

**Opinion** Technology sector

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# Look at the phone in your hand - you can thank the state for that

*Rutger Bregman*

We know the private sector has given us life-changing products. But we forget that it is state investment that makes innovation possible in the first place

私营部门为我们提供了改变生活的产品，但我们忘记了首先是国家投资使创新成为可能

Rutger Bregman is the author of [Utopia for Realists](#) (translated by Elizabeth Manton)

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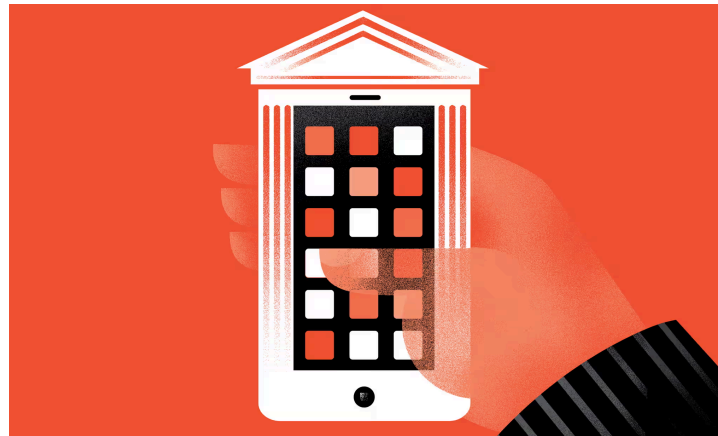


Illustration by Nathalie Lees

Who are the visionaries who drive human progress? The answer, as we all know, is the geeks, the free spirits and the crazy dreamers, who thumb their noses at authority: the Peter Thiels and the Mark Zuckerbergs of the world; the likes of Steve Jobs and the Travis Kalanick; the giants with an uncompromising vision and an iron will, as though they have stepped fresh from the pages of one of [Ayn Rand](#)'s novels.

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领导者和跟随者的区别在于创新

“Innovation,” Steve Jobs once said, “distinguishes between a leader and a follower.” Now, if ever there were a prototypical follower, it would have to be the government. After all, why else would nearly all the innovative companies of our times hail from the United States, where the state is much smaller than in Europe?

Media outlets including the Economist and the Financial Times never tire of telling us that government’s role is to create the right preconditions: good education, solid infrastructure, attractive tax incentives for innovative businesses. But no more than that. The idea that the cogs in the government machine could divine “the next big thing” is, they insist, an illusion.

Take the driving force behind the digital revolution, also known as Moore’s law. Back in 1965, the chip designer Gordon Moore was already predicting that processor speeds would accelerate exponentially. He foresaw “such wonders as home computers”, as well as “portable communications equipment” and perhaps even “automatic controls for automobiles”.

And just look at us now! Moore’s law clearly is the golden rule of private innovation, unbridled capitalism, and the invisible hand driving us to ever lofty heights. There’s no other explanation - right? Not quite.

For years, Moore’s law has been almost single-handedly upheld by a Dutch company - one that made it big thanks to massive subsidisation by the Dutch government. No, this is not a joke: the fundamental force behind the internet, the modern computer and the driverless car is a government beneficiary from “socialist” Holland.

Our story begins on 1 April 1984 in a shed knocked together on an isolated lot in Veldhoven, a town in the south of the Netherlands. This is where a small startup called ASML first saw the light of day. Employing a couple of dozen techies, it was a collaborative venture between Philips and ASM International set up to produce “hi-tech lithography systems”: in plain English, machines that draw minuscule lines on chips.

Fast-forward 25 years, and ASML is a major corporation employing more than 13,000 engineers at 70 locations in 16 countries. With a turnover of over €5.9 billion (£5.2bn) and earnings of €1.2bn, it is one of the most successful Dutch companies, ever. It controls over 80% of the chip machine market - the global market, mind you.

In point of fact, the company is the most powerful force upholding Moore’s law. For them, this law is not a prediction: it’s a target. The iPhone, Google’s search engine, the kitty clips - it would all be unthinkable without those crazy Dutch dreamers from Veldhoven.

