

BIO 21:

**Implementing Washington State's
Initiative in 21st Century Health**

EXECUTIVE SUMMARY

A Report to Governor Gary Locke
and the Citizens of Washington State
from the Bio 21 Steering Committee

Prepared by the Technology Alliance

October 2004



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Bio 21 is a \$1.35 billion program that will make catalyzing investments over the next ten years to support research and commercialization activities at the convergence of life sciences and information technology in Washington State. Bio 21's strategic investments will result in a tripling of our life sciences research base and create more than 20,000 new jobs.

Bio 21 establishes a Strategic Trust Fund to make competitive grants to projects that bolster Washington's research capacity, accelerate commercialization of research discoveries, and improve both the efficiency of Washington's health care delivery system and the speed at which health-related discoveries are translated into clinical practice. These highly-leveraged grants will focus on reinforcing strengths, filling strategic gaps and stimulating collaboration across disciplines, institutions and corporations.

Bio 21, a true public/private partnership, will position Washington as a global center for the advancement of the emerging field of preventive and predictive medicine and will fund research and commercialization activities aimed at the prediction, prevention, early detection and cost-effective treatment of disease.

Overview

Washington's economy is changing in fundamental ways. All sectors of our state are becoming increasingly reliant on research and technology to succeed in a rapidly transforming global marketplace; innovation is the key to future economic success. If we are to remain competitive in the global innovation-based economy, Washington must be strategic in growing the sectors that will play an ever-increasing role in our future. Other states and nations have recognized this, and are jockeying for position as high-tech centers of excellence. Our state has the foundation to be a leader in tomorrow's economy if we act today to invest in our knowledge-based industries and build upon our existing assets.

We also have the potential to lead the nation – indeed, the world – in a revolution in human health.

In 2003, at the request of Governor Gary Locke, leaders from Washington's research institutions, industry, government and the community came together to develop the framework of a strategic initiative – “Bio 21” – that would capitalize on our existing assets at the convergence of the life sciences and information technology. The goal is to position our state to be a leader in the important emerging field of predictive and preventive medicine, generating health and economic benefits for the people of our state, by making targeted investments in research and commercialization and encouraging collaboration among institutions and industry. Washington is uniquely positioned to achieve this leadership position due to our combination of existing assets and a new stream of funding accruing to our state due to our leadership in the tobacco litigation.

In 2004, after the initial framework of Bio 21 was released, a Phase II steering committee was convened to take the next step: development of a plan for implementation by Washington State. Bio 21 calls for the state to direct a combination of public and private funds to our research sector through fiscal year 2017/18 to support research and commercialization at the convergence of the life sciences and information technology. The program is designed to catalyze funding from other sources to achieve an overall impact much greater than the initial public investment. Through Bio 21, we can elevate Washington to top-tier status as a center for life sciences R&D, revolutionize medicine through the application of information technology, and strengthen our economy for the future.

Washington's Research Assets, Our Foundation for Excellence

Our state will embark on this program with a distinct advantage: a healthy R&D sector comprised of world-class universities and non-profit institutions, innovative companies and world-renowned scientific talent. Our institutions draw new talent, spur new companies and attract over \$1 billion annually in federal research support. Many states and nations have made a concerted effort to invest in their own life sciences sectors, posing an increasing challenge to Washington's future competitiveness. In order to remain competitive and distinguish ourselves from other regions, Washington must pursue a highly coordinated, statewide effort to direct resources to our research institutions and consortia of institutions and industry. By implementing this strategic, long-range vision, our state has the opportunity to exert leadership in the sectors that will shape the future economy.

A Public-Private Trust to Catalyze Additional Investment and Build upon Our Strengths

Bio 21 will establish a Strategic Trust Fund comprised of public and private dollars for competitive grants to research institutions and their partners. The fund will be overseen by a governing board of seven distinguished individuals appointed by the Governor with the consent of the state Senate.

The source of the public portion of the funds will be \$350 million in Strategic Contribution Fund payments due Washington beginning in 2008. This money was awarded to Washington for its leadership in the tobacco litigation and master settlement negotiations between the states and the tobacco industry. The award is on top of the state's share of the tobacco settlement, and represents just 8% of the total tobacco-related funds accruing to Washington through 2025 under the terms of the Master Settlement Agreement. This relatively modest stream of funding, when combined with \$100 million in private funds being sought for this purpose, would support a \$450 million program for Washington administered over 13 years. The impact of Bio 21 is anticipated to be much greater than the sum of these program funds, however. Bio 21 grants are expected to leverage additional investment from federal and other sources, garnering an estimated minimum match of 2:1 overall for every dollar of Bio 21 funds invested or at least \$900 million over the life of the program. **In total, Bio 21 is expected to generate \$1.35 billion in investments** in research and commercialization in our state over the anticipated life of the program.

Bio 21 funds will be directed to areas in which Washington can enhance, develop or maintain a distinctive competence, and which present great opportunity for future economic growth and human health benefits. As part of Phase I of the Bio 21 effort, a study was commissioned to identify focus areas in which the potential markets are substantial; where Washington already has considerable expertise and advantage; and, where applied research could rapidly yield commercial applications. Those identified areas in which Bio 21 proposes to focus, at least for the first five years of operation, are ***diagnosing and treating disease; medical devices and imaging***; and, ***software used in clinical settings***.

