

**Testimony of Steven Morris  
for the  
House Subcommittee on Technology and Innovation  
October 4, 2007**

**Purpose of the hearing**

Explore how companies determine where to locate their R&D facilities, and what steps the U.S. can take to make domestic locations more attractive to companies looking for R&D facility sites.

**Introduction**

As the manager for an incubator for high-technology startups in Beaverton, Oregon, and a startup entrepreneur myself, much of my focus the past few years has been on startups and entrepreneurship, although in 25 years in high-technology business, I have worked for and with a number of very large technology companies. Below, I have tried to share with the Subcommittee my understanding of the major factors technology companies consider when deciding where to locate a Research and Development (R&D) facility.

One theme in my remarks is “build on your strengths”. One of our strengths in the United States is that we are very good at innovation and entrepreneurship. The two frequently go hand-in-hand, with a new innovation (e.g., a new technology for more effective web searches) resulting in a startup (Google, for example) which grows into an industry leader.

The Subcommittee’s focus is probably on convincing larger technology companies in the U.S. to keep their R&D operations in the U.S. and on convincing larger foreign companies to locate their R&D operations here. I’d like to argue that the U.S. strengths in innovation and entrepreneurship are by themselves advantages in keeping and/or attracting R&D operations in the U.S.

And, it’s possible to leverage our innovation and entrepreneurship strengths to attract foreign entrepreneurs to open R&D operations here and even to start their companies here. I only have anecdotal evidence to offer --but we’re seeing such relocations happen in Oregon. Some of those transplanted operations will grow into large, successful companies, yielding a very high return-on-investment for any governmental programs that facilitate the process. I believe that investing in our entrepreneurial strengths, and attracting startup-level R&D operations should a key component of a U.S. R&D competitiveness strategy.

## Factors

*What are the factors that influence companies when selecting sites for facilities, especially for research and development? Has competition for locating R&D intensive facilities increased?*

There is a long list of factors that a high-technology company will consider in deciding on the location of a new R&D facility. In my experience, some of the more important factors are:

### **Workforce**

Human capital is the most critical resource for an R&D facility. Companies will consider locating an R&D facility in a region only if that region provides a highly educated workforce with expertise relevant to the type of R&D in question (or at least with a well educated, trainable workforce, and a location that is so attractive that the company is confident that they can recruit the specialized skills and knowledge that are required). This is certainly one good reason that states are beginning to adopt a “cluster” strategy of leveraging their existing strengths (or “clusters”) of technologies. (I think of this as a “build on your existing strengths” strategy.) The existence of a cluster implies existence of a skilled workforce to support that cluster. And it also implies that other required infrastructure is already in place...

### **Availability of required infrastructure**

Although human capital is critical, there are often other aspects of infrastructure that must also be available to support R&D activities. A semiconductor facility, for example, requires access to a broad range of chemicals, machinery, analytical equipment, and very specific raw materials that are processed in particular ways by skilled vendors. For R&D work, there are advantages in having local vendors supplying infrastructure pieces so collaboration is easier. Working with a local vendor to make adjustments to equipment or make modifications to the way some chemical or component is processed is much easier if the vendor is across town rather than on the other side of the continent. (Even in a “flat world”, face-to-face teamwork still has problem-solving advantages!) Again, this is another reason for a “cluster” strategy.

### **Quality of Intellectual Property (IP) protection**

R&D might be defined as the process of creating technology-based intellectual property, or IP, so protecting that IP is extremely important. The U.S. has very strong IP protection laws, which reduces the likelihood that an employee will take IP learned at one company to a competing company. Not all countries have such strong protections. However, one key segment of the U.S. IP protection infrastructure is very bogged-down right now - and that is the patent process. Obtaining a patent can take (and usually does take) multiple years.

