

Government and Innovation: The Entrepreneurial State

Updated 2022-12-29 Chapter 10 innovation and technological dominion: a warlike situation.

Dr.I.noordzij@leennoordzij.nl

www.leennoordzij.me

A shtick:

"The nine most terrifying words in the English language are, 'I'm from the government and I'm here to help'".

Ronald Reagan. The first show-business president (Andersen).

It is in the air. Now that we all feel uncomfortable, the call for a more active government is growing again. A kind of cycle that we cannot leave behind us.

A more active government results in a larger government and that has happened all the time.

In the following considerations I will discuss the ideas of some people like for example Stiglitz.

Some attention is paid to state capitalism (The Economist November 22nd, 2014).

I do not pay attention to a possible decline of our liberal democracy.

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1.Introduction

It is in the air: The Entrepreneurial State?

Well, in a war like situation government could play a role to stimulate innovation. Something must be done. Think of the Manhattan Project.

There are various war like situations to pay attention to:

- War on Climate change,
 - War on Pandemics,
 - War on Quantum computing,
 - War on Trade, Globalisation in the reverse,
 - War on Artificial Intelligence,
- or
- Real War (Blom).

Warlike situations never go away. In 2022 there is a real war initiated by Russia in Europe. Furthermore, there is a new battlefield: technological innovation, The Economist

Industry policy is coming?

In The Economist(September 26th 2020) quantum computing is paid attention to and the role of government. There is a role. However, not a role with respect to innovation, it is about a role with respect to research. I think, there is nothing wrong in spending on research at universities for the subject matter. This is not particularly about risk taking. Usually, the curricula at universities are updated to the newest insights, universities develop new curricula, etc. Again, that is not about risk taking.

A totally different ball game is innovation. Unless, it is about a military application, innovation is for the real risk takers. Venture capital providers have the knowledge to some extent to stay with a risky prospect or leave it alone.

In the following sections, I will pay attention to some ideas and fallacies about the role of government in technology development (Noordzij).

2.Stiglitz; tongue in cheek.

First, I will discuss an interview published in the Dutch newspaper De Volkskrant November, 15th - 2014. To comment on an article in a newspaper is rather tricky. I do not know whether the newspaper adequately presented the opinion of Stiglitz. I assume the newspaper did a correct journalistic job. By default.

Stiglitz, a Noble laureate, for sure, read the result of the interview on beforehand.

Stiglitz a critic of the free market and the 'free market fundamentalists'. The quotation marks are given in De Volkskrant. What are free market fundamentalists? I do not know. A fabricated bogeyman. Just as he is disposing of neo-liberalism. Also, a bogeyman. (Van Hees, et al). A new bogeyman is introduced here: Stiglitz the neo-socialist. A social democrat? We all know social democrat to be an oxymoron. As Mao said: democracy is out socialism is in....

Accelerate the transition to socialism (in a way Robespierre would have liked it, Nz) (Dikötter).

In the interview, Stiglitz tells us that the government, the state, is an underrated driver of innovation. Underestimated indeed. It is not much paid attention to, nevertheless government/the administration has been a major player in creating the financial crises started in 2007/2008. The Clinton and later the Bush administration implementing the agenda to increase homeownership among the poor. Very innovative indeed. Clinton told the banks to be more innovative. Then, the door opens for fraud, corruption, etc. (Cohan). Packer described the preceding in a more prosaic way.

The government is according to Stiglitz able to choose winners (picking winners). Stiglitz explains that choosing winners is accompanied by choosing losers. He does not say it with so many words, but certainly implicitly: the government makes mistakes in these choices. But that does not matter since private business makes these mistakes too. Stiglitz illustrates this by using an example. Quote: *"It is often the case in the private sector as in the oil industry: you drill 10 times and with the one time it is hit, you fund the remaining nine attempts"*.

I mentioned this as an example. But we assume that Stiglitz meant this example as a neo-socialist metaphor, oh well, you can smile. However, if this is a serious example, then you have doubts about the appreciation of the Nobel Prize winner. You can still assume that as a representative of the dismal sciences he knows that despite 3-D seismic techniques there is no 100% certainty that you have found an oil-and/or gas field. And if the exploration company concerned is an insufficiently innovative company, the company is overtaken by competitors (the Economist November 2014). However, the scoring of an exploration company of 1 in 10 has nothing to do with innovation and picking winners. This ratio is now reality and is in any case subject to gradual innovation. Or did Stiglitz have his tongue deep in his cheek anyway?

