Quarter, 2002: 86.

³ U.S. Department of Commerce, "Manufacturing in America". January 2004.

⁴ "Vitality in Upstate Medical Manufacturing" Federal Reserve Bank of New York. *The Regional Economy of New York*: Fall 2002.

⁵ "A Pharm State." New York State Business Council/Public Policy Institute, December 2002.



trend of losses in Upstate's traditional manufacturing employment.⁶ This recent announcement of layoffs reflects what the Federal Reserve Bank of New York identifies as the national trend in manufacturing: away from the Northeast to the South and West, driven by better weather, liberalized regulation and lower labor costs.

Despite the decline in New York's traditional manufacturing base, indications persist that the State is well positioned to succeed in the high-tech economy. In the Public Policy Institute's (PPI) 2002 State New Economy Index Report, New York ranks 10th among the nation's 50 states in its measure of the degree to which state economies are "structured and operated according to the tenets of the New Economy."⁷ In other words, the New Economy Index evaluates each state on 21 chosen criteria that the PPI identifies as important for a state to attract high-tech industries. New York ranked in the top ten in the following criteria: workforce education (8), export focus of manufacturing (4), commercial Internet domain names (5), digital government (8), broadband telecommunications (5) and patents (5). Likewise, the State scored relatively well in number of knowledge jobs, overall globalization orientation, digital economy, innovation capacity, scientists and engineers, research and development (R&D) investment and venture capital. Given this encouraging level of "New Economy" orientation, the case can be made that the New York State economy has tremendous potential to exploit the kind of new high-technology opportunities identified above. However, these indicators have not yet translated into significant product commercialization or job creation in New York State.

D. The High-Technology Industries

Over the last decade, U.S. companies have invested heavily in technology-intensive products and processes to increase both productivity and profitability. The increase in high-tech spending serves to illustrate that (1) the demand for technology is real and has the potential to drive a nation's economy--as evidenced by the tremendous growth in U.S. Gross Domestic Product and labor productivity during the 1990's--and (2) that innovation and technology-driven competition are accelerating. For example, access to the Internet has allowed companies to vastly broaden their markets, diversifying from regional consumers to international buyers. At the same time, this exposes them to increased competition. Consequently, these companies will seek out technological solutions to lower costs and thus prices. This helps to create a virtuous cycle of increased demand for high-tech products and services.⁸

A major trend in the U.S. high-technology industries (and by many other business sectors as well) has been the regional aggregation of firms in highly specialized economic activity or "clustering." This "new economic paradigm" evolved from any of a menu of reasons but, concerning high-tech sectors, it is often the case that clustering results from the desire to locate close to academic and research institutions as well as the presence of a highly skilled workforce.⁹ In his article on regional clusters and their effects on the U.S. economy, Michael Porter explains how aggregation provides firms a comparative advantage by creating a "robust organizational

⁶ Rand, Ben. "Worldwide Kodak Layoffs", Democrat and Chronicle. January 22, 2004.

⁷ Progressive Policy Institute, New Economy Index (New York State). www.neweconomyindex.com

⁸ "America's high-tech economy". The Milken Institute, 1999: 1-2.

⁹ *Ibid.*



form that offers advantages in efficiency, effectiveness, and flexibility.”¹⁰ In other words, once a “critical mass” of similar firms occurs, the businesses in a cluster will experience dramatically reduced costs in the procurement of both capital and expertise. Moreover, the cluster increases firms’ productivity by immersion within a culture of innovation and entrepreneurship where new ideas are readily transmitted from institutions and shared within the cluster’s community. By locating itself in a cluster, a business has strategically improved its ability to become, and remain, competitive in its specific industry.

Due to the fact that clustering benefits companies’ productivity, and thus competitiveness, high-technology firms often base the location of their operations on this factor. This leads Porter to emphasize that low wages and other “visible” incentives that have traditionally motivated businesses during site selection are often outweighed by the savings generated by the advantages created by clustering. The Greater Boston area’s biotechnology cluster provides a commonly cited example. Despite the fact that the region has high labor, energy and location costs, as well as heavy traffic and high tax rates, biotech firms consider the Greater Boston region as a key location for locating their operations. This relates to advantages a business can gain in finding well-trained labor, obtaining venture capital funding easily, benefiting from a highly entrepreneurial climate and securing state-of-the-art innovations and business practices.

To develop these beneficial industry agglomerations, Porter stresses that governments should work to build on “existing or emerging” clusters that have already begun to demonstrate progress.¹¹ Because high-tech industries continue to concentrate employment within the central and fringe counties of large metropolitan areas, there are many opportunities to develop burgeoning clusters in post-industrial cities.¹² While it is imperative that a regional or State initiative to encourage high-tech industry is not based on “unrealistic imitation,” the development of successful regional clusters should greatly influence strategic economic development policy.¹³

Despite the advantages of clustering, high-technology industries often share similar requirements with more traditional industries when selecting a site for the location of their business. Irrespective of the firm’s industry, factors such as energy costs, taxes, regulations, etc. invariably retain a role in its decision-making process. At the same time, high-technology companies often have to be concerned with numerous other factors that affect their ability to be competitive. As noted above, the needs of high-tech companies are not always visible and may even be ancillary to their business interests. To this end, high-tech firms might emphasize the need for a high quality-of-life and cultural attractions for their employees. Conversely, other industries express concerns about working in a region that does not protect them from burdensome liability or a public that is mistrusting or opposed to the type of research that they are conducting.¹⁴ Finally, the nature of government's role in the economy is important. One example of this is that many biotech companies have claimed that the high-regulatory climate in Europe (i.e., drug price controls and stringent regulation of genetically-modified food) has motivated their relocation to America.¹⁵

¹⁰ Porter, Michael. “Clusters and the new economics of competition”. *Harvard Business Review*, Nov-Dec 1998: 80.

¹¹ *Ibid.*

¹² “Older Central Counties in the New Economy.” U.S. Economic Development Administration, 2001: 2.

¹³ “Strategic Planning in the Technology-Driven World Innovation Report” U.S. Economic Development Administration, 2001: 5.

¹⁴ “A Pharm State.” New York State Business Council/Public Policy Institute, December 2002 and the New York Biotech Association.

¹⁵ “The trouble with cheap drugs”. *The Economist*, Jan 31, 2004: 59-60.