### **Attractiveness to Employees**

No R&D facility can rely exclusively on the workforce that is available locally. Growth and specialized needs will require recruiting employees from outside of the area. And, of course, it's important to retain the employees you have. That makes attractiveness of the R&D location to employees a very important factor. It's no surprise that this reduces to considerations such as:

Quality of life

Quality of K-12 school system (highly educated workers care about the education of their children)

Cost of living

### **K-12 and University Education**

As suggested above, available of a high-quality K-12 education system is important for attracting and retaining employees. But a second reason that K-12 is important is that it is developing the company's long-term workforce. And availability of high-quality higher education options is important for employee development and retention. A highly-educated workforce needs access to ongoing educational opportunities. This is especially critical in an R&D workforce where technology skills must be continually improved and extended.

### **Access to technology**

In addition to having access to a highly-trained workforce, R&D operations benefit from access to university research that is relevant to their R&D and access to strategic partners that cooperate in or contribute to technology R&D.

### **Tax Climate and Tax/Financial Incentives**

These cover a wide range of possible strategies from property tax and income tax breaks to very good real estate deals, government-funded employee training programs, etc. All other things being equal, clearly the lower-cost location has significant advantages. However, if some of requirements mentioned above are not in place, then no level of financial or tax incentive will win the day.

## **Strategies**

*What strategies have the City of Beaverton and Portland metro area employed to try to attract companies to build facilities there? Which strategies were successful, and which were not? Why?*

For Beaverton, with relatively little land available for incorporation into the city, creating new office parks to accommodate a large corporate R&D center is simply not an option. So with respect to technology companies, Beaverton has focused on encouraging the formation of new companies, and helping existing companies grow. This dual strategy is reflected in two of the City's economic development tactics: creating a high-tech incubator and implementing an "economic gardening" program to help existing

Beaverton companies grow. Of the two programs, the incubator (OTBC) is very relevant to attracting R&D operations to the U.S.

OTBC provides office space and coaching/advising services to high-tech startup companies to increase the odds of their success. The program is relatively new (we started adding startup in 2006) but is already starting to show results. For example, OTBC companies attracted \$8 million in private (angel and venture capital) investments in the past 3 months -- already showing a good return on the \$1.3 million investment Beaverton made to kick off the program.

The more relevant result for the Subcommittee is that OTBC is beginning to see success in attracting offshore startups to establish a U.S. R&D beachhead at the incubator. I discuss this in more detail in the next section.

## The Importance of Entrepreneurial Innovation

As I suggested earlier, I believe that entrepreneurial innovation and a healthy high-tech startup environment are significant U.S. strengths which are important to attracting R&D operations to the United States.

There is considerable evidence as to the U.S. strength in entrepreneurship:

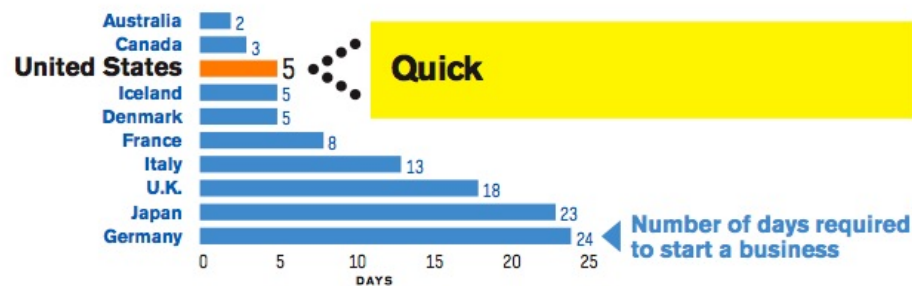
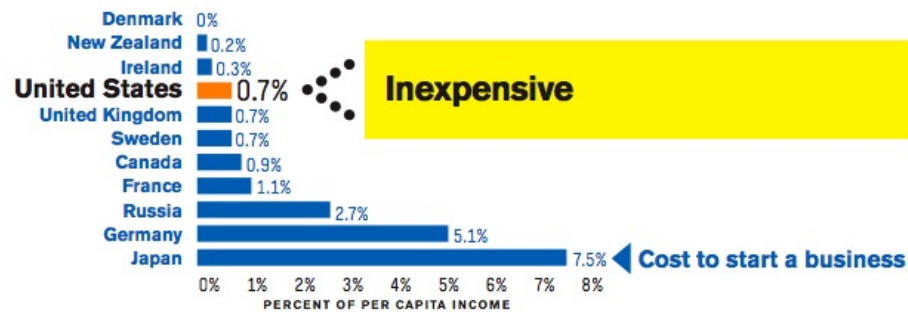
Source: Global Entrepreneurship Monitor, *High-Expectation Entrepreneurship 2005*