Naturally, you’ll be wondering who was behind this paragon of innovation. The story told by the company itself fits the familiar mould, of a handful of revolutionaries who got together and turned the world upside down. “It was a matter of hard work, sweat and pure determination against almost insurmountable odds,” explains ASML in its corporate history. “It is a story of individuals who together achieved greatness.”

▲▲ Government isn’t just there to administer life-

There’s one protagonist you never find mentioned in these sort of stories:



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**support to failing markets. Without it, many would not even exist**

government. But dive deep into the archives of newspapers and annual reports - back to the early 90s - and another side to this story emerges.

From the get-go, ASML was receiving government handouts. By the fistful. When in 1986 a crisis in the worldwide chip industry brought ASML to its knees, and while several big competitors toppled, the chip machine-maker from the south of Holland got a leg-up from its national government. "Competitors who had survived the crisis no longer had enough funds to develop the next big thing," explains the company's site. So while its rivals licked their wounds, ASML shot into the lead. Is ASML an anomaly in the history of innovation? Not quite.

A few years ago the economist **Mariana Mazzucato** published a fascinating book debunking a whole series of myths about innovation. Her thesis is summed up in the title - **The Entrepreneurial State**.

**Radical innovation, Mazzucato reveals, almost always starts with the government.** Take the iPhone, the epitome of modern technological progress. Literally every single sliver of technology that makes the iPhone a smartphone instead of a stupidphone - internet, GPS, touchscreen, battery, hard drive, voice recognition - was developed by researchers on the government payroll.

激进的创新几乎总是始于政府

Why, then, do nearly all the innovative companies of our times come from the US? The answer is simple. **Because it is home to the biggest venture capitalist in the world: the government of the United States of America.**

美国拥有世界上最大的风险资本家: 美国政府

**These days there is a widespread political belief that governments should only step in when markets "fail".** Yet, as Mazzucato convincingly demonstrates, **government can actually generate whole new markets.** Silicon Valley, if you look back, started out as subsidy central. "The true secret of the success of Silicon Valley, or of the bio- and nanotechnology sectors," **Mazzucato points out**, "is that venture investors surfed on a big wave of government investments."

广泛的政治观点认为: 政府应当只在市场失败时介入

政府实际上可以创造全新的市场

**True innovation takes at least 10 to 15 years, whereas the longest that private venture capitalists are routinely willing to wait is five years. They don't join the game until all the riskiest plays have already been made - by governments.** In the case of biotechnology, nanotechnology and the internet, venture investors didn't jump on the bandwagon until after 15 to 20 years. Venture capitalists are not willing to venture enough.

真正创新至少需要10到15年, 而VC通常最多愿意等待5年

VC只有在所有最具风险的步骤已经由政府完成之后才会加入游戏

**The relationship between government and the market is mutual and necessary. Apple may not have invented the internet, GPS, touchscreens, batteries, hard drives and voice recognition; but then again, Washington was never very likely to make iPhones. There's not much point to radical innovations if no one turns them into products.**

政府与市场之间关系是相互和必不可少的

政府造不出iphone, 苹果公司也发明不出GPS

To dismiss the government as a bumbling slowpoke, however, won't get us anywhere. **Because it's not the invisible hand of the market but the conspicuous hand of the state that first points the way.** Government isn't there just to administer life support to failing markets. Without the government, many of those markets would not even exist.

推动我们的不只是市场, 还有指明方向的政府。

The most daunting challenges of our times, from climate change to the ageing population, demand an entrepreneurial state unafraid to take a gamble. **Rather than wait around for the market, government needs to have vision, be decisive** - to take to heart Steve Jobs' motto: stay hungry, stay foolish.

政府不能再等待市场的推动, 而是需要有远见, 果断行事

*Utopia for Realists: And How We Can Get There* is available from the [Guardian bookshop](#)

*This article was translated from Dutch by Elizabeth Manton*

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