In its review on the high-tech economy, the Milken Institute created the State Technology and Science Index in order to compare the 50 states based upon measures of research and development, risk/entrepreneurial atmosphere, human capital, tech/science workforce and technology concentration. From these measures the Milken Institute ranked all 50 states and evaluated the strengths and weaknesses of each regarding its business climate for high-technology development. According to the Institute, New York State ranks 12th in the nation overall. While promising, the top ranked state (Massachusetts) scores 33 percent better than New York. Unambiguously, this reinforces the *NextGen* Task Force's mission. The Milken Institute also presents a strong positive correlation between a state's score on the Technology and Science Index and the variations of different states' incomes.¹⁶ Simply stated, those states performing well on the Index were very likely to have relatively higher-income employment than their contemporaries. The Institute asserts that this adds to the evidence supporting those states that have emphasized development in the high-technology sectors.

E. High-Technology and Biotechnology in New York

High-technology businesses make up a very important component of the New York economy. According to the *Cyberstates 2003* report by the American Electronics Association (AEA) on the high-technology industries (excluding life sciences), New York ranks 3rd nationally in high-tech firms and employment, with 20,400 establishments employing 329,749 workers.¹⁷ In addition, New York ranked high, in terms of employment, in several key sectors of the high-tech industries: 1st in photonics manufacturing; 2nd in defense electronics manufacturing; 3rd in Internet services and 4th in computer systems design. In 2002, the average wage for New York State high-tech workers was \$67,640. This is 42% greater than the average New York private sector worker. Despite New York's success growing high-tech industries, it is imperative for the State to continue to develop more high-value added job opportunities. While the State's total high-tech employment grew substantially during the late 1990s, such employment, venture capital investment and high-tech exports declined in 2002 and 2003. Given prevailing national and international economic conditions, the aforementioned factors demonstrate the job-creating potential of New York State's emerging industry sectors, while evidencing the need for continued investment to strengthen this foundation.

New York's life sciences industries can substantially buttress the State's level of manufacturing employment. While New York's broad manufacturing employment declined by 41% during the last 25 years, employment by life sciences companies has actually grown by 22%.¹⁸ Moreover, biotech and pharmaceutical companies create high-paying and high-value jobs in the State. For example, the State's 26,300 pharmaceutical jobs pay approximately 16% more than the average manufacturing job. Although New York's pharmaceutical employment is small in absolute terms (it only represents a small portion of the State's total workforce), New York has a disproportionately larger share of national pharmaceutical manufacturing than it does of total manufacturing, 8.2% to 4.5%.¹⁹

¹⁶ Devol, Ross. "Institute Review". The Milken Institute Review. Fourth Quarter, 2002: 91-2. According to the report, approximately 75 percent of a state's income can be explained by the Technology and Science and Index.

¹⁷ "Cyberstates 2003: A State-by-State Overview of the High-Technology Industry"; American Electronics Association (AeAnet.org)

¹⁸ "A Pharm State." New York State Business Council/Public Policy Institute, December 2002.

¹⁹ *Ibid*



Another important benefit of the life sciences sector is the large multiplier effect that its employment has on the New York State economy. The New York State Business Council reports that one pharmaceutical job helps support 2.71 other jobs, compared to 2.03 for the average manufacturing job. This means that an additional 71,000 jobs exist in New York State as a result of the pharmaceutical industry. In sum, employment due to the pharmaceutical industry generates \$1 billion in State and local tax revenues. Clearly, this potential for growth demonstrates states' collective interest in the development of pharmaceutical and the broader life sciences industries. In addition to New York's pharmaceutical industry, there are 101 biotech companies in the State, which employ over 6,000 people. The New York Biotech Association (NYBA) reports that this reflects growth of 13% and 17%, respectively, over the last two years.²⁰

The United States marked increase in life science economic activity during the last decade provides an encouraging trend for the industry sector. Ten years ago, Europe and America spent approximately the same yearly amount (\$10 billion) on drug research and development (R&D). At present, however, the U.S. has increased its spending to approximately \$30 billion per year, with Europe trailing at \$20 billion annually.²¹ Further, the United States has surpassed Europe in relation to results: between 1993-97, Europe announced 81 new molecular entities (NMEs)--the building block of drugs--while America had only 48. Between 1998 and 2002, this trend had reversed--with America launching 85 new NMEs to Europe's 44. Finally, between 1991 and 2001 the U.S. has created 42% more high-value pharmaceutical jobs than Europe.

Although the high-technology and biotechnology sectors share many similarities with more traditional industries, public policies that successfully effect future growth in these dynamic areas must recognize their unique business model. Traditional firms move inventions and new ideas to market quickly. Unfortunately, high-tech industries often require years of research and development to ascertain the profitability of new products. No where is this illustrated more than in the pharmaceutical industry. According to a study conducted by Tufts, the cost of bringing one drug successfully to market is \$802 million.²² As a result, tax incentives and credits targeted towards high-tech/biotech businesses must recognize that these firms often experience net operating losses for longer periods of time and require five to ten years to achieve rapid job creation.

According to NYBA, other factors identified by its member companies as key issues for life sciences manufacturing are the availability of land to build facilities, such as wet-lab space, and a large pool of skilled labor. While these factors are essential for both the research-oriented "hascent" firms and "mature" or manufacturing companies, the former have specific demands for close proximity to universities and research institutions.²³ Conversely, the latter tend to be driven by the need to achieve lower costs and behave similar to traditional manufacturing companies. NYBA contends that the relative abundance of these factors in Upstate New York create potential for the region to become an ideal location for developing manufacturing operations for biotech and pharmaceutical companies.

²⁰ Karin Dunker, *NextGen Task Force Long Island Public Forum*, January 22, 2004.

²¹ *The Economist*, Jan 31, 2004: 59.

²² Tufts University Center for the Study of Drug Development, November, 2001.

²³ Milken Institute, "Biotechnology and Bioscience" *The Milken Institute Review*. First Quarter 2000: 87-8.



In its report on medical manufacturing in the Upstate Region, the Federal Reserve Bank of New York echoes this belief.²⁴ This article identifies medical manufacturing as “one of the few U.S. manufacturing industries adding workers.” The industry consists of the pharmaceutical industry, medical equipment and supplies and some biotechnology firms. According to the Fed, Upstate New York has considerable levels of employment in medical manufacturing in the regions surrounding Buffalo, Rochester, Syracuse, Utica, Glens Falls and Albany. Although the industry is relatively small in relation to the entire manufacturing sector, the workers employed by these types of companies are generally better compensated than those in the larger manufacturing classification. The Federal Reserve Bank of New York concludes that the presence of a mature medical manufacturing industry in Upstate New York is an encouraging sign that the region can structurally adjust from its traditional manufacturing base towards high-growth, technology-intensive industries.