## The U.S. regulatory structure supports new business creation

### 4. The United States Is One of the Easiest Places to Start a Business

Source: World Bank, Doing Business 2007



As shown by the above charts, in the U.S., entrepreneurial expectations are high, and the regulatory environment makes it inexpensive and quick to start a venture.

Oregon is particularly strong in entrepreneurship and new-venture creation. In 2005, Oregon was #7 of all states in the level of small business ownership, with 19.5 employer firms and self-employed individuals per 100 people in the labor force (Source: U.S. Small Business Administration, Office of Advocacy, 2005, Small Business Economic Indicators.)

One weakness in the U.S. entrepreneurship ecosystem is funding of early-stage (seed) companies. As venture capital funds have increased in size over the past decade, the total amount of venture capital available has grown significantly. But as fund size increases, venture capital firms have been forced to make larger investments in later stage companies. A \$300M fund simply can't make small investments (say, under \$1M or \$2M) because they can't manage that many investments. This has created a funding gap for startups. Angel investors (high net worth individuals who invest in startup companies) are partially filling that gap with seed-level investments, but that is only a partial solution. This country's startup economy is in critical need of improved access to seed-stage capital.

A strong entrepreneurship environment is important in attracting R&D operations for at least 3 reasons:

1. One mechanism for attracting R&D relocation is through acquisition of a startup.

Example: IBM now has an R&D facility in Beaverton. That came about because IBM purchased Sequent Corporation, a local startup and Intel spin-off. Having a presence and office space in Beaverton, IBM subsequently decided that because of the region's strength in open technologies, and Oregon's quality of life advantages, Beaverton made an excellent location for an IBM open-source software development operation. You can argue that acquisition of a U.S. startup by an offshore company is moving technology out of the U.S. -- but if the company reinvests, building more local R&D infrastructure, then it's certainly a net win for the U.S.

2. The U.S. can leverage the countries entrepreneurship advantages and strengths in specific high-tech markets to attract startups that might otherwise locate in their home countries.

Example: Lunarr is a startup in Tigard, Oregon that was started by a successful Japanese entrepreneur. After one startup success in Japan, he decided to start Lunarr (a web 2.0 collaboration service) in the U.S. because it provided easier access to web 2.0 technologists and partners in the U.S., and because of U.S. is a good place to start and grow a business. He selected the Portland area (after considering several west-coast sites) primarily due to the high quality software-engineering workforce, and the quality of life in Oregon.

3. Entrepreneurship strengths, quality of life, and highly educated workforces can all be leveraged to attract R&D operations of offshore startup companies to the U.S. Although these companies are small, many of them have excellent growth potential, and a few will no doubt become "home runs" generating considerable economic benefits.

Example: In June of 2006, I visited Japan as part of a Governor Kulongowski trade mission. I met with 4 open-source startup companies in Japan. All four were having trouble recruiting the open source software engineers they needed. Oregon has a strong open source workforce, and OTBC provided an easy way for a small Japanese software company to start up an R&D operation in Beaverton (in the incubator world, this is called providing a "soft landing" for offshore companies). Since that trip, OTBC has signed a lease with one Japanese software company - Blueleaf - and received a verbal commitment from a 2nd Japanese software company to sign a lease by the end of the year. That's a 50% success rate! Both companies have the goal of recruiting open source software engineers, and building an R&D center in Beaverton.

