

An entrepreneurial, innovative state

Translation of NRC interview with Professor Mariana Mazzucato. Een ondernemende staat, die innoveert (By Margriet van der Heijden 2/2/2013)

Mariana Mazzucato throws a snowball. Does the photographer want her on the photo without a coat? Fine. She turns toward the frozen pond, laughs, throws another snowball.

Mazzucato is an economist and professor in Science and Technology Policy at the University of Sussex. She is a frequent guest of the BBC and Bloomberg Television and regularly writes for *The Guardian*. In a few days she will fly back to her husband and four children in England.

For now she is still in the cold Netherlands, where she visited the Ministry of Economic Affairs. She spoke with minister Henk Kamp and gave a lecture before taking part in a roundtable discussion. Twenty top politicians, scientists, and businessmen were “disagreeing very much” about the innovation policy.

According to Mazzucato, countries that invest in research & development and innovation tend to exhibit economical growth. The question is: how do you invest as effectively as possible? This is where she believes many misunderstandings occur.

Take the American solar cell manufacturer Solyndra, for example, which went bankrupt last year after venture capitalist investors withdrew. With it, more than 500 million dollars of government subsidy were lost as well. It led to heavy criticism of the U.S. government: yet again, it had failed to ‘pick the winners’, or, in other words, failed to pick the successful young companies and technologies. And, from a more conservative perspective: the government should limit itself to supporting a dynamic free market, which *does* recognize such winners.

Mazzucato believes this is too simple. She blames the failure of Solyndra mainly on the impatience and short-term thinking of the venture investors. In reality, the American government takes many risks in the field of innovation that venture investors do not dare to take, she says, and by doing so actively stimulates innovation. However, almost nobody acknowledges this, she claims in her booklet *The Entrepreneurial State*.

She refers to it as a pamphlet. “I wrote it more for political reasons than for academic reasons. I wanted to convince my government that all those cuts in the government budget to become more competitive were based on a completely false idea of what the U.S. is actually doing.”

And what does she think of the Dutch top sector policy, which is supposed to stimulate innovation and economic growth? “The discussions about it are interesting, but the policy itself does not seem well thought through,” she says politely.

So, the American government *actually* stimulating and shaping innovation, in contrast to popular belief?

“Yes, I describe entrepreneurship as the willingness to take part in really uncertain and risky developments. If you look at the Internet sector, with its dotcom companies, or at the bio- or nanotechnology sectors from this perspective, you see that the American government time and again took risks during the initial difficult and uncertain stages.”

Experts at the agile, decentralized offices of the *Defense Advanced Research Projects Agency* (DARPA), for example, had and continue to have the autonomy to support potentially promising fundamental and applied research on a medium-long timescale, writes Mazzucato in her pamphlet. DARPA works together with universities *and* companies, and by doing so was a driving force behind the computer industry. Or take the *Small Business Innovation Research* (SBIR) program that supported many successful companies in their early stages. Or the *National Nanotechnology Initiative* (NNI) that helped the nanotech sector progress.

“The private sector did not take part until later. It is too simplistic to think that the government can only support innovation through tax measurements and mediation. In many cases, government also needs to take the initiative.”

But then why does the idea prevail of a sluggish, bureaucratic government versus a dynamic and innovative market?

“There are parties that benefit from criticizing the government’s contribution. Just look at the struggle that President Obama had to endure to pass the Health Care Reform. His administration was accused of unnecessary meddling. Ridiculous, if you think about the amount of money the American government spends on research into new drug development and biotechnology through the *National Institutes of Health* (NIH). 32 billion dollar a year. 75 percent of all radical new drugs are developed by the NIH. That is not meddling, that is creating innovation!

“But: the people in the U.S. do not know this, and definitely not the people in Europe, because the U.S. sells itself as a marketmodel. I try to tell the real story and provide the arguments to show that, for example, Silicon Valley, but also more recent economic successes in China, Singapore, South Korea or Brazil, are the result of enormous direct and indirect government investments in innovation.”