III. NextGen Task Force Public Hearings

Through its various regional strengths and unparalleled resources, New York State possesses the necessary foundation to become a 21st century global economic leader in high technology and biotechnology industries. To this end, New York is endowed with a remarkable concentration of world-class academic research institutions producing groundbreaking discoveries at the leading edge of science's new frontier. These advancements provide the innovative technologies that will create significant economic growth and produce life-changing scientific breakthroughs.

In the Buffalo-Niagara region, first-class research institutions, such as the State University of New York at Buffalo, Roswell Park Cancer Institute, Hauptman-Woodward Medical Research Institute and the new Buffalo Center of Excellence in Bioinformatics, form the foundation of a burgeoning medical device industry and bioinformatics cluster. While residing beyond the scope of the Task Force's express mission, Buffalo-Niagara possesses tremendous growth potential offered by its developed financial services sector and ability to capitalize on the economic benefits of international trade. These assets compliment the region's rising life sciences corridor and emerging information technology industry.

Bolstered by the pioneering research conducted at the University of Rochester and Rochester Institute of Technology, and the presence of industry giants such as Corning, Inc., Eastman Kodak Company and Xerox Corporation, Rochester's strength in optics and photonics is unparalleled anywhere in the world.

New York State's Capital Region has become the East Coast epicenter of the nanotechnology industry. The explosion of nanotechnology at the State University of New York at Albany campus, including the Center of Excellence in Nanoelectronics, has already proven its value by attracting International Sematech, a leading global consortium of semiconductor manufacturers. Moreover, the Capital District has developed a significant biotechnology

²⁴ “Vitality in Upstate Medical Manufacturing” Federal Reserve Bank of New York. *The Regional Economy of New York*: Fall 2002.



presence, anchored by the Gen*NY*sis Center for Excellence in Cancer Genomics at the University at Albany's East Campus and the Rensselaer Technology Park located at Rensselaer Polytechnic Institute.

Long Island has emerged as the core of New York's biotechnology industry, with the discoveries made by talented scientists at world-class research institutions such as Cold Spring Harbor Laboratory, Brookhaven National Laboratory and SUNY Stony Brook paving the way for the formation of new companies and the development of revolutionary new products with far-reaching implications for the treatment of various diseases. Groundbreaking public/private partnerships like the Broadhollow Bioscience Park collaboration between OSI Pharmaceuticals and SUNY Farmingdale have played a vital role in the growth New York State's biotechnology industry. Anchored by Computer Associates, Long Island also hosts a thriving software development/manufacturing sector that, when coupled with systems integrations and defense technologies, provide a formidable foundation for economic growth.

Rockland, Orange and Westchester Counties, along with the rest of the Hudson Valley, also possess a robust pharmaceutical and emerging biotechnology sector. This is a foundation that includes Wyeth Labs, Regeneron, Acordia Therapeutics, the New York Medical College/Landmark at Eastview collaboration and the proposed New York Presbyterian Hospital research Center in White Plains.

Biomedical science research and industry has flourished in New York City, which is the home of numerous academic centers of excellence including Columbia University, Cornell University Medical College, Memorial Sloan Kettering Cancer Center, the Albert Einstein College of Medicine and SUNY Downstate Medical Center. When coupled with its inherent strength as the financial and media capital of the world, this academic prowess establishes New York City as the logical center of the State's emerging regional biotechnology cluster. In addition, information technology is, and should remain, a cornerstone of New York City's economic base and prospective development strategy.

The Westchester to Suffolk corridor unquestionably possesses the human resources, research capacity, capital formation and media accessibility to successfully compete with major biotechnology centers such as Boston and San Diego.

Over the last four years, New York State has invested \$1 billion in university-based research and infrastructure, which in turn has leveraged billions of dollars in private funding. Through J2K, Gen*NY*sis and Centers of Excellence programs, the Empire State has clearly embraced the paradigm of the university as an engine for economic development. By nurturing the collaborative relationship between academia and industry, the State has helped facilitate burgeoning regional industry clusters. In turn, these clusters are beginning to capitalize on regional advantages and achieve unique competitive success in their respective emerging technology fields. As a result, New York State currently exerts strength in software, information technology, biotechnology, bioinformatics, nanotechnology, optics, photonics, fuel cell technology and advanced materials.



While this unprecedented state commitment has been hailed as visionary by emerging industry leaders, the testimony offered at the *NextGen* public hearings made it strikingly clear that State public policy-makers must build upon this commitment and assist businesses in the transformation of cutting-edge research into new products and high-paying, high value-added jobs. Although New York State is poised to become a national and global leader in high-technology and biotechnology, the competition is intense. Concerning biotechnology, one presenter referenced a recent Brookings Institute economic development survey indicating that 83% of the 113 state and local economic agencies surveyed nationwide listed biotechnology as either their first or second target industry and 41 states have prioritized investment in biotechnology programs. Additionally, several states are launching major campaigns aimed solely at luring start-up biotech companies from other states.²⁵

Therefore, it is imperative that critical needs be addressed, and a long-term strategy be implemented, for New York to remain competitive and fully capitalize on the momentum presently created to enter into the “next generation” of high-tech economic development.

A. Critical Needs

Various key obstacles were repeatedly cited as considerable barriers to the growth of the emerging industries in New York State. Specifically, these are: (1) a dearth of venture and “angel” investment capital for early-stage and expansion-stage companies; (2) the lack of a “phase II” technological infrastructure, including available and affordable laboratory space and state-of-the-art broadband connectivity; (3) the absence of a streamlined, user-friendly and comprehensive mechanism to efficiently catalogue governmental programs and business resources and nationally market New York State’s high-tech proficiency; (4) the need for new academic curricula and workforce training programs; (5) the need for better targeted business development and tax incentives to attract and retain high-technology and biotechnology firms and (6) the need to maximize the local economic benefit of the academic intellectual property of New York’s universities and research institutions through the process of commercialization.

B. Venture Capital

Universally, access to (or the lack thereof) venture capital was identified as the principal hindrance shackling New York State’s high-technology and biotechnology economies. In the words of one prominent New York venture capitalist, “the scale of the venture problem cannot be exaggerated.”²⁶

Venture capitalists provide critical operating funds to cash-starved fledgling and expansion-stage companies. Significantly, venture capital funds human resources (including key managers and management teams), equipment and miscellaneous research expenses. The long-term product development cycles for high-tech and biotech companies demand substantial, early-stage, expenditures of capital. Without sufficient venture capital investment, it is impossible

²⁵ Doug Merrill, *NextGen* Task Force Rochester Public Forum, January 28, 2004.