Furthermore, Stiglitz says: If the government just spends long enough taxpayer's money there is always something out there. I do agree, however the taxpayer is not asked anything. It is also interesting to learn that only a few examples of picking winners are mentioned by Stiglitz, namely the Internet and the transistor. We will discuss these examples later.

Stiglitz advocates an industrial policy because each country does so. Is an industrial policy by a country good for the world? Or is the citizen better off in a country without industrial policy? Stiglitz mentions nothing in the interview in this respect. However, he argues that there is ideological aversion¹ to industrial policy. This dislike is fueled in the Netherlands by the debacle with RSV, a major shipbuilder in the second half of the last century. In contrast, EDF, the French electricity company, is one of the most successful electricity companies in the world. Are the French of the same opinion? EDF, without a competitor of any significance in France, a monopolist. Is the French government in the driver's seat with respect to pricing policy of electricity? I think so. In 2022 EDF has a serious maintenance problem. Is this problem related with the government to be in the driver's seat? It is begging the question.

Again, another example of Stiglitz: the successful ECSC policy. The EU resulted from this. It was not an industrial policy but a political policy to create the coherence of a devastated

¹ Well, that is just one side of the coin. The other is ideological support of industrial policy.

Europe. But let us go for the idea that it was a successful industrial policy. Where do we find out about that? In the EU we have several Member States that are evaluating the continuity of the EU. (Fukuyama, 2014).

An example of the absence of industrial policy are the solar panels (Stiglitz). If there had been an industrial policy, the production of solar panels had not moved to China? But in China there is an industrial policy. The production of solar panels was subsidized. But what is the result of that? If you are subsidized as a manufacturer, the difference between costs and revenues (in that order) is covered by subsidies. An incentive to innovate is hardly present. It creates complacency. Considering the labor costs in Europe, this means that production will disappear. China could pick up the pieces just like that. China has driven the innovation of the companies there according to Stiglitz. Which innovation? That is not made clear. In any case, production costs in China are lower. Moreover, the influence of industrial policy in China is exaggerated. The growth in China (GDP) is generated by the private companies and not by the so-called SOEs (Lardy, 2014; The Economist September 12th, 2015). It is striking that private companies are hardly able to obtain funding from the Chinese banks. You could call this an industry policy. Stiglitz can get the benefit of the doubt. Where he speaks about China, he can also mean private companies. But I have my doubts.

Stiglitz mentioned another example of picking winners by the government: The Internet. The government has developed the first browser. I will come back to this example later. Again, another example: the transistor developed by Bell Labs (the old AT&T) using government subsidies. AT&T was a monopolist and had to operate very cautiously with the inventions to keep the government at some distance (Gertner, 2012). If AT&T had not been a monopolist, the transistor was not invented? Many companies, including Philips, were looking for a solid-state replacement for the electron glass tube (Davids, et al, 2013).

Stiglitz finds the top sector policy in the Netherlands a good thing. Others are questioning this policy (Labohm, 2014). Did the additional expenditures of the governments stimulate the economy since, say, 2008? Asking the question is answering the question. The Dutch-NAO could not establish the results of all the subsidies involved.

In the Economist (2012) and by Lerner (2009) the impossibility of "picking winners" is explained. In general, this applies to Venture Capital and all the way to the government.

At the end of this section, I like to draw your attention to Industrial Policy, Big Mistake (The Economist December 22nd 2018). European politician looking for European mega-mergers to compete with Chinese and American titans. It will be at consumer's costs.

3.The Entrepreneurial State.

In the book *Debunking Public vs. Private Sector Myths in Risk and Innovation* by Mazzucato, the subjects mentioned by Stiglitz are discussed in more depth. Mazzucato stated the government to be successful in "picking winners". This is explained in more detail by two cases, DARPA, and Apple. Stiglitz also mentions the Internet (DARPA). As said, according to Mazzucato, the government can choose winners. There is no need for giving examples of choosing losers. Others give these examples (The Economist December 22nd, 2018) and Lerner). In the Netherlands, however, reports on the usefulness of government research funding (Rathenau report, 2007) appear. The Dutch Government Accountability Office (GAO,

Auditors or NAO) is also examining these matters. Most of the time we hear little about the subject matter. Or there is some political commotion and after that everyone returns to their daily business.

Mazzucato, who is supportive of government control (push, Mazzucato), is so sincere that it puts "risk taking" by the government between quotation marks. Why Mazzucato does that is not clear. Mazzucato feels uncertain. We all know that the government does not take any risks: it spends money from the taxpayer.

