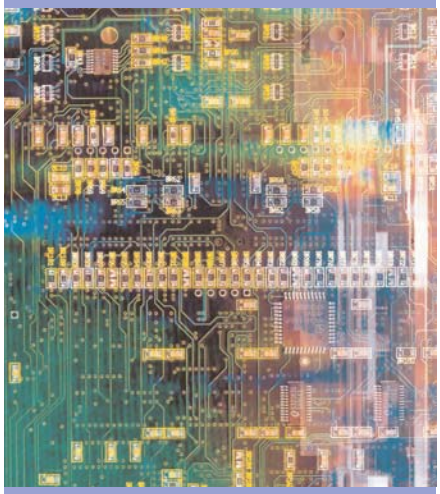
Executive Summary



S&T STRATEGY UPDATE
AND ACTION PLAN 2004

MOVING FORWARD: ACCELERATING IDAHO'S INNOVATION ECONOMY

PREPARED FOR:
Governor's Science and Technology
Advisory Council

PREPARED BY:
Office of Science and Technology
Idaho Commerce and Labor

October 2004

Moving Forward:

Accelerating Idaho's Innovation Economy

SCIENCE AND TECHNOLOGY STRATEGY

UPDATE AND ACTION PLAN

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State economies across the nation are undergoing dramatic transformations as the United States moves to an economy driven by technology industries and the application of technology in traditional industries. Today, we are living in a high technology, high skills, "knowledge" economy, where rising incomes and improved quality of life depend on the development and application of technology. Increasingly, it is technology-based economic development, driven by innovation, talent, and investment capital that is shaping the future of successful state economies.

The reason technology is a central focus of most states' and regions' economic development efforts is simple: without a strong technology component, few industries – be it production agriculture, electronics, or durable goods manufacturing – can be globally competitive operating in the United States. And technology is critical for mature and established industries, not just, new emerging industries. The images of technology that are sure to come into most people's minds include biotechnology, photonics, information technology (IT), and other newly emerging industries. However, technology is also integral to the competitiveness of existing industries. The science and technology sector includes firms that produce industrial machinery and motor vehicle parts, manufacturers of fertilizers and other chemicals, as well as firms that provide engineering and management services. All of these industries are found in Idaho.

"Because of the growing role of high-tech industries in the national economy, regions that do not achieve some level of attainment in these critical industries will likely experience substandard economic growth in the future."

Milken Institute, America's High Tech Economy, 1999

The science and technology sector provides excellent high wage employment with full benefits and offers opportunities across a range of occupations. Expansion of the state's science and technology sector will ensure that there are job opportunities for Idaho's youth.

Recognizing the importance of science and technology to Idaho's economy, the State of Idaho, under the leadership of Governor Dirk Kempthorne, developed the Idaho Science and Technology Strategy in 2000, which set out a roadmap for growing the state's science and technology sector. Since that time, individuals, organizations, the academic community, the private sector, and state government have worked to achieve the vision laid out in the strategy.

Much has been accomplished, but much work remains. In May 2004, the Governor created the Office of Science and Technology (OST) within Idaho Commerce & Labor to provide a focal point for the state's efforts to build its science and technology research and industry base. He also reconstituted the Science & Technology Advisory Council to provide insight and guidance to the state's science and technology efforts. The Council decided to take stock of Idaho's science and technology industry base, assess Idaho's technology assets, gauge progress in implementing the strategies and actions adopted in 2000 and develop an action plan for continuing to move forward the state's agenda to develop its science and technology economy.

The Council found that:

- ***Idaho's science and technology sector is growing faster than that of the nation.*** Increases in the number of science and technology establishments and employment continued to outpace growth at the national level.
- ***Idaho's technology economy is continuing to diversify***. In addition to strong concentrations in semiconductors, agricultural chemicals, computer equipment, and motor vehicle equipment, Idaho's management and scientific consulting, commercial industry machinery, soaps and cleaners, and computer system design sectors are growing very rapidly.
- ***University R&D funding has increased significantly*** in Idaho during the last four years growing from $71.7 million in FY 1999 to $93.3 million in FY 2002.[1]
- ***Idaho continues to have a strong entrepreneurial climate*** with a high rate of new company formation. In 2000, 7.86 firms were created in Idaho per 1,000 workers, compared with a national average of 5.48.[2]
- ***Idaho's businesses, universities and laboratories continue to generate new knowledge.*** In fact, Idaho ranks first in the nation in terms of patenting activity on a per capita basis.[3]

There are areas that still need to be addressed. Idaho has not kept pace with some of its competitor states in terms of attracting federal R&D dollars and the university research base, while it has expanded dramatically, is still small. Greater collaboration between higher education and industry is needed. Sources of pre-seed and seed capital are very limited.[4]

PRIORITIES

This report lays out a comprehensive program designed to address key elements that create an environment in which Idaho's technology economy will flourish. Given that it is unlikely that all of these elements can be addressed simultaneously, it is important to identify the most important areas on which to focus initially while building the groundwork for addressing all areas identified in the strategy. It is recommended that Idaho focus initially on

- Building its R&D base.
- Developing the infrastructure, including commercialization processes, networking opportunities and capital sources, to support entrepreneurs and start-up companies.
- Marketing Idaho's technology assets both within and outside of the state.