²⁶ George McNamee, *NextGen* Task Force Albany Public Forum, January 13, 2004.



for companies to take the intellectual products of research and development from the laboratory to the marketplace--a situation costing New York State valuable opportunities for economic growth and job creation.

Although New York scored relatively well in a recent measure of available venture capital funding (12th out of 50 states), another study indicated that the Empire State lagged much of the nation in the creation of ‘gazelle jobs’ (the level of employment in companies that have experienced a 20% growth in annual sales in each of the last four years). This is very significant as it indicates a relative scarcity of businesses in New York State experiencing rapid growth. This measurement seems to reinforce the notion expressed throughout the hearings that available venture capital funding and other types of financing are not being adequately supplied to all sectors and all regions of New York’s economy.

Numerous contributing factors have been cited to explain this problem. Although investing in unproven technologies and companies is an inherently risky proposition, continued government support for the emerging industries sends a positive signal to potential investors, as evidenced by nanotech financier Josh Wolfe’s comment regarding passage of the \$3.7 billion federal Nanotechnology Act: ‘It’s critical for state and local government to show similar support for this emerging industry for investors like us. we think it’s important for us to be able to follow [up on] state and local government’s seeding and help harvest.’²⁷

For areas like Upstate New York, however, the venture capital problem is more acute. Specifically, a severe shortage of such investment exists. Christopher O'Donnell, Managing Partner for the Trillium Group, a Rochester-based venture capital firm, suggests that ‘the single largest challenge we face in supporting growing businesses is the lack of venture capital in Upstate New York. Results of the PriceWaterhouseCoopers Venture Capital Investment Survey show that Upstate New York accounted for 0.7% of the nation’s total venture investment in 2002. Upstate New York repeatedly shows up at the bottom of the annual survey, year after year.’²⁸ The resulting negative impact on the Upstate economy is equally disturbing. According to O’Donnell:

[O]ne of the more frustrating experiences we face is well-funded, out-of-state venture capital firms pledging financing to an emerging New York State company if they relocate out of the state in close proximity to their operation. This is a frequent occurrence and Upstate venture capital firms cannot prevent the move because they lack the capital base to support the business’s needs.²⁹

At the expense of the Upstate economy, other states clearly benefit from this unfriendly investment climate. While many promising Upstate firms exist, this void must be addressed to ensure their long-term viability and capture their potential for job creation and economic growth.

²⁷ Josh Wolfe, *NextGen* Task Force New York City Public Forum, January 29, 2004.

²⁸ Christopher O'Donnell, *NextGen* Task Force Rochester Public Forum, January 28, 2004.

²⁹ *Ibid.*



Conversely, the venture capital community in the Greater New York City Metropolitan area is robust. However, a different problem seems to be yielding similar results for Downstate high-technology and biotechnology firms. Despite their proximity to the world's financial and investment capital, Downstate companies have also experienced difficulties in the attraction of venture capital. This may be due to a prevailing culture, or viewpoint, within New York venture firms.

In comparing the Greater New York venture capital environment with those of other biotechnology centers such as San Diego and Seattle, Bruce Stillman, President and CEO of Cold Spring Harbor Laboratory, says that in those regions, "venture capital companies have played a very, very significant role in keeping the technologies there. They want them in their own backyard. However, New York venture capital firms really see the world as their oyster, rather than the local area."³⁰ Confirming this evaluation, David Hochman, of the Battelle Memorial Institute, said that "[o]ne of the problems with the New York venture community, as rich and powerful as it is, is that it's always looking for the best deal globally."³¹

Nevertheless, testimony at the Task Force's public forums repeatedly suggested that legitimate success stories arising from New York's emerging industry sectors would dramatically alter the venture capital landscape in this State. Simply stated, past success drives investment. For one New York City-based venture capitalist, this means shifting more State attention towards expansion-stage companies, or "focus[ing] our resources on companies that can really be successful companies that can finish the job."³²

As an interrelated issue, New York State academic institutions and companies are leveraging a disproportionately lower share, as compared with their counterparts in other states, of the billions of dollars in available funding from the National Institutes for Health (NIH) and affiliated programs such as the NIH Small Business Innovation Research Program (SBIR). This is significant because the federal government is the largest existing provider of capital for the emerging industries. Richard Saburro, President and CEO of Starfire Systems, Inc., an advanced ceramics materials company located in Malta, NY, described the dilemma as follows:

California wins five times as much funding per year through SBIR as compared to New York. And our neighbor, Massachusetts, with half the population, claims almost four times as much SBIR funding as New York.³³

In their efforts to attract New York State high-technology and biotechnology companies, these states employ this aggressive leveraging of federal funding as a principal marketing tool. Saburro shared his own experience in this regard with the Task Force:

³⁰ Bruce Stillman, *NextGen* Task Force Long Island Public Forum, January 22, 2004.

³¹ David Hochman, *NextGen* Task Force New York City Public Forum, January 29, 2004.

³² Dennis Purcell, *NextGen* Task Force New York City Public Forum, January 29, 2004.

³³ Richard Saburro, *NextGen* Task Force Albany Public Forum, January 13, 2004.



We have been approached by other states with incentives to move, through inducements like assistance in accessing more federal funds. And I'm talking about substantial federal funds. It's important that New York State also has a program to leverage the federal funds that are available.³⁴

Whether it is providing incentives for private venture capital investment, or creating other mechanisms aimed at leveraging available federal funds, the testimony presented at the *NextGen* public forums consistently reinforced the need to make New York high-technology and biotechnology companies a more attractive investment, or we will continue to risk the outward migration of our most promising businesses.