The Entrepreneurial State is an oxymoron. Government is not at all entrepreneurial. A lot of taxpayer's money is spent on Research. The taxpayer let it happen, its money is gone any way. In addition, "Picking winners" is defined: if you put a lot of money in something, there will always be produced something. An example is nanotechnology. Nanotechnology has gradually become a container concept: something for everyone. "Courageous risk-taking, a visionary role of the state". Well?

Government push: Germany and renewable energy.

In any case, the German taxpayer feels it in the wallet. A disarranged energy system. Push, by nature, always creates stagnation. The government could better manage the "pull" system. Do not push technology but raise tax on what is endangering sustainability: The Pull System. The role of government is to regulate, no more no less. Regulate a transition into the era of clean energy. To prevent brown outs and blown outs (The Economist February 25th, 2017).

The reasoning that the government can pick winners, illustrated by Mazzucato on DARPA (see Stiglitz above), and Apple. DARPA would have stimulated the development of the Internet. Apple could have only made the iPod, iPad, and iPhone through government-funded developments. Mazzucato does not say whether that is good or bad now. But which winner has the government chosen now? Apple? Apple has also made use of all kinds of government grants for SME's: Bric. Is there something wrong with that? The effect of these subsidies can be found in the book by Lerner.

Now first DARPA.

DARPA has ensured that the DARPA-net was there. In this way, the American Department of Defense could quickly communicate with the affiliated research and development institutes. That has nothing to do with the Internet as we know it. Others than DARPA have made the DARPA-net into Internet. DARPA has just released its net for this purpose. Is that "picking winners"?

Look at Apple (Isaacson, 2011). I can be brief about this. The U.S. government has not developed the iPod, iPhone, and iPad. Apple has done that: disruptive innovation. Apple has done that before with the PC. Jobs was very smart to use the things that remained unused on the shelf of other developers. For example, just think of PARC (XEROX). Who was now handy in "picking winners"? The government or Jobs? Apple innovated and not the US government.

How efficient the American incentive programs are can be read again with Lerner. It is not clear what Mazzucato wants to tell us. Has the U.S. government chosen Apple as the winner? That is not meant. But then what?

Mazzucato should be happy: Apple cleared the way for the government to "Pick Winners".

Or is Mazzucato looking for further implementation of state capitalism. I think the state should be grateful to Apple. Since the high “risk” taking government is saved by Apple after government has spent a lot of taxpayer’s money. Again, the government should be grateful that there are entrepreneurs who can make something out of the gambling of the government. When government is throwing around taxpayer’s money, an entrepreneur should wait and see. The question that remains: what is the role of parliament/Congress in this respect?

Green energy. The way in which the government bets on green energy does not encourage any entrepreneur to take risks. Taxpayers’ money is still coming to the entrepreneur.

In chapter 1 Mazzucato finally deleted the parenthesis for “risk” taking by the government. Mazzucato makes a “strong” point by means of a vicious argument: Italy and Greece are stagnant not due to their high public debt but more by a public sector which had not made the kind of strategic investment that Germany made. Did the public sector make such an investment in Germany? Infrastructure? Transition?

Mazzucato should not be surprised. Quote: *“What drives business entry into industries are not existing profits in that sector but projected technological and market opportunities. And such opportunities are linked to the account of state investment in that area”*. So what?

We will leave Mazzucato for a while and focus on an innovative government.

4. Innovative government.

Innovative government: Another oxymoron (Noordzij, *Innovation and its fallacies*).

The government can certainly provide suitable framework conditions to promote entrepreneurship and thus innovation. The best role for the government is not to stand in the way. A government which does not want to stand in the way must be small. Can that be? This is about internal innovation of the government.

The call for innovation in the Dutch government’s administration is presented by its own advisory body AWT (Advisory Board for Science and Technology). How realistic is this? The government can be regarded as a large organization. A characteristic of the innovation culture in large organizations is that innovation is taking place with small steps. But that does not happen in the administration. This may not be due to lack of creativity, but by adverse behavior and inertia. In Advice of AWT (March 2008), the government is held to function according to the new (2008) insights on innovation – for example open innovation. This is unfeasible.

