

The interaction between politics and innovations

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Innovations do not occur by chance. It is no coincidence that some countries are more successful than others in this field. For innovations to flourish the soil must be right and it must be nurtured.

Few would disagree that the political framework is crucial for an innovation-friendly environment. Supporting inventions and innovations is key in most industrialized countries.

The government can support industry in various ways. A direct financial grant is one way; Government procurement policy (e.g. buying national products or services) is another; a tax concession for R&D is yet another way the state can support private businesses.

For a long time the state was the main R&D performer in most countries. Today, approximately one third of all U.S. research is done with government funding (in the 1960's it was about two thirds). But sometime in the mid-90's, technical development became so fast, so advanced and so complex that most politicians lost grip on it. Suddenly the innovators got the upper hand over the politicians. But the politicians were still in control of much of the funding.

So how do politicians, when they lack deeper understanding of a phenomenon, make their decisions on which project to support financially? Since there are and probably always will be more projects wanting financial support than there is money, these kinds of decisions are delicate.

Patrick Windham—former Senior Professional Staff Member of the U.S. Senate's Committee on Commerce, Science and Transportation, today a consultant on science and technology policy issues—says that politicians are rarely involved in the politics of specific projects. They tend to focus on different program areas: for example, former President Clinton's initiative on nanotechnology in 2000.

That said, politicians certainly are also facing pressure from universities or other groups in their own constituencies lobbying for specific local projects.

“Politicians often fund new programs (computing, nanotech, etc.) because coalitions from universities, scientific and technical societies and companies lobby for them,” said Windham. But, he added: “Tension remains between democracy (elected politicians with little scientific expertise) and experts.”

Politicians can avoid the problem, according to Windham, by consulting experts they trust. The U.S. has a large and varied science and technology process (for example the National Academies or various advisory committees) that can help.

To be fair, sometimes politicians have seen the potential for new technologies more clearly than the business or scientific community. The Internet or the GPS are two good examples.

A fresh example of what a strong force politics, science and media can be when they cooperate is former vice President Al Gore and his campaign against global warming. Thanks to the spectacular film “An inconvenient truth”, promoted by a well known politician, the film and the whole phenomenon of global warming has received massive attention and media coverage over the last year or so.

While learning more about science and/or technology, media has a definite role both as ‘educator’ and agenda setter. Politicians follow the press closely. If the media cover new and interesting scientific topics like nanotechnology, many politicians often want to be seen as interested and supportive.

If journalists as well as politicians lack expertise in scientific and technological matters, what can be done about it? Most people journalists encounter are, in one way or another, experts, making the journalist constantly inferior in one sense. That unequal relationship is somewhat of a classical dilemma in journalism and can’t easily be solved. Compared with a politician, a journalist also faces another problem: a deadline. Lack of time can make it impossible to study a complex problem in depth.

Improving journalists’ education is one way to lessen the gap. In practice that might be hard to do considering the variety and complexity of science. Journalists who try to find a differing opinion on whatever subject is being covered is one way of making the reporting more critical.

“Should we let engineers write about engineering or should we let reporters write about engineering? Most trade magazines choose to let reporters write about engineering,” said Alan Saracevic, Deputy Business Editor at the San Francisco Chronicle. “It doesn’t hurt if the reporter knows the subject he or she is covering, but the important thing is that reporters remain humble and honest. They must dare to ask the stupid questions that the experts may not even see. Sometimes the experts can’t see the forest for all the trees,” said Saracevic.

Hopefully the journalist will ask the same down-to-earth questions that the reader might ask and thus write an article that non-experts can read and find rewarding.

If today’s R&D environment is too complex for most politicians and journalists to grasp, what will be the result? Can politicians catch up with the science community? Is that desirable? Maybe politicians should focus on what they have been chosen for, decision-making, not becoming experts in science?

In R&D, there is also a risk that when the overall economy is booming, politicians will be less likely to support research financially. When all the curves point upwards and new

innovations are reaching the market continually, why support some vague research project that might show results in 10 years? Most politicians do not have a planning horizon that long.

Access to skilled labor is crucial in the innovation process. In early April 2007, the U.S. government received a huge volume of applications from abroad for temporary work permits called H-1B visas. Most applicants are computer programmers from India.