C. Technological Infrastructure

According to Kathy Wylde, President and CEO of the Partnership for New York City, the lack of available laboratory space is "the single biggest reason" why New York City is losing start-up biotechnology companies to other states.³⁵ Ron Cohen, Chairman of the New York Biotechnology Association, added, "the key reason people take their companies out of New York is the lack of affordable, appropriate laboratory space beyond the incubator level."³⁶ This sentiment was consistently echoed during each regional forum. While access to research space is a necessity required across the various emerging industries, it is of distinct importance within the burgeoning biotechnology corridor extending from the Lower Hudson Valley, through New York City, and onto Long Island. In New York City alone, it is estimated that one million square feet of new laboratory space is required in order to establish a "critical mass" of activity in the five boroughs.³⁷

As a region, this area possesses the components that can make New York a dominant, global force in biotechnology: excellent academic research institutions, a talented and well-educated workforce, the presence of the pharmaceutical industry, proximity to Wall Street and major media outlets and an existing number of post-incubator, or growth-stage, biotech companies. These "mezzanine" level companies that are prepared to expand, yet lack the clinical facilities needed for continued product development, are most acutely affected by the crucial deficiency in laboratory space. New construction and build-out costs for wet lab space are prohibitive for early and expansion-stage companies. Compounding the problem is the fact that private developers are reluctant to engage in such investments--particularly given the instability of these nascent firms. While the recent proliferation of these growth-stage companies confirms the prudence of prior state support for incubator initiatives, it must be recognized that the long-term, non-traditional product development cycles of biotech companies require special attention. As such, New York State must now center its focus on companies at the mezzanine stage of growth. Colin Goddard, President and CEO of OSI Pharmaceuticals, Inc., expressed this idea to the Task Force by saying,

³⁴ *Ibid.*

³⁵ Kathy Wylde, *NextGen* Task Force New York City Public Forum, January 29, 2004.

³⁶ Ron Cohen, *NextGen* Task Force New York City Public Forum, January 29, 2004.

³⁷ Kathy Wylde, *NextGen* Task Force New York City Public Forum, January 29, 2004.

I know you recognize the unique challenges of supporting a high-tech, high capital needs industry like biotech, particularly in the field of human therapeutics where the product research and development cycle typically takes 10-12 years to play out and can cost hundreds of millions of dollars. We've done a good job on incubators but the key challenge is creating an environment that helps shepherd these entrepreneurial small companies through their long-term development and growth phases. Ultimately, winning and keeping the mezzanine stage companies here in New York will impart the biggest overall impact on the sector's eventual success[.]³⁸

The magnitude of this problem cannot be overstated. As an illustration, Cold Spring Harbor Laboratory, a world-class biomedical research facility located on Long Island, has successfully developed 18 biotechnology spin-offs (including OSI Pharmaceuticals) in recent years, but only four remain in New York. Furthermore, of the 24 past spin-offs from Columbia University's successful Audubon biotechnology incubator in New York City, six have moved to New Jersey, five have relocated to other states and only five have remained in New York.

Clearly, New York's efforts to support incubators will be ineffectual if mezzanine level companies do not have access to the wet laboratory space they need upon entering the post-incubator growth phase. This is one of the predominant reasons why New York has thus far been unable to keep the vast majority of companies, and jobs, that have been spun-off from our universities and research institutions.

Another challenge facing New York biotech companies in terms of infrastructure for product development and commercialization is the lack of in-state biomanufacturing capacity. In fact, there are currently no contract biomanufacturing facilities in New York State. Consequently, New York biotech companies must either outsource their clinical material production (at great expense) to out-of-state manufacturers or license their product at the pre-clinical stage. Maurice Zauderer, President and CEO of Vaccinex, Inc., a Rochester-based biotech company, points out that this happens 'long before the product's potential economic value can be realized. In too many instances, premature sale or licensing of New York technology represents a lost opportunity for economic development.'³⁹

At present, states such as Rhode Island are capitalizing on the significant economic opportunities available in this growth industry. The provision of state incentives for facility development, the existence of a large workforce suited to manufacturing and a network of academic institutions providing biotechnology-based curricula have been cited as the most significant factors contributing to Rhode Island's success in this area. When coupled with its aforementioned academic strength, Upstate New York's abundance of affordable real estate and existing manufacturing capacity--both in infrastructure and human resources--suggest that biomanufacturing may provide a tremendous opportunity for the Upstate economy.

³⁸ Colin Goddard, *NextGen Task Force Long Island Public Forum*, January 22, 2004.

³⁹ Maurice Zauderer, *NextGen Task Force Rochester Public Forum*, January 28, 2004.



Issues pertaining to infrastructure not limited to ‘bricks and mortar,’ but apply to information technology as well. Indeed, a consistently articulated theme at the hearings was the need for greater broadband capacity and interconnectivity. While New York State has been successful in expanding broadband technology, there remain many limitations to broadband access in various regions in the State. As Clarkson University President Anthony Collins noted, ‘there is no reason that Clarkson cannot be a partner with anyone regionally, across the state, across the country, around the world, if we have support to get to the Internet.’⁴⁰ In addition, the lack of broadband access can seriously threaten a business’s ability to remain competitive in today’s economy.

The creation of advanced high-speed networks--with the ability to transmit enormous amounts of information and, ultimately, link all of New York State’s research institutions--will help foster the collaborative model among institutions producing even greater scientific innovation. It would also provide New York businesses with the means to better compete in the rapidly-changing global marketplace. By escaping the bounds of geography, New York can further maximize its immense academic and entrepreneurial resources.

D. Regional Ombudsman/Collaboration/Marketing

The need for a streamlined, user-friendly and comprehensive mechanism of accessing relevant federal, State and local information also emerged as a universal priority. By enabling firms to capitalize on available programs and facilitating both contact and collaboration with local entities, this single regional ‘port-of-call’ would promote interaction between the public sector, related firms, professional service providers, academic/research institutions, regional business groups, etc. Moreover, such an organization should be capable of coordinating NYSERDA, ESDC, NYSTAR, CAT, Centers of Excellence, NYS Comptroller, local IDA and other available incentives and proceed in a proactive, ‘industry advocate’ capacity. This concept has been recognized as a much-needed organizational change to provide information and support to both (1) high-tech and biotech researchers, entrepreneurs, and prospective employees in the State and (2) those out-of-state parties considering relocation.

Colin Goddard said, ‘If you look around for information on what programs, what initiatives and support structures and so forth exist within the State, quite frankly, other states do a much better job. There is a single point of reference. You’re inundated with a very clear package of what’s available to help with that relocation and so forth.’⁴¹ Ron Cohen also spoke to this idea in referencing the State of Maryland’s success with such an initiative for biotechnology. ‘They almost attracted me to come down there with a company. We have a lot more advantages as a state than Maryland has. If we could take a page from their book and improve it. I think that would go a long way to creating a vibrant industry here.’⁴²

⁴⁰ Anthony Collins, *NextGen* Task Force Albany Public Forum, January 13, 2004.

⁴¹ Colin Goddard, *NextGen* Task Force Long Island Public Forum, January 22, 2004.

⁴² Ron Cohen, *NextGen* Task Force New York City Public Forum, January 29, 2004.