Open innovation is more suited for small organizations. The government is a non-innovative, large-sized organization, which needs external advice to operate. As usual, government cannot always adhere to these advice. It goes against the culture of the organization of the Government. It is obvious to believe that the government can innovate when it first loses “weight” in order cultural change can take place to imply open innovation, for example. Open innovation would be ideally suited for a government because a government has overdue maintenance and could quickly learn through open innovation from other organizations. Unfortunately, there is a “Catch 22” situation here: The Government is too big and too cumbersome to learn from others and therefore will not be able to slim down and create the opportunity to gain experience from others.

It is true that in a case of change, e.g., the change of a ministerial post, government search in

their circles, stays in its so-called "goat's path". The Curriculum Vitae of the new minister is a beautiful illustration of the sheer force of this habit of the government. The goat's path is a clear metaphor for small changes. So, it is for the government.

Further comparison with business-large versus small companies-makes no sense. Where in business the successful start-up must grow to remain successful (Apple, Google), the government's growth is not desirable.

What the consequences are of the growth of the government can be observed especially on local/regional level. A mismatch between ambition or wishful thinking and reality. Growth forecasts or assumptions, Business parks, educational innovations with the speed of light, etc., and no light at the end of the tunnel. There comes a black swan along, so aptly described in the Book of Taleb "*The Black Swan*". The government is not learning from this, and at the end of the day it is the taxpayer who is paying the bill.

The voter can force the government to innovate by providing fewer resources. This is a social or political innovation. As a result, the government will lose weight and be able to live in smaller buildings, appoint fewer civil servants and create fewer policy notes which would cost taxpayers nothing but money.

A poignant example is the screwed IT resources. IT-resources for the IRS (Tax authorities) and the entire government bureaucracy. It is, however, very questionable whether the tax authorities should be blamed for this. The politicians caused, by special wishes, impossible complex software constructions. Incidentally, it is surprising to find no reference to Von Mises ('*Bureaucracy* ') in the previously recalled AWT report.

Government as entrepreneur

Government is unfortunately not qualified to stimulate entrepreneurship. As in the story in The Economist (Schumpeter, March 17th, 2012) is listed, there are two more important reasons why the Government cannot encourage entrepreneurship.

The first reason is that the government is now once again encouraging small businesses, regional development, and employment growth. In fact, entrepreneurs want small businesses to grow and do not like to create large quantities of small businesses. The Government must realize that real entrepreneurs do not have sentiments with respect to regional developments. In addition, the entrepreneur does not interfere with employment. They are looking for qualified staff. New activities will often decrease existing employment. Secondly, Government representatives are obsessed with Silicon Valley. This so-called Silicon Valley model is non-transferable or replaceable. Furthermore, luck and chance play a decisive role. The clusters or valleys arise by chance.

It also appears in the Netherlands that the starting entrepreneur is too much cherished by the governmental venture capital (taxpayers' money). Start-ups at Universities (in The Netherlands) often function as an extension of University departments and muddle through without any growth whatsoever.

Yet you can be surprised again. In the Economist (December 6th, 2014), in the Schumpeter column, you can read that the government is cautiously innovating. Well, after reading carefully you can conclude that there is no light at the end of the tunnel. It sounds very sophisticated: using the insights of behavioral economics. However, what I learned from Schumpeter is that the government bureaucracy is only trying to do its job on a small scale. I

can hardly call this innovative: just doing the job. It appears to me that the bureaucracy is still to be considered a nuisance by the citizens.

5. Government, innovation, and subsidies.

The Dutch GAO(NAO) reports (May 2015) on a regular basis whether the Dutch Government obtains its budget targets. A chapter in the above-mentioned report is dedicated to subsidies and the electric(hybrid) car. Well, as you can imagine, the effect of subsidies for electric(hybrid) cars appears to be unclear: €142 million of the budget cannot be related to any target. Not to say this to be ineffective as most subsidies are by nature. The argument goes for this subsidy that it supports the development or innovation of electric(hybrid) cars. In the first place it is questionable whether electric(hybrid) cars reduces CO_2 levels compared with cars using just internal combustion engines. Not considering how these electric(hybrid) cars are used just running on gasoline, who cares? Secondly, subsidies do not stimulate manufacturers. At the contrary, they will “sit on their hands”. Part of their costs are covered by subsidies. So, why innovate?

In the chapter on green energy Mazzucato writes: “*Given that innovation is about having the right networks in the economy and commissioning specific technologies...*”. This is nonsense. It reminds me of Sesame Street: The king ordering the Chief Inventor, ‘*Invent the toothbrush*’. By commissioning wind and solar power, the government retarded innovation for clean energy.

Now in 2020, a real disruption is on the horizon with respect to electric cars, *The Future of Carmaking* (The Economist September 19th, 2020), notwithstanding subsidies.

