

## Startups Are a Great Start, But Not the Goal

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The recent special report by *The Economist* on tech startups shows that startup creation is now occurring in more hubs around the world, and it identifies technological causes—the current stabilisation of technological platforms—that allow the rapid creation of specific kinds of tech startups. Nonetheless, it does not offer us answers into the most important questions regarding these tech startups: how would these activities translate to economic growth in *specific locales*, and whether this movement toward tech-startups inflation is only the latest twist moving us into even less economic equality. I argue that unless we develop a new understanding of how innovation and entrepreneurship can bring about sustained economic growth in different ways in different places, we will be doomed to one of two options: horrifying levels of inequality or depressing economic stagnation. If there is one new thing in “globalisation,” it is the new system of fragmented global production of goods and services. Great innovations and entrepreneurship *always* mean growth and job creation. However, in our global economy, growth and job creation do not necessarily occur at the place of innovation. The latest American biotech boom may spell an amazing future filled with good jobs for the middle classes of Denmark, Ireland, and Switzerland. But America’s policy failures could mean that its people will not share in that future—a future fully paid for by their tax dollars.

So let us dispel the vision of glory in *The Economist’s* report, and figure out what is really going on: what changed in the way in which innovation translates to growth and distribution? To do so we have to understand how goods and services are now being globally produced; what is innovation; how different kinds of innovation lead to growth and jobs; and whether what *The Economist’s* report presents as the latest stage of development—the growth of platforms that allow rapid creation of new venture on top of them—is indeed new.

The easiest question to answer is the last: are platforms and new tech startups hubs in the global industrial fringes a new phenomenon?

The answer is no. If we go back just one generation of transformative high-tech and look at the places that were then the fringes, we will find incredible new hubs of innovation in cities (just like Shenzhen today) that were barely a village a generation before. For example, if during 1910 we took a walk in downtown Turin, then a humble town that turned into “the city” for the industrialising Italy, we would see scores of startup car manufacturers. Many of these manufacturers, such as Diatto and Chiribiri, were the leading light of innovation in that period, even if today we only remember Fiat and Lancia. The reason this has happened? The platform technologies for cars were stabilised enough that it was technically and financially feasible to open a tech startup, literally in one’s garage. Within a few decades, however, the platform and industry moved on, to the point where you need many millions of dollars and hundreds of engineers to open a globally competitive startup.

Technology always changes the economic equilibrium. What is more, technology and innovation are most effective in creative destruction precisely when companies and policy-makers think they “got it”. That is the reason why innovation is the main engine of economic growth and why economic theories based on equilibrium and price competition proved so bad at explaining reality. Thus, celebrating the current moment of the information-technology revolution as the new growth paradigm, is wrong.

Other changes are much more important. We have been witnessing a vast and accelerating increase in the fragmentation of productive activities. The production of goods and services is no longer organised in vertically integrated hierarchical companies located in one country. Corporations increasingly break apart their activities into smaller discrete modules and out-source or offshore them. This process of fragmentation has changed the international economic system, leading different countries to specialise in specific stages of production of particular industries. Within the information-technology industry, the main focus of *The Economist's* special report, there has been a major transformation in the way final products are manufactured and sold. Apple has never been engaged in the production of its two most successful recent products, the iPad and iPhone. And other leading companies, such as Dell, Cisco and Microsoft's Xbox division, have never even bothered to open their own manufacturing facilities.

Once started, these processes of specialisation are self-reinforcing because of the dynamics of modularisation. Economies of scope and scale enable suppliers to become more efficient and allow them to profitably operate on margins that are much lower than those achieved by in-house manufacturing divisions. This cost advantage in turn allows them to lower their prices further while offering the same or even higher quality. Additionally, by specialising in a particular stage of production, these firms develop focused innovational capabilities that further increase their competitive advantage in offering higher quality differentiated services. The rapid economic growth of India, based on its prominence as a software and IT services hub, is a case in point.

The rise of the new system of global production, in turn, means that *different modes of innovation are needed in order to thrive in different stages of production*. Accordingly, admiring tech startup hubs around the world, assuming they will have the same impact on their locales, misses the point. Under globalisation, *different nations can achieve rapid and sustainable growth by focusing their innovation activities on various stages of production*. In addition, certain innovative activities yield more widespread distribution while others lead to more concentrated wealth generation.

A quick look at three countries is striking. Starting in the early 1970s Israel focused on frontier novel technologies, but by and large neglected the creation of institutional arrangements necessary for their dissemination throughout the domestic economy. Taiwan thought it best to draw upon novel technologies developed elsewhere and improve the production process or enhance the design of existing products. Finland, starting a decade or two later, revamped its innovation system but anchored it around its old system of institutional discourse between business, capital, workers, and the state. Today, Israel has more high tech firms listed on NASDAQ than any country barring the United States, but it suffers from rapidly growing, and politically explosive, inequality and a widening gap between the few successful R&D producing sectors and the rest of the economy. Taiwan has seen decreasing levels of inequality, but faces challenges relating to its novel-products innovational capacity. Finland is still the envy of Europe in terms of both innovation and economic equality. Although Nokia's implosion looms, the new tech startup hub in Helsinki has created more jobs than were lost at Nokia.

Moving to China, as was highlighted by *The Economist's* report, it is not Beijing and Shanghai with their world-class universities that are producing the high tech companies that conquer the world, but Shenzhen, which is home to such companies as Huawei, ZTE, Tencent, and BYD. Having honed their skills first on incremental and production innovation, and not on bleeding cutting edge-research, these companies now boast innovation capacities that allow them to redefine global markets. In addition, it is precisely because

Shenzhen is a hub of innovative IT production (and not high-end research) that it is now the loci of the most feverish hardware startup activity worldwide. Walking through what was until recently a Haka fishing village, one cannot but wonder whether most of the economic growth benefits from the best innovations in Silicon Valley are being enjoyed in Shenzhen. If you are a poor but ambitious young Chinese person from the interior, Shenzhen and its surrounding counties, not Beijing and Shanghai, are the place where your dreams can come true. This is what the new city of Turin used to offer to the poor immigrants from the south of Italy a hundred years ago.

It is time that our policy and business leaders wake up to the fact that America's flowers now bloom overseas. Innovation and entrepreneurship policies built on simplistic assumptions no longer fit the global reality. The obsession in the West with what I once called the "techno-fetishism of novelty" obscures the most important lesson from Joseph Schumpeter: innovation is *not* invention. Growth does not happen in the lab, it happens in the markets over a long period of time in a slow process of diffusion, improvement, and recombination. For all Americans to enjoy a prosperity based on America's innovations, the country needs to realise that economic growth does not happen at the moment of invention. Only an innovation policy aiming to maximise activities throughout the innovation cycle will succeed in capturing economic growth that enhance the welfare of all citizens.

To paraphrase Bill Janeway, a noted venture capitalist and economist: innovation-based growth is a process of trial, error, error, and error. We need our society to be involved in the last two errors, that is to constantly engage in experimentations along the innovation life cycle, if we wish to have sustained innovation-based *growth* that offers a better future to all citizens. Startups are a great start, they cannot be the goal.