A fundamental component of this concept is the need for renewed collaborative marketing efforts to publicize New York State, both in-state and nationally, as a high technology and biotechnology center. This was repeatedly cited, by academia and industry executives alike, as an absolutely necessary, and cost-effective, means to supplement business retention and recruitment efforts. Additionally, the venture capital community noted that publicizing key developments in New York's emerging industries would be enormously helpful in facilitating an inward shift in the focus of New York venture capitalists; as previously noted, there is a sense that the New York venture capital community tends to view opportunities on a more global rather than local scale. It was also added that national marketing efforts would help to draw out-of-state venture capital into New York companies.

E. Workforce Development

Throughout the *NextGen* public forums, New York's wealth of academic firepower, along with its talented, well-educated and highly-skilled workforce, was consistently cited as one of its main strengths. Given the constantly evolving nature of the high-technology and biotechnology industries, however, continuous attention must be paid to ensuring that students and current workers alike are provided with the knowledge and training required to quickly adapt to changing ideas, technologies and manufacturing techniques. This is a critical need for all emerging industries at any stage of development.

One identified need in this area is for new, non-traditional curricula for emerging technologies at all stages of learning. At the K-8 level, this may involve a focus on building enthusiasm for science at the earliest ages. Regarding high schools, a more concentrated preparatory curriculum may bolster both interest and achievement in college-level science and engineering programs and other involved areas of study. Also, various academic participants referenced the need for targeted interdisciplinary programs at New York State's colleges and universities to provide prospective high-technology and biotechnology employees with the necessary educational foundation. This includes the need for academic/industry partnership programs to provide internship and cooperative opportunities which allow students to obtain hands-on, real-world experience in a variety of careers related to the emerging industries.

Addressing workforce development as a mechanism for retaining New York graduates, David Hochman said, 'Currently, we are not as aggressive as other regions in combating talent drain through internship and co-op opportunities and the involvement of business, engineering and law students in practical projects with technology start-ups or university tech transfer offices.'⁴³

Additionally, it has been suggested that the State might consider a high-technology/biotechnology workforce training program through its high schools and BOCES centers, with more advanced programs based in New York's community colleges. In particular, this would add tremendous value for high-tech and biotech manufacturing firms that employ specialized technicians.

⁴³ David Hochman, *NextGen* Task Force New York City Public Forum, January 29, 2004.

It was also indicated during the public forums that existing state-supported workforce training programs be reevaluated in order to ensure that they are able to provide employees with the requisite skills to meet the demands of today's emerging industry needs. Traditional programs are not suited to the needs of high-tech industry, where it often takes three to five years of intensive training for an individual to become proficient in a particular skill set. The urgency of this need was best expressed by Frank Falatyn, President and CEO of Fala Technologies, a Kingston-based designer and manufacturer of precision machine tools for high-tech research and development centers and companies, including International Sematech in Albany. Regarding his dire need for skilled workers, Falatyn said

I cannot find skilled workers for my manufacturing company, and that sounds strange because, in my area of the Hudson Valley in the last year, four major manufacturing companies either went out of business or downsized. Each of those companies laid off hundreds of workers. Out of those hundreds of workers, my company could hire one person, just one person. So I need help with a bridge, or some type of way that I can hire these skilled people but train them in our industry, but there is no bridge right now that does that. I have people working in my company who are 70, 75 years old. I have a skilled workforce now but it's taken 60 years to put this team together.⁴⁴

Without an adequately prepared workforce ready to assume employment in the emerging industries, companies will be forced to look elsewhere in order to remain viable. Clearly, workforce training will need to be a priority if New York State is to be 'ahead of the curve.'

F. Tax Incentives

In recent years, many states have enacted aggressive tax policies encouraging the relocation of early-stage high-technology and life sciences firms. As a result, New York's emerging industries must operate under a competitive disadvantage hindering both their long-term viability and contribution to the State's economic growth.

Specifically, hearing participants reiterated the need for research and development tax credits and measures designed to encourage private investment and mitigate prohibitive property expenses. Because of the tremendous financial investment required during a biotechnology company's formative stages and the attenuated FDA approval/commercialization process, the refundability of any such tax credits would provide qualifying firms with an additional--and timely--source of capital.

During the Task Force's New York City, Lower Hudson Valley and Long Island public forums, the high cost associated with biotech-useable workspace across the Greater New York Metropolitan Area was a recurrent theme. To this end, participants noted that the region's property costs equal or exceed those in more established biotechnology centers (i.e., Boston, San Francisco, San Diego). As suggested at these hearings, however, the availability of various tax

⁴⁴ Frank Falatyn, *NextGen Task Force Hudson Valley Public Forum*, February 4, 2004.



incentives may be utilized to offset this comparative disadvantage, thereby developing the requisite critical mass necessary to supersede this locational consideration.

In the aggregate, the public hearings supported the conclusion that an appropriate package of tax incentives would create a more competitive operating environment building upon New York State's inherent strengths, while moderating those enjoyed by other states.

G. Academic Intellectual Property

Although New York State remains a national leader in the generation of university-based patents and intellectual property, institutions such as MIT and Stanford University, among others, substantially outpace their New York counterparts in the commercialization of science and technology. It was revealed during the hearing process that New York universities demand relatively stringent intellectual property agreements that vastly diminish the commercial benefit to researchers and their private collaborators, and ultimately, the local economy.

During the course of information gathering, the Task Force learned of one particularly disturbing situation wherein one SUNY center licensed technology developed in concert with an Upstate technology company to that firm's leading--and out-of-state--competitor. On the contrary, MIT facilitates such collaborations through more liberal intellectual property policies, particularly with local firms. This establishes a mutually beneficial, symbiotic relationship that encourages innovation and economic growth. George McNamee, Chairman of First Albany Ventures, an Albany-based venture capital firm, pointed to MIT as a model to be emulated. McNamee said, "They allow the [intellectual property] to leave so long as it's going into a neighborhood start-up. I think we need to rethink our licensing practices. And I think that a best practices study of what MIT does and what Stanford does might be useful."⁴⁵

IV. Task Force Recommendations

A. Capsule

To encourage the continued growth of New York State's high-technology and biotechnology industries and facilitate job creation, the *NextGen* Task Force recommends the enactment of a three-part, ten-year plan. Building upon the historic capital investments achieved through the 'Gen*NY*sis' and 'Centers of Excellence' programs, this initiative includes: (1) the creation of a more competitive tax environment, (2) a restructuring of the State's economic development activities and targeted investments and (3) programmatic measures designed to capitalize on the potential of New York's emerging industries.