6. The state.

I left “entrepreneurial” out of the title of this section.

What is Mazzucato looking for? Nationalising of private enterprises? Could be. To abandon “short-termism” of shareholders? Again, The Economist November 22nd, 2014, in the column Schumpeter under the title of “*The tyranny of the long term*” raised a finger: Caveat Politicians. To cite The Economist: “*All this is not to say, that we should start chanting: “Short-term good, long-term bad”*”. Rather, it is an argument for nuance..... Long-termism works well in stable industries that reward incremental innovation. But it is a recipe for failure in such business as social media, where firms are constantly forced to abandon their plans and “pivot “to a new strategy, in markets that can change with the blink of an eye. Although Mazzucato describes how the state spoils taxpayer’s money, the author still longs for the state to play a decisive role to stimulate innovation (It is confusing Mazzucato mistakes R&D for innovation and vice versa). Disruptive innovation? Well, the best way to do that is by a strong state. We do have great examples of that disruption created by Lenin, Stalin, and Mao in agriculture. Great examples from the past indeed. The more intrusive a government the better a society will innovate for quite a few millions of deaths more (Dikötter-2, Gellately and Snyder). Mao was also very disruptive with industrial innovation. Citing Fukuyama: “*This was the story of China during the Maoist period, when a single leader with unlimited policy discretion could unleash untold suffering and cause the death of tens of millions of people through willful innovation like the Great Leap Forward and the Cultural Revolution*”. Were these exceptions? Well, no. This is the consequence leading to the devil. May be Mazzucato is a staunch supporter of state capitalism like Stiglitz. I am of the opinion

state capitalism to be equivalent to crony capitalism. According to Stiglitz and Mazzucato, Google, Apple and so on are products of state capitalism. Do we find enterprises like Google, Apple, Facebook, and GE in Europe? Not to my knowledge. So, we conclude there is no state capitalism in Europe? This all sounds cynical. It is cynical.

What makes you really think is the European budget spent on agriculture²: some 30% of the total budget. In Europe we are still living in a rural state of mind. This contradicts that we want to be in the vanguard of innovation. Let us put our money where our mouth is. Real SOE we find in China and alas Mazzucato, innovation is dead out there (Lardy).

Mazzucato repeatedly beats the drum of “State/Government good, business wrong”. To underline this the author mentioned the Vannevar Bush’s 1945 report. The report described the technological development in the Second World War, for example The Manhattan Project (Joseloff). Of course, the report is correct in concluding of the massive technological development due to government investment. The report is produced after the Second World War. Bush extrapolated the policy necessary for that period into the time after the war and into the Cold war, a new war. To extend the extrapolation into our time is meaningless unless Mazzucato foresees another war. In addition, the “Sputnik” effect is mentioned. Moonshot, 2012. Again, this is war-like thinking. It was not about losing a technological battle; it was about losing a battle.

A decennium of massive government investment as a policy for winning the war will by itself lead to a fat long tail of technological development. It is of no surprise that a huge defense budget of the US will lead to innovative spin offs. Wait and see whether the new US Offset Strategy (2015) creates a game changing budget. Or a war ascending over the horizon³. For sure this again will create a super budget. Is that what we want? Another war? Well, Mazzucato will be happy when thinking that way. A war on climate? Well even in this dangerous situation, a huge research program is meaningless when governments all over the world think to know how to direct taxpayer’s money towards technology. “*The Economics of Science*” (Kealy) could be good reading for Mazzucato.

However, there is a new war after the horizon. A war on chipmaking. A technology important for the defense industry. For that reason, Darpa has started a new program: Electronics Resurgence Initiative (ERI- The Economist December 1st, 2018). In a response to China, Darpa started this project to develop new technologies. Be sure, with the money available, something will come up. Alas, it is about war. A war between China and the USA. Consequently, anything goes. This has nothing to do with market driven innovation. Unless you consider war to be a leading vector for innovation ⁴

Statements like:” *The spin off business model became viable and popular for technological advancement yet would not have been possible without state involvement and its functioning as a major early customer*”. Can we do an experiment to prove this statement? So business is profiting of the investment of the state. Well, naturally, if government is

² With all the related environmental problems in The Netherlands.

³ Think of the pandemic, 2020 and Cyberwar.

