

An Article for the Technolink Association:

## The Innovation Economy

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Society today continues to benefit from game-changing innovations in medicine and business through successful partnerships involving the investment community, government, and young entrepreneurs. These partnerships provide the support and knowledge necessary for validating and successfully bringing to market such innovations. This is best exemplified by the evolution of the Internet on its amazing 30 year journey from university and government research tool to worldwide social and business media network. The continued success of innovative inventions depends largely upon business embracing young entrepreneurs as they continue to create new ideas for products and services. Business investment partnerships allow communities of seasoned and knowledgeable business veterans to not only help young entrepreneurs achieve successful commercialization of their products and markets, but also provide them with incubators and mentorships. This coupling of institutional knowledge of successful investments and capital investment with innovation is the driving force behind capitalism and sustainable economies.

The investment community can develop a strong innovation infrastructure that leads to commercialization, entrepreneurship, industry creation, and job creation that all result in a thriving

economy. Universities, with their young students and researchers, are one of the main sources of innovative ideas. The government has helped these innovative ideas grow by actively funding the universities for the past seventy years in medicine and engineering.

This process has worked well in the online and digital field, but there has been a poor conversion of funded research and life sciences to commercialized brands because of the high barriers for safety standards. One positive case in point is the field of antibiotics. The early successes of treating infectious diseases with antibiotics, lead to the expectation that treatment of other human diseases would rapidly follow; such as cancer, cardiovascular disease and AIDS.

Unfortunately, treating these human diseases turned out to be biologically and pathologically more complex than expected. Antibiotics selectively killed bacteria and were relatively non-toxic to the patient. Conversely, selective and non-toxic therapies for treating human diseases have been much slower in coming to the clinic. There existed new barriers for the innovator and therefore a need for new funding and commercialization of these new medical ideas.

Innovative ideas create disruptive technology, which is technology that improves a product or service in a way that the mainstream market did not expect in its growing trajectory. Examples of disruptive technology are the digital camera, the photocopier, and the personal computer. Innovators of these disruptive technologies are experts in their field who also have an inclination and the enthusiasm to improve a product and process.

The universities allow students and researchers to become experts in established methods and technologies. Furthermore, the universities cultivate young students' enthusiasm to innovate, even after mastery of their field. The experts can quickly become the innovators if given the space and time of the university because it is there where risks can be taken and ideas can be tested, unhindered from failure. But once innovators have success and their ideas grow-up into novel concepts, where do they find the funds to support their ideas?

Although universities and the government have held a long relationship of funding basic research, they have had limited success in commercializing these ideas. One only needs to look at the example of the Internet. The Internet came out of the U.S. government's Defense Advanced Research Projects Agency (DARPA) and MIT's Lincoln Lab, back in the 1960s. But the notion of global interconnected networks did not reach commercial maturity until the mid-1990s, when the Web browser came into existence. The thirty-year research and development period would not have been sustainable without the enormous DARPA funding that stimulated much of the U.S.- led innovation over the last four decades of the previous century. This type of gestation period is simply not viable without government funding and commitment, and without the framework of universities and research labs being the incubators for fundamental innovation.

The investment community can help the university and government-funded innovators excel in commercializing disruptive technologies in the best potential markets. Existing businesses usually do not fund innovative and disruptive technology because they either fail to recognize its ability to disrupt or because it competes and interferes with the current, sustainable technologies and products that

existing customers already demand. This allows the private and angel investors to step in, and seek out entrepreneurs with disruptive technology.

Investors' funding is obviously important, however, it is actually the experience of the investment community that allows the innovation economy to thrive. Investors have institutional knowledge of mentoring sustainable companies, which is what universities need. They know the flaws and barriers in an established process of specific markets. The investors' institutional knowledge of the market and the market's barriers help an entrepreneur find the fastest and most successful way to grow their business. This mentorship is key for entrepreneurs in an economy that quickly and constantly changes directions. The investment community's networks of business domains help entrepreneurs create and work within new market spaces.

Incubators and accelerators are places for entrepreneurs to seek out the necessary mentorship of the investment community. They exist to aid entrepreneurs, who need funding and direction in turning their innovative technology into a company and brand. The Business Technology Center of Los Angeles County in Altadena, California, a government run incubator (BTC) and Idea lab in Pasadena, California, a privately run incubator, both have a track record of 15 years in incubating entrepreneurs. Both are examples of incubators that assist start-ups and early stage technology companies. The Pasadena Angels, whose offices are located in the BTC, have been funding and mentoring entrepreneurs out of this incubator for the past 12 years. These investments lead to natural growth for the companies, which, for the majority of companies, means job creation. The Pasadena Angels' mentoring gives the companies institutional knowledge of both the market space and new market potential. As the entrepreneur is lead into

successful markets and funded properly, the innovation infrastructure takes shape.

There are tremendous benefits for well-funded innovation infrastructures in the U.S. university community. The universities, especially the California university system, all want this opportunity to exploit their resources for entrepreneurship and industry creation. Government funding initially allows universities the space and time to take risks on innovating products and systems. The investment community, with their institutional knowledge of funding entrepreneurs, can help innovators turn into successful businessmen allowing new ideas to be successfully branded. The commercialization of disruptive technology creates new markets that break through old industry, causing the economy to grow. With information democratized on the Internet, there is no longer knowledge that is unique to one group or nation. Other countries in Europe and Asia are now able to develop at this infrastructure by copying our model. The competition is now all on equal footing.

As we emerge from this financial crisis, we need to make innovation a central priority. Capitalism is successful with the collaboration of the universities, government, and investment community. The challenge is to bring the young entrepreneur into this innovation system. Accelerators, incubators, and the investment community are finding success through seeking out disruptive technology and mentoring the enthusiastic innovators behind them. We need to embrace the young entrepreneurs' new perspectives on old problems and share with them our experienced perspectives and advice on new markets.