Since 1990, when the system was introduced, it has caused great controversy. Unemployed and laid-off American engineers and programmers accuse companies of importing cheap labor at the expense of American engineers. Companies argue that there is not enough skilled labor in the United States, forcing them to go abroad to find competent employees.

I and a colleague at the San Francisco Chronicle wrote a story about the H1-B visas. The response we got was so massive that we decided to set up a blog for readers to comment.

One reader e-mailed and asked why only tech workers should be granted special work visas. “Why do we not feel that this privilege should not also be given to foreigners needed to work on our farms?”, she asked, and concluded “I guess money talks”.

The question is actually crucial: Why should the government treat the tech business different from any other business? Why should the state support people making computer chips rather than supporting people making potato chips?

Charles W. Wessner, director at the National Research Council, suggested why: The industry that manufactures computer chips has a much more dynamic growth pattern; it’s an industry of future jobs and future opportunities and will provide a gateway to other industries.

There are other reasons why the government has more to gain by supporting high-tech industry: High-tech firms tend to be associated more with innovation than traditional firms. They also perform more R&D, creating substantial societal returns and positive spillovers to other commercial sectors.

High tech firms also, in general, tend to experience higher over-all growth rates and create high wage employment. For the government, many high-tech firms contribute in important fields such as defense, energy development, environmental protection and health care.

But high-tech research is costly. Today, not least in the U.S., the trend is increased cooperation between universities, private companies and some government branch. Research has become so complex and costly that cooperation is sometimes the only option. The public sector can benefit from innovations usually made by relatively small private companies. For small start-ups it is somewhat a match made in heaven; they get the long-term support and financial endurance that the government can provide.

Not only is such cooperation between government and companies becoming more and more common but private companies, who should be aggressive competitors, are starting to cooperate. Some examples: Google is key partner to many of Silicon Valley's mightiest such as eBay, Apple and Sun Microsystems. The common goal—making money—outweighs concerns about competition.

Industry insiders even have a term for this phenomenon: 'coopetition,' blending competition and cooperation.

"It's a good strategy to turn your competitors into partners," said Google's chief executive Eric Schmidt, in a recent interview in the San Francisco Chronicle (April 9, 2007). Such cooperation helps to increase Google's revenues. The users also gain by getting more access to products and services.

But in the long run it is fair to ask if the consumers really benefit from less and less competition and more and more cooperation among rivals. Competition is, after all, supposed to be the engine in a society driven by market economy.

For a journalist trying to cover innovation processes, lack of competition between companies may also constitute a serious problem. Due to increased cooperation it can be much harder finding a second opinion or critical view on hot topics. If former rivals are unwilling to comment on other companies' new developments or strategies, who will? There will hopefully be enough independent analysts ready to comment anyway, but increased cooperation can in one way or another mean that it will be harder – and more time consuming – to find a differing opinion.

Whether or not it is a good idea, cooperation between various sectors now seems to be the trend, mainly because R&D has become so expensive and crosses so many beats that it is hard for one player to handle it all alone.

Innovations are no doubt becoming increasingly hard to perform for one player. Studies argue that no country can lead in all fields of innovation. The Forrester research Institute sees four different innovations roles: Inventor, Transformer, Financier and Broker.

The inventor creates new ideas for a product or service. The transformer converts input from the investors into usable products or services. The financier gets the venture capital and the broker connects all three groups and facilitates their global interactions.

According to Forrester Research, no matter how big a country is, a country can lead in no more than two of these roles, not all four. The U.S. is considered best as an Inventor and Financier, like Sweden and Finland. Countries like the Czech Republic or Ireland are best suited as Transformers.

Forrester Research is making the point that every country should stick to what they do best, using the theory of comparative strengths. Since no country can be the best of

everything, they should let other countries specialize in what they themselves can't master.

The conclusion for the whole innovation process seems to be that more cooperation is crucial, not only between countries but also between businesses and universities. This also demands more of the journalists covering innovations: is it good or bad when former rivals suddenly start to cooperate?

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On my panel: Navi Radjou, Forrester Research, (if it is held May 23), Charles Wessner, National Research Council, and Alan Saracevic, deputy editor, San Francisco Chronicle