⁴ In 2022, as mentioned in the introduction, a real war is going on in Europe. This war will stimulate innovation . The countries comprising the European Union are increasing their budgets for expanding their armies. Furthermore, a technological war is initiated between the USA and China(The Economist October 15th 2022). So, in these cases large budgets are made available by governments in order to stimulate research .

spending a lot of money, why should an entrepreneur spend that money? As mentioned before, Mazzucato paid special attention to the R&D/sales ratio of a company in relation to the ratio of others like Microsoft and Nokia. A diagram is presented where Apple is at the bottom of this diagram with the lowest R&D/Sales ratio and Microsoft is at the top with the highest ratio. Which of both companies is the most innovative? This once more illustrates that there is no such thing as a linear relationship between R&D and amount of innovation. The so-called innovation paradox.

Nota bene: Mazzucato writes: *“Interestingly, as the company continued to launch one new product after the next with increasing success, the company’s financial reports reveal a steady decline in the global sales/R&D ratios, which indicate the portion of funds allocated to R&D activities in comparison to global product sales was falling over time...”*. Sic.

It can be funny. Mazzucato, in the section of the book on Nano technology, describes the important role of the government in “letting the universities go” with respect to the subject matter. Then: *“Nano technology does not yet create a major economic impact because of the lack of commercialization of new technologies”*. Does Mazzucato implies here the importance of the entrepreneurs? I think so. Why not just admit it? I wonder what a communication between Lerner and Mazzucato could reveal.

There are different opinions indeed. For example, Ledbetter indicates the entrepreneurial state to be pure thievery. Citation: *“Political entrepreneurs who succeed through governmental help and collusion are fundamentally different from market entrepreneurs who succeed through providing better products and cheaper prices”*.

In the Netherlands “Sustainable Energy” is killed by the socialists. You know those people who believe society can be engineered. They are planning all cars to be electrically powered by 2015⁵. Well, a child can forecast what will happen. This plan will cost a lot of taxpayer’s money, subsidies. So, consequently the industry will sit on their hands and wait for the money distributed by government. The industry for sure disinvest in innovation. Why investing money in alternative power systems like fuel cells?

It is 2021 and the internal combustion engines are still the major prime movers.

7.The state and start-ups.

In the Netherlands, the state subsidizes a lot of start-ups. This leads to chasing of a lot of these start-ups after a view clever ideas to no effect (Lerner). Consequently, most of these start-ups do not grow and do not contribute to the economics of the country. These start-ups are creative in maximizing subsidies. Government should support almost mature and fast-growing start-ups to make start-ups to work harder. This you might call innovation pull instead of using innovation push.

8.The state, green energy, and the fallacy of sunk costs.

As could be expected, Mazzucato strongly believes in the stimulating role of government for green energy. The subject matter is discussed by Mazzucato in Chapter 6.

A catching phrase is *“Pushing vs nudging the Green Industrial Revolution”*. That is the socialistic approach with the result of a choking system in a near future. A simple experiment

⁵ It is of the order of magnitude of 5% in the Netherlands, 2020.

with pushing will show that. The experiment with pushing boxes. Try it.

Another topic in this chapter of the book of Mazzucato is the sunk costs advantage of the incumbent infrastructure. Due to these sunk costs a sustained support by the government (the taxpayer) for innovative technologies is necessary.

Well, leaving the political preferences of Mazzucato aside, the reasoning for sustained support is flawed. Why is that? The sunk costs argument also applies to renewables. The investment in second generation wind – and solar power faces the sunk costs of the first generation. Indeed, sustained taxpayers' money. Following the reasoning of Mazzucato: eternal investment of the taxpayer is needed to overcome the sunk costs of the first, second, third, etc., generation of wind – and solar power. This is the political message.

Mazzucato introduced a definition of renewables. Renewable fuels are fuels that originate from the sun. From the sun? Yes, of course like oil, gas, and coal.

What is also needed according to the author is creative destruction. How do you create creative destruction⁶ (Schumpeter) stimulating the green revolution with the top-down approach by the government? Mazzucato compared the green revolution with the ICT revolution. What was the role of government by developing PC's, laptops, tablets, smartphones, the cloud, etc.? Government should stay out of technology development in order not to create sunk costs. Government is there to develop rules in a democratic way. Coming to Germany, you have the idea this country to be a great holiday resort: always sun with all those solar cells on the roofs (I read this somewhere, The Economist). Also, a mild climate. Alas, that lignite.

Mazzucato is amusing to read. In a state of excitement, the author is writing about China's investment policy and 5-year plan. A sort of old-fashioned Stalinist fellow traveller lingo.