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[1] National Science Foundation, *Survey of Research and Development Expenditures at Universities and Colleges*, FY 2002.
[2] USA Small Business Administration, Bureau of Labor Statistics.
[3] U.S. Patent and Trademark Office, State Patent Count Database, 2001.
[4] An updated analysis of Idaho's technology economy can be found in Appendix I. An assessment of Idaho's technology assets is contained in Appendix II.

Build Idaho's R&D Base

To grow Idaho's technology economy, the region's research institutions must continue to build R&D capability in strategic areas that build on the state's assets. Building strong university research programs in Idaho will

- Broaden the state's economic base by developing new industries
- Add value to Idaho's traditional products
- Increase federal funds flowing to Idaho

A key priority must be to continue efforts to build Idaho's research and development base. But this effort must be targeted to strategic focus areas that support the state's existing and emerging technology clusters.

Priority actions designed to build Idaho's R&D base include:

- Create a mechanism to provide for ongoing meaningful collaboration among higher education institutions, economic development, and the private sector in the promotion of science and technology in Idaho.
- Further refine Idaho's core competencies, and identify four to five key technology platforms that are relevant to the state's existing and emerging industry clusters.
- Create working groups composed of industry representatives and academic researchers to develop roadmaps for the development of each technology focus area.
- Undertake a campaign to educate state and local leaders and residents on the contribution of science and technology research to the Idaho economy.

Develop Infrastructure to Support Entrepreneurs and Start-up Companies

Idaho has a growing number of small, start-up, and emerging technology companies. These companies need to be nurtured and they need access to commercialization processes, business services, mentors, networking opportunities, and sources of capital. The State of Idaho and its communities have already established a number of programs to provide support to entrepreneurs and start-up companies. Both OST and the TechConnect offices work to link entrepreneurs to sources of capital and other resources. Idaho has a network of incubators that provide space and technical support to start-up companies. Several angel investor networks are being formed to provide start-up companies with access to early stage investment capital. These efforts should be continued and expanded.

Priority actions required to create a supportive entrepreneurial climate include:

- Develop an entrepreneurial and mentoring network.
- Expand efforts to assist companies in accessing the federal Small Business Innovation Research (SBIR) program.
- Support the creation of angel investor networks.

Market Idaho's Technology Assets

Idaho has a diverse base of anchor companies, three research universities, and a national laboratory. In addition it has a motivated workforce with a strong work ethic, a high quality of life with abundant recreational opportunities, and a stable business climate. Idaho needs to undertake a marketing campaign that will communicate to key audiences, both nationally and internationally, the depth and breadth of Idaho's' technology assets, and the unique opportunities and resources the state can provide for science and technology companies. Such a campaign can play an important role in demonstrating the level of commitment that the state's public and private leaders are making to ensure that Idaho continues to develop a strong and vibrant science and technology economy.

Priority actions to build Idaho's image as a center of science and technology include:

- Initiate a statewide image, marketing, and business development effort to market Idaho as an emerging technology center.
- Hold an Annual Governor's Technology Summit.

CONCLUSION

As the 21st century progresses, the U.S. economy is facing a time of great change that severely impacts the ability of states to maintain their normal economic *modus operandi*. Idaho, like the rest of the country, is feeling the impact of these changes. Our economy, once based primarily on natural resource industries and later on technology and manufacturing, is continuing to diversify. The State of Idaho has committed to building its science and technology economy and has begun to develop the infrastructure to support a strong and growing technology sector.

But to succeed, Idaho must address the issues of technology, talent, and capital. Idaho must continue to build its research base, the source of technology and innovation; provide excellent educational opportunities for its citizens; and develop its private capital market so firms can obtain the investment they need to start-up and grow.

This Plan outlines a series of actions to ensure that Idaho is one of the states benefiting most from the changes occurring in the global economy. If Idaho's leadership—political, academic, and business —come together and commit to facing these challenges and investing in the future, Idaho's economy will not only provide high-skilled, high paying jobs for its citizens, but Idaho will become an even better place to live.