Building on this early success, I visited a major open source software exposition in Tokyo last June and met with 40 open source software companies, 10 of which look to be good prospects for opening an open source R&D operation in Oregon within the next one to two years.

A strong entrepreneurship/startup ecosystem is also a factor in attracting a larger company's R&D operation. A strong entrepreneurial environment, combined with a highly educated workforce (as part of a technology cluster, so the workforce is trained in technology relevant to the company) combined with university technology and technology from other local (cluster) technology companies creates an energized environment that generates innovative technology spin-offs -- often creating attractive acquisition targets for larger R&D operations. Even for a larger R&D operation, access to innovation is as important as access to technology.

## **Recommendations**

*What types of incentives most influence companies searching for a facility site? What recommendations would you provide to the Federal government to aid local governments working to make their areas more attractive to companies?*

### **IP protection: Streamline the Patent Process**

The U.S. likely has the most effective intellectual property protection in the world -- but it can move very slowly. We need to speed the patent process. Five to six years to get a patent is simply too long in the fast-moving high-tech world. Either the process needs to be simplified, or more resources need to be applied.

### **Innovation and Entrepreneurship: Build on our strength - and merchandise it**

We can build on our strength in startup innovation by

- Investing in technology startup incubators and "soft landing" programs
- Investing in University technology transfer programs

### **Improve the Seed-Level Investment Situation**

Countering the decrease in seed-level investment from the U.S. venture capital industry is critically important for maintaining a healthy entrepreneurial environment in the U.S. I would suggest:

- Reduce the capital gains tax for angel investments in early stage startups
- Perhaps create a "U.S. Innovation Accelerator" fund (as a time-limited experiment) that would add a 15% "kicker" to angel investments between \$50K and \$250K. Such a kicker would be a great help to entrepreneurs raising seed capital from angel investors. Even something as small as a 15% kicker would provide angels with significant leverage on their investments. Not only would this improve the seed-level funding environment, but managed correctly, it would make money. (The fund would receive stock in the companies.) This is an investment, not an expense!

## **Invest in University Research, but Choose the Right Technologies**

Not even the U.S. can be #1 in all areas of technology. We should proactively choose the technologies the U.S. intends to dominate, and invest in University research in those areas. Perhaps leverage existing state investments and state technology clusters by adding to or matching state investments in R&D (the States know best what clusters are their areas of strength.)

## **Tax incentives: Choose our battles**

As mentioned above for University research, the U.S. can be #1 in all areas of technology. We should proactively choose the technologies the U.S. intends to dominate, and create tax incentives targeting those areas.

## **Invest in K-12 Education**

This is critical for developing, recruiting, and retaining a quality workforce. We need to significantly improve science and math education in elementary, middle and high schools and also should start to teach students about innovation and invention before they go to college.

## **Immigration: we need Access to the International Talent Pool**

The U.S. educational system cannot supply all of the advanced degree professionals that U.S.-based R&D operations will need to employ. U.S. based operations -- whether owned by U.S. firms or foreign firms -- need to be able to recruit foreign workers. Security concerns have made it more difficult for people from abroad to attend US university programs and join U.S. companies, just when rapid development in their own economies make it more attractive for them to return there. We need to make it easier for highly-educated foreign individuals to attend U.S. schools and work for U.S. firms.

## **Promote the Value of Quality of Life**

A major strength we have in Washington County and in Oregon in general is the exceptional quality of life. And while I'm a biased Oregonian, there are certainly many other parts of the country that offer excellent quality of life. This is an advantage we should promote. Any corporation considering a new location is interested in recruiting quality employees -- and excellent quality of life makes that job much easier. So let's figure out how to market that!