Well, to be adviser to a latter-day Stalinist shadow prime minister creates commitment.

Well, its history in 2020.

It becomes humoristic where the author starts to compare China's policy with UK's policy. Read and shudder.

9. Wind, solar, picking winners and the holy grail.

A couple of years ago the Dutch government signed an agreement with the industry to develop so-called sustainable technology: mainly wind power. At a cost of 18-billion-euro, taxpayers money. In 2016 the government announced the subsidies needed, added up to an amount of 6 billion euro. This was communicated as a 12-billion-euro gain. Well, that is a joke. The taxpayer is still coughing up the money. There is a bit of solace: Shell is joining the party as one of the participating incumbents. This is a relieve of misallocating taxpayers' money. Without wind and sun and a massive storage system, we rely on fossil fuels. So, this 6-billion euro is a sort of assurance premium. Spending a few thoughts on this, it looks like governments consider money to be a commodity. This is a rather socialistic behaviour.

Mazzucato presented in chapter 7 on Wind and Solar Power, section on "Wind Rush", clearly the misallocation of taxpayer's money. Citation: *"The US Government outspent Germany and Denmark on wind energy R&D and despite enlisting NASA to lead the program, failed to produce a viable commercial design. Germany's attempt met a similar fate. Only Denmark is credited with succeeding in transforming government funded R&D into a commercial success*

⁶ Assumption: The creative destruction of Schumpeter is understood.

story.....". Mazzucato: "...*They (governments) are bound to fail sometimes*".

I cannot think of a better proof for governments to stay away from technology push. The only thing governments can do is to tax CO_2 . The industry will find its way.

Nevertheless money must be spent on fundamental R&D (Vannevar Bush).

Wind energy, a sustainable energy. A sort of contradiction. At the end of 2016 and the beginning of 2017, the months of November, December and January, there was hardly any wind in the Netherlands. The more windmills, the less wind. Correlation with causation? However, what is mentioned before, Shell is joining the wind program in the Netherlands. So, the billions of euros will support the bottom line of the oil- and gas company. Hence, this will improve the way electricity is produced by means of oil and gas.

Mazzucato is not particularly in love with The Economist. Alas, I must advise Mazzucato to spend some time reading The Economist on "*Clean energy's dirty Secret*" (February 25th 2017).

Oh, well, again government and innovation. To quote the Nobel prize winning inventor of the microprocessor, Noyce (TI): "*Innovation: Understand which industries are symbiotic so they can capitalize on how they will spur each other*", (Isaacson 2).

Government get out of our innovative way and spend or tax money on fundamental research at universities.

Mazzucato is convinced government to qualify to pick winners. We know this to be impossible: the holy grail, or a vicious circle.

However, it is even worse. It is not about picking winners, but about protecting the incumbent/established corporations (The Economist, January 21st 2017). It is about supporting zombies and/or potential zombies. Alas, we must live with it. In America and Britain, the message communicated is industrial policy. The China road to success. Well, be sure, innovation will be killed.

Paraphrasing Clinton: "*It is politics, stupid*".

An illustrative metaphor of picking winners is presented in the Free Exchange column of The Economist, August 20th 2016. It is about the Olympics and how Olympics teaches us no shortcuts exist to innovation: "*A government which competes with other countries to build the best public goods-the best universities or railways-does not lose if it fails to come top of the league tables in published research or passenger miles. To believe that success in the Olympics provides evidence of the value of industry policy, you need to believe that governments are wise to spend on Olympic prowess in the first place. Yet bread matters more than circuses*".

The misleading role of government with respect to clean technology is clearly demonstrated in Germany. Again, Mazzucato in the section on Clean technology Crisis: "*While the performance of countries has varied tremendous over the decades, it is obvious that Germany has provided a glimpse of the value of long-term support,*". Uh? Is this supposed to be very cynical? May be, but I am not so sure. Since I suppose Mazzucato is pointing to the 'Energiewende' and transition. Burning brown coal to produce electricity and contributing in this way to additional release of CO_2 in the atmosphere is the result of energy transition indeed.

Well, in the last chapter 10 on *Conclusions*, Mazzucato admits between the lines the ideas in *The Entrepreneurial State* to be rather utopian. I cite a few lines: "*There is nothing in the*

DNA of the public sector that makes it less innovative than the private sector. But equally, encouraging innovation and creativity in public sector institutions requires thinking about organizational dynamics". Organizational dynamics? What does it mean? An organization opposing innovation can be very dynamic.