Regarding the various emerging industries, the *NextGen* Task Force believes that New York State should continue advancing the development of regional strengths (nanotechnology in Albany, photonics/imaging in Rochester, software on Long Island, information technology in New York City, biotechnology in the Westchester to Suffolk corridor, *infra*, etc.) This regional model

⁴⁵ George McNamee, *NextGen* Task Force Albany Public Forum, January 13, 2004.



appears to provide the most substantial opportunity for New York State's growth in these high value-added sectors. To this end, some combination of the targeted incentives/initiatives cited below will further enhance the viability of these industries within New York State.

Pursuant to the information received at the public hearings, the Task Force has concluded that the biotechnology industry offers a broader regional model--containing the Landmark at Eastview (Westchester County), the pharmaceutical industry (Rockland County), New York City's research institutions, Cold Spring Harbor/Broadhollow Bioscience Park (Nassau County) and SUNY Stony Brook (Suffolk County). Without question, the Westchester to Suffolk corridor possesses the human resources, research capacity, capital formation and media accessibility to successfully compete with existing biotechnology centers (including Boston, San Diego, San Francisco and, prospectively, Fort Lauderdale).

Thereafter, a 'hub and spoke' pattern should be empowered through which biomanufacturing and related development will flow to other regions across the State (i.e., across the New York State Thruway). To the greatest extent possible, this will facilitate job creation and promote sustainable growth within the State's other regional biotechnology economies (specifically, the Greater Niagara region and Central New York). By providing the necessary investment inducements, the incentives contained herein would enable this 'hub and spoke' Statewide approach.

As a result, New York State will attract, retain and grow high-technology and biotechnology companies, while demonstrating its sustained commitment to the future of these high-wage, high value-added sectors.

B. Tax Initiatives

1. Research and Development Tax Credit

The *NextGen* Task Force recommends an increase in the existing research and development tax credit from 9% to 40%. To become eligible for this credit, high-technology and biotechnology companies must have \$70 million, or less, in gross revenues, maintain a minimum research and development cost to sales ratio of 6% and employ fewer than 225 persons (75% of whom must be employed within New York State). The credit would be fully refundable and incorporate expenses including, but not limited to, research, development, commercialization, marketing and professional services.

Through its statutory definition of research and development costs, the credit would reimburse eligible New York high-technology and biotechnology companies for workforce training (and retraining) courses/programs conducted through two-year and four-year colleges and universities.

2. Emerging Industries Capital Companies Program (E-CapCo)



The *NextGen* Task Force recommends the establishment of an “emerging industries capital companies” program (E-CapCo) modeled after the highly-successful CapCo initiative created through “Jobs 2000” (J2K). At present, CapCo provides a dollar-for-dollar tax credit to life insurance companies that provide resources to certified venture capital companies (or “CapCos”) that fund early-stage, high-technology firms. Certified by the State Insurance Department, these CapCos have channeled approximately \$250 million into New York’s high-technology industry.

The new, E-CapCo program would offer a similar dollar-for-dollar tax credit encouraging large technology and pharmaceutical corporations doing business in New York to fund certified emerging industries venture capital companies. These E-CapCos would invest in high-technology and biotechnology companies with \$70 million, or less, in gross revenues.

3. Expansion of the “Pipeline for Jobs” Program

Through the New York State Environmental Facilities Corporation (EFC), the “Pipeline for Jobs” program provides interest-free financing to municipalities and developers for the installation of water-delivery and sewer infrastructure. The *NextGen* Task Force recommends the expansion of the “Pipeline for Jobs” program to include tenant-specific research and development facilities (such build-outs would include wet laboratory facilities and other associated costs). Further, this expanded financing would be available to private industry, developers and tax exempt institutions (e.g., hospitals and colleges/universities).

As a result, the expanded “Pipeline for Jobs” program will encourage the construction of wet laboratory space through this interest rate subsidy and lower the lease cost of tenant high-technology and biotechnology firms by mitigating the developers’ construction expenses.

4. Flex Zones

The *NextGen* Task Force recommends a modification of the Empire Zone program whereby a municipality (county, city, etc.) may provide full Empire Zone tax benefits to any high-technology or biotechnology manufacturer locating a new production facility within that municipality--or relocating such an operation from outside New York State. The acreage necessary for the new high-technology or biotechnology manufacturer would be reduced from the municipality’s undesignated contiguous Empire Zone allocation, without impacting its total non-contiguous Empire Zone allocation. Should a municipality retain no unused Empire Zone acreage or have no Empire Zone, an eligible project would automatically receive Empire Zone benefits (through the Flex Zone initiative).

C. Restructuring of New York State’s Economic Development Activities and Targeted Investments

At present, New York State offers 28 discrete economic development programs--administering these initiatives through ten separate State government entities. Acknowledging the redundancies, inefficiencies and complexities of this delivery mechanism, the



NextGen Task Force proposes a consolidation of a substantial portion of the State's economic development bureaucracy under a new 501(c)(3) foundation.

Through this reorganization, the State will benefit from streamlining the current bureaucracy and redesignating underutilized economic development resources. In addition, this new 501(c)(3) organization should focus its efforts on providing (1) early-stage financing, (2) a single information portal regarding available federal, State, local and private-sector programs, (3) technical assistance and (4) collaborative marketing. In addition, the foundation should be charged with facilitating the growth of local networks and regional integrations and provide a proactive outreach/ombudsman service for both traditional and emerging industry companies.

In addition, this foundation should provide an appropriate framework to distribute matching State grants for successful SBIR/STTR Phase II applicants. At present, the federal Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) grant programs provide funding to promising, early-stage companies. Significantly, recipient companies have successfully demonstrated both their research and commercial strategies by obtaining SBIR/STTR Phase II grants. By providing matching State funds for successful Phase II applicants, the State can capitalize on this established vetting process, thereby mitigating risk, and investing in New York's most promising small companies.

Throughout the public hearing process, industry participants--universally--requested the creation of a single "port-of-call" to coordinate and purvey information regarding all available federal, State and local assistance. Concerning New York State programs, no source currently exists that provides comprehensive information regarding economic development-related programs offered by Empire State Development, New York State Energy Research Development Authority (NYSERDA), New York Power Authority (NYPA), NYSTAR, CATs, etc., thereby inhibiting the efficacy of these initiatives. In addition, such an entity would compile available private, not-for-profit and foundation materials and serve as a proactive interface/advocate for high-technology and biotechnology firms.