Bio 21 Strategies: Research, Health Care Innovation, and Commercialization

The Bio 21 program is designed with three key strategies for its grant-making activities: ***expand the state's research enterprise; speed research discoveries into clinical practice***; and, ***increase the rate at which discoveries are turned into commercial successes***. By adhering to these strategies, Bio 21 will build Washington's R&D sector, improve the health of our citizens, and create new companies and permanent, high-wage jobs.

Bio 21 will target grants to position our state's research institutions to compete for federal and industrial funding; invest in key facilities and purchase critical equipment; encourage collaboration among research facilities; attract and retain recognized top-ranked scientific talent, including their teams and committed funding sources; and, shore up important areas of weakness. Funds will also be used to more effectively translate research into clinical applications and improve health outcomes by supporting stronger linkages between institutions and health care delivery systems; stimulating the development of collaborative information technology solutions; and building the delivery system infrastructure to support collaboration

throughout the health care sector. Finally, Bio 21 would support research with commercial promise, fostering the movement of discoveries into the marketplace by supporting proof-of-concept, pre-prototype development, collaborative early-stage clinical trials and intellectual property protection; enable creation of training programs in gap areas such as F.D.A. regulatory affairs; and, address gaps in product commercialization such as pilot drug manufacturing facilities.

Bio 21 will pursue the strategies outlined above by providing funding in four main categories: ***Life Science & Global Health Research Awards***; ***Strategic Opportunity Fund***; ***Health Care Innovation Awards***; and, ***Commercialization Projects***. The largest portion of funding in the first two years that the program is fully operational is recommended to flow through Life Science & Global Health Research Awards, at 50-60%. The Bio 21 plan suggests the remaining three categories be allocated annual program funds in the range of 10-20% during this period. Once the initial investments have been made, the governing board of the trust should review the distribution of funds and determine where Bio 21 could make the most significant impact going forward. Thus, Bio 21 would begin with an emphasis on research, but leave open the possibility of shifting a larger portion of resources to the later-stage categories to support research outputs (health care innovations and commercialization projects). This structure and flexibility will enable the Bio 21 governing board to direct trust funds in the most effective way possible and respond to changing conditions to achieve the program's goals.

Bio 21 Goals: Critical Mass, High-Wage Jobs and Health Care Innovations for Our Citizens

Our research assets and the quality of life in our state present attractive opportunities for additional investment, talent and industry to take root in Washington. Those states and nations that have made significant investments have seen the benefits of reaching a critical mass in their life sciences sector, as the geographical concentration of resources, institutions, entrepreneurial and scientific talent and workforce have created an industry that, on its own, attracts more talent and investment, generates products, companies, jobs, partnerships and capital, and improves the quality of life in the region. Therefore, the benefits that Washington can expect to accrue as a result of Bio 21 investments are new, expanding and relocating companies and research facilities; new, permanent, family-wage jobs; innovative products and methods of health care delivery; and, ultimately, improved health for the citizens of Washington.

A significant investment in our R&D sector will open doors to new discoveries, innovative technologies and collaborations that could have an enormous impact on the health and well-being of our state's citizens. Metrics regarding the health care-related impacts and improvements to quality of life as a result of Bio 21 are extremely difficult to accurately predict and so, while important, have not been included in this strategic plan. Based upon the experience of other states, the quality of our existing institutions and companies and the focus of the program itself, Washington can reap tremendous benefits from a program of strategic investment. We recommend health impact metrics be added as the funded program areas are identified.

There are, however, established methods of calculating related economic impact of a program like Bio 21 which will enable our state to partly quantify its success. As part of the Phase II effort, the Bio 21 Steering Committee requested a potential economic impact statement from Battelle, a nationally recognized expert in state life sciences strategies. According to the analysis, life sciences R&D is projected to nearly triple from its recorded 2002 level of just over \$500 million to nearly \$1.5 billion through FY 2017/18 as a result of Bio 21 investments. In the same period, the Bio 21 program will create at least 20,000 new, permanent jobs in the life sciences and other sectors, lead to the creation of over 100 new companies, and attract 50 additional, new-to-Washington companies. These and other specific metrics relating to increased research and commercialization activity are laid out in the Bio 21 plan to guide the governing board in assessing the program's positive impact for our state.

Bio 21 Next Steps: A Call to Action for Our State

Bio 21 will require leadership and a coordinated approach among Washington's public and private sector leaders. In order to successfully implement the program and ensure the necessary funding and processes are put into place to take advantage of the unique opportunity presented to our state, it is recommended that Washington's public and private sector leadership take the following actions:

- The newly-elected Governor propose legislation for the 2005 session to implement the Bio 21 program;
- The newly-elected state Attorney General work with the new Governor on the legal construct of the program, including the commitment of the non-securitized strategic tobacco funds to this purpose;
- State government, research and industry leaders engage in discussions with the philanthropic community from now through the legislative session to secure the necessary funding support for Bio 21 pending the disbursement of tobacco-related funds;
- The state legislature approve the legislation enacting the Bio 21 program by the spring of 2005; and,
- Public and private research and industry leaders serve as resources throughout the process and help build support for Bio 21 among legislators and the public.

By taking these steps, Washington will create a public-private partnership that will earn our state top-tier status as a center for research and commercialization at the convergence of life sciences and information technology, yielding far-reaching, positive impacts on our economy and the health of our citizens and making a positive contribution to the world, as our State has done in so many other key areas. With bold leadership, commitment and cooperation, Washington will realize this goal.