Thinking about organizational dynamics is one thing. To create or implement organizational dynamics is just another one, assuming we all understand what organizational dynamics means.

Then Mazzucato continues: "The only way to rebalance this problem is to upgrade, not down grade the status of government.....". Furthermore, the author indicates the book *The Entrepreneurial State* "...an open call the way we talk about the state". Well, changing the way we talk about the state does not change the state and politicians.

This chapter on *Conclusions* of *The Entrepreneurial State* illustrates the propositions of Mazzucato to be unrealistic. The author assumes the existence of a long-term policy within the executive branch or among the lawmakers of the Trias Politica. There is not such a thing as a long-term policy. The time span is determined by the next election. I admit, assuming the existence of a liberal democracy. May be Mazzucato has something different in mind.

10. Conclusions

A state should not be entrepreneurial at all. Its first and foremost task is to reduce misery of their constituents.

A state is not equipped for entrepreneurship. Entrepreneurship is about risk taking and serendipity. So, government and innovation is out of the question. When attention is paid to innovation by government, a closer look leads to the conclusion it's about research or an invention. I paid more attention to the subject matter in Noordzij.

Finally, an entrepreneurial state leads to mercantilism or neo-protectionism. Examples are China and the US.

Europe is not able to go for this route. The Economist, October 3rd 2020: "Given how dependent the EU is on exports, which are worth about half of its GDP compared with 12% in America and 18% in China, the bloc(EU) will probably come off worse from a protectionist fight".

In the introduction I mentioned "It is in the air".

Well, it still is. In The Economist, January 16th 2021, a briefing is dedicated to the subject matter. The Economist started this briefing with the question: *Economists are convinced that governments can increase economic growth by spending more on research and development. Are they right?* They are not. Why is that? The economic experts have as their example the decade after the second world war. There are two remarks to be made in this respect: i) the decade after the second world war we were still in the long tail of The Manhattan Project, ii) after the second world war, 1945, there was the famous report of Bush, *The Endless Frontier*. A report with a huge impact, however, based on a warlike situation: the Cold War. With some results, to say the least: The Moon-shot project initiated by Kennedy after the Sputnik hang over. I think warlike situations, for example climate change, pandemics, etc, can all be important vectors. We should be aware of that. I cited The Economist, January 16th 2021, and mentioned the economists longing for more government spending and related "Moon-shot" projects. I argued this to be feasible in warlike situations. I can hardly believe all

economists to be belligerent.

Still, due to lack of ideas, we have now a follow up, sort of, of The Valley Hype: The DARPA Hype. By constituting institutions like DARPA, USA, politicians in, e.g., Europe think the economy can be stimulated. It is worthwhile to remember where DARPA originated from. It started with ARPA and with a 'D' in front of ARPA it has been made crystal clear of the existence of a close relationship between DARPA and the USA Department of Defence. A very close relationship with a customer. Furthermore, the ideas of Bush(V) to constitute institutions to for basic research without much political manipulation fell on fertile ground. Do not forget, as mentioned before, those days after the second world war a new war was going on: the Cold War which had to be won. I think that period was one of a kind. A sort of long tail after the closure of the Manhattan Project. Those days, people involved of management of DARPA were prepared to take the long-term view⁷. Now, at least in Europe, politician will not take this long-term view. The executive (government) will apply the usual audit systems and, to cite The Economist, *"Without freedom from political interference, the risk-taking instincts of those at the cutting edge are curbed"*.

I mentioned the circumstances after the second world war were one of a kind. This is illustrated by what is going on in the USA, where DARPA-like institutions are created. These new institutions are missing the 'D' metaphorically so to speak.

Or we must except the reality of a continuum of warlike situations. In the introduction I mentioned a few, e.g., War on Trade, Globalisation in the reverse.

This warlike situation has been mentioned in The Economist, October 15th 2022. To cite China's president, Xi Jinping: *"Technological innovation has become the main battlefield of the international strategic game."* The Economist continues: *".....There is little doubt that China's system has helped it catch up with the West in some existing technologies, but analysts question whether it will be as good at future breakthroughs. The answer will determine the outcome of the global battle for technological dominion"*.

Here, in a warlike situation, Mazzucato is quite right about governments playing a decisive role in innovation dominion.

Otherwise, with no warlike situations, what I mentioned before, throwing a lot of taxpayers money on R&D will always deliver something. However, this is by no means a way to spend taxpayers money.

Excluding warlike situations, innovations are stimulated by consumers money spent in the marketplace. Nowhere else.

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