And ‘vision’ is an important part of that real story?

“Yes, think of the sixties and the ‘*man on the moon*’, the Apollo Project. This project succeeded because the American government had a vision and got people excited. This reeled in investors and companies from various sectors.

“An interesting perspective of the economist John Maynard Keynes is that ‘animal instincts’ drive company investments, instincts which give a feel for technological and market possibilities. And a key role of the government is to ignite such instincts, to create *buzz*, to have a vision, and a plan. That works better than attracting capital through tax reductions.

“For example, I find it interesting that pharmaceutical giant Pfizer asked the British government for tax benefits. And what does the company do after this? It closes down its R&D-department in the United Kingdom and moves it to Boston. Why? Because the American government, via the NIH, invests enormous amounts of money in research.”

So Europe must not mythologise the role of venture capital and market?

“No, because the irony is that venture capitalists do not like risk. They only invest when they can get a profit within 3 to a maximum of 5 years. But when you look at the biotechnology sector, for example, you can see that it took a much longer and more uncertain process of 15 years, in which the government bore the risks.

“And yes, of course venture capitalists are important and in Europe we can learn a lot from American venture capitalists. They are more dynamic: for example, in Silicon Valley they arranged mentorship for the young companies they invested in. However, the true secret of the success of Silicon Valley, or of the bio- and nanotechnology sectors, is that venture investors surfed on a big wave of government investments.”

The mid-sized and small companies need support to innovate – that is a myth as well?

“The real question is how much support these companies truly need. Most small companies do not even *want* to grow. In the U.S. and the U.K. a mere 5 percent wants to grow. You should base your policy on the characteristics of such quickly growing and innovative companies. Usually they are so few that you could almost give them a call.” Laughs. “With generic measurements you are just throwing money away.”

You do not think highly of generic measurements?

“Countries that invest in R&D usually see their economy grow. The point is that this does not per se hold true for individual companies as well. For them, such investments only work when other conditions are also met. For example, I have conducted research on pharmaceutical companies. Only *those* companies that filed patents for five years in a row and made alliances, managed to grow. In other sectors other characteristics probably apply, and therefore, you should first investigate those conditions if you wish to work with sectors. “

And tax measurements?

“The question is always: what do they add? Do they accomplish something that would otherwise not have happened?” Laughs. “Let me also name something good about the Dutch innovation policy: the WBSO (editor: which provides reduction in income tax for employees in the field of innovation). The good thing about it is that this law stimulates R&D jobs.”

“Not good are policies directed at the profits of innovation, because with those you do not necessarily achieve anything that otherwise would not have happened. You are only making rich companies richer. That happens with the ‘innovation box’ (editor: only 5 percent tax needs to be paid for profits from patents instead of 25). A terribly bad idea. Why? Because you are not focusing on the research that has led to these patents. You are only enforcing the monopoly that a company already has because of its patent.

“Especially in the Netherlands, which already spends so little money on R&D, I think it is to provide a benefit on income tax, instead of enforcing measurements that stimulate and strengthen research and innovation. I also think the RDA policy (in which companies pay less tax if they invest more in innovation, red.) is a waste of money.”

What do you think of the top sectors themselves?

My impression is that they are too narrowly defined and that a vision is lacking of their role in the economy. Recall the ‘*man on the moon*’. It was clearly described what was needed to be done to accomplish the mission, and twelve different sectors worked together. So, it was a broadly defined mission, which on top of everything else also excited the public.

“Translated to the Dutch situation you should then not say: we are going to stimulate Wageningen University and the Agri&foodsector, but, for example: we are going to work on the healthy food of the future, and then make that theme even more broad and exciting.

“In addition, you would need to brainstorm on these missions with a group of people, *including* people from young companies, and researchers driven by curiosity. Most missions demand change and change does not usually come from people that profit from the current situation. It was not the recordplaying industry that enforced a shift to cd’s.”