D. Programmatic Initiatives

1. Reciprocal Increment Financing Local Opt-In

Recognizing the importance of high-technology and biomanufacturing to the future of New York State, the *NextGen* Task Force recommends the creation of a program to encourage and facilitate necessary infrastructure investments. This initiative would expedite the siting of new industrial facilities and streamline the permitting and zoning processes for expanding and relocating companies. Further, the *NextGen* Task Force recommends the enactment of a new protocol that encourages private developers to invest in new water, sewer, fiber-optic and electricity-transmission infrastructure.

Similar to the present treatment of payments in lieu of taxes (PILOTs), this proposal would enable municipalities to follow a uniform State protocol whereby a developer expanding



such public goods could proportionately reduce its annual real property tax liability until the retirement of any debt instrument issued to finance this investment.

2. Broadband Interconnectivity

Given the necessity of broadband Internet access to research collaborations, the *NextGen* Task Force recommends the funding of broadband interconnectivity between each public and private college and university in the State. Such an initiative would provide the nation's first, fully connected broadband network integrating a State's institutions of higher education.

3. State Technology Law and Business Centers

The *NextGen* Task Force recommends the creation of one State Technology Law Center at a designated law school and one State Technology Business Center at a selected school of business and management within the State. Through the proposed foundation, *supra*, the law center would provide assistance regarding the protection of intellectual property and other legal considerations, while the business center would offer advice concerning financing, management and business strategy. Although New York State has supported a single Science and Technology Law Center, this program was eliminated and new funding is required.

D. Accelerator Centers

As a longer-term objective, the proposed 501(c)(3) foundation would partner with area research institutions, established companies, New York State and private investors to develop public-private commercialization ("accelerator") facilities. By establishing a cooperative arrangement amongst vested regional stakeholders, the foundation would further the development of such facilities to further promote the development of New York State's high-technology and biotechnology industries.

E. Academic Intellectual Property

Given the importance of intellectual property to any high-technology and biotechnology endeavor and the abundance of underutilized innovation at New York institutions, the *NextGen* Task Force recommends the creation of a panel to analyze the "best practices" employed by Stanford University, the Massachusetts Institute of Technology and other such centers recognized for their conducive intellectual property standards. This may include the establishment of new protocols liberalizing access to SUNY/CUNY-generated patents for regional firms and a State matching grant mechanism encouraging the reinvestment of university royalties.

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**New York State Senate “NextGen” Task Force
Capital District Public Forum
January 13, 2004**

Senator Joseph L. Bruno, Senate Majority Leader
Senator Dean G. Skelos, Chair, Task Force
Senator James S. Alesi
Senator John J. Bonacic
Senator John J. Flanagan
Senator Martin J. Golden
Senator Kenneth P. LaValle
Senator Raymond A. Meier
Senator Michael F. Nozzolio
Senator Mary Lou Rath
Senator Joseph E. Robach



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John Ciovacco
President & CEO, Cyclics Corp.

Richard M. Saburro
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**New York State Senate “NextGen” Task Force
Long Island Public Forum
January 22, 2004**

Senator Dean G. Skelos, Chair, Task Force
Senator Charles J. Fuschillo, Jr.
Senator Kenneth P. LaValle
Senator Carl Marcellino
Senator Raymond A. Meier



Richard V. Guardino
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Dr. Bruce Stillman
President & CEO, Cold Spring Harbor Laboratories

Dr. Colin Goddard
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Greg Blyskal
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Karin Duncker
Executive Director, New York Biotechnology Association

Ken Morrelly
President, Long Island Forum for Technology (LIFT)

Mitchell Pally
Vice President of Legislative & Economic Affairs, Long Island Association (LIA)

Dr. Doon Gibbs
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Lewis Knopf
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Bert E. Brodsky
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**New York State Senate ‘NextGen’ Task Force
Rochester Public Forum
January 28, 2004**

Senator Dean G. Skelos, Chair, Task Force
Senator James S. Alesi
Senator John R. Kuhl, Jr.
Senator George D. Maziarz
Senator Michael F. Nozzolio
Senator Joseph E. Robach



Maurice Zauderer, Ph.D.
President & CEO ,Vaccinex, Inc.

Christopher O'Donnell
Managing Partner, The Trillium Group

Mark Nance
Vice President, Corporate Development, Integrated Nano-Technologies, LLC

Howard Federoff, M.D., Ph.D.
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University of Rochester School of Medicine and Dentistry*

Richard Jarman
Director of Advanced Manufacturing Affairs and Technology Outreach, Eastman Kodak

Andy Ashworth
Vice President & Corporate Treasurer, Genencor International, Inc.

Doug Merrill, Ph.D.
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James Zavislan, PhD.
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Executive Director, Ontario County IDA*

Paul Wetenhall
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**New York State Senate ‘NextGen’ Task Force
New York City Public Forum
January 29, 2004**

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Senator Martin J. Golden



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President & CEO, Partnership for NYC

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Fernando Martinez
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New York State Senate ‘NextGen’ Task Force
Hudson Valley Public Forum
February 4, 2004

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Senator John J. Bonacic
Senator Thomas P. Morahan



Al Samuels
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New York State Senate *NextGen* Task Force Mission Statement

As established by Senate Majority Leader Joseph L. Bruno and chaired by Senate Deputy Majority Leader Dean G. Skelos, the New York State Senate *NextGen* Task Force will build upon the State's historic "Gen*NY*sis" and "Centers of Excellence" programs to facilitate the success of New York's high-technology and biotechnology industries.

Through "Gen*NY*sis" and the "Centers of Excellence" initiatives, New York State is enhancing the capacity of its leading research institutions. Moreover, these Statewide investments form the foundation for the burgeoning regional industry clusters necessary for 21st Century economic growth. By analyzing the business-development issues confronting the State's high-technology and biotechnology communities, the *NextGen* Task Force will address the microeconomic considerations that remain critical to the viability of individual firms.

Because involved professionals, entrepreneurs and industry executives are acutely aware of those challenges and impediments confronting their respective businesses, the *NextGen* Task Force will solicit their direct involvement through a regional public hearing process. Subsequently, the Task Force will draft a comprehensive report, including a series of public policy recommendations providing the basis for the Senate's economic development agenda.

In today's hypercompetitive global business environment, all levels of government have identified the creation of high value-added jobs as the nucleus of their economic strategy. Through the *NextGen* Task Force, the Senate will capitalize on New York State's unparalleled resources and establish an attractive operating climate ensuring the growth of its emerging industry sectors.