Finally, what do you think of the Dutch Seed Capital Arrangement, in which the government doubles the venture capital that investors put into a starting technology company?

“That seems like a good idea to me, if you at least assure that the government receives something in return for its investment, as soon as the company starts making profit.”

And here, the U.S. provide a bad example?

Yes, the American government is very good at financing risks – even if they do not admit it – but not in receiving money back. The algorithm for Google was developed with the money from the National Science Foundation, but they received nothing in return. All the technology in the iPhone was also financed by the American government.”

Mazzucato taps her phone. ‘*I am not sure what you are saying*’, says voice recognition Siri.

“And yes, you need a Steve Jobs for assembling these technologies in such a *funky* way, but if that technology had not first been developed with government money, Apple would not have been able to cope.” She laughs again. “And what does the company do? It moves significant parts of their company from Cupertino in California to Reno, Nevada to avoid taxes. Well, you cannot stop that, but governments *can* find other ways to get some money back from earlier, risky investments.”

Mazzucato has so many ideas, and so much to say. “I do not only sound negative, do I?” she then asks. “About the top sector policy? The fact that there *is* discussion on innovation policy is already very good.”

Her most important message still is that “we should stop mythologising the private sector and de-emphasizing the contributions of the public sector.” Both are necessary for a healthy ‘innovation-ecosystem’ wherein companies, mediating institutes, and partnerships between government and corporations form a balanced mix with a rich network of top universities and top research institutes – “and yes, *that* research network is much stronger in the U.S.”

To establish that kind of ecosystem, the government has to know the facts *and* to be aware of its role. “A big risk now is, for example, that companies more often put money into buying back their own stocks, and, therefore, barely have money left for R&D. You can see this in the pharmaceutical sector, for example Pfizer, again.” The company fares excellent financially, but the R&D then relies on public money. “Such an environment is not ‘symbiotic’ and healthy, but ‘parasitic’.”

An insecure government that ascribes too much power to companies plays directly into the hands of such imbalance, Mazzucato believes. "A government with a lack of confidence in itself gives in too easily to lobby's of small and mid-sized enterprises that demand more support, of venture investors that want tax benefits, of big companies that demand something like an 'innovation box', etc."

INNOVATION POLICY

To innovate with success, says Mariana Mazzucato, you need decisive companies, but also an adamant government. The heroic role of venture capital is a myth.

Mariana Mazzucato

Mariana Mazzucato (1968) was born in Italy. She studied History and Economics in Boston (Tufts University) and Economics in New York (New School for Social Research), where she also received her doctorate in 1997. In 2000 she returned to Europe, where she, among other things, held a Chair in Science and Technology at the University of Sussex in the United Kingdom. She conducted empirical research in the fields of computer science, biotechnology, and pharmacology.

What is the top sector policy?

The top sector policy covers nine sectors: Horticulture&materials, Agri&food, Water, Lifesciences&health, Chemistry, High-tech, Energy, Logistics, and Creative industry.

Government, corporations, universities, and research centers have to work together within these sectors to innovate. Their plans, measures, and agreements have been laid down in innovation contracts.

The implementation of these contracts is guided by top teams consisting of 'an innovative entrepreneur from the small and mid-sized enterprise sector, a scientist, a representative of the government, and a leading player from the sector'.

The government has also taken other measures to stimulate innovation. The WBSO provides reductions in labor costs for employees in the field of innovation.

Through the RDA arrangement, companies pay less tax on their investments in R&D and innovation.

In addition, companies can put the profit from patents and certain innovative activities in a so called 'innovation box' over which 5 percent tax is levied, instead of 25 percent.

Research funder NWO has to spend 275 million euros (of its budget of about 500 million euros) on research within the top sectors. The government intends to give NWO 150 million euros extra for unbound, basic research in the second half of the current government's administration.