

Why France Failed to Capitalize on its Engineering Talent to Create New Jobs¹

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Many countries have innovation systems built around leading world-class science and technology universities, with linkages to and from those institutions. Silicon Valley around Stanford, Route 128 around MIT, and Israel's "Silicon Waddy" around Technion-Israel Institute of Technology and Tel Aviv University.

A recent study estimated that Stanford alumni created 5.4 million jobs, generating annual revenues of \$2.7 trillion. The study found that if Stanford entrepreneurs comprised a country, it would be ranked as the world's 10th largest economy.

A similar study about MIT (Roberts and Eesley, Kaufman Foundation) ranks the economy created by MIT alumni the 17th largest economy in the world. Close to 13 thousand companies created by MIT alumni employ 1.6 million people and have annual world sales of \$1 trillion.

Looking at the Israeli startup scene, start-ups founded by Israeli university graduates have raised \$1.64 billion, with Tel Aviv University alumni leading the pack.

France has top science and technology universities. French engineers and scientists are known worldwide for their excellence and creativity, historically in civil engineering but increasingly in electronics and in biology. The Minitel, a Videotex online service accessible through telephone lines, one of the world's most successful pre-World Wide Web online services, was launched as a public service as early as 1973. Other world-changing French inventions include the calculator (1652), aspirin (1853), dry-cell battery (1866), helicopter (1907), insulin pumps (1981), telesurgery (1993) and the camera phone (1998).

France is a world leader in engineering education, with its 240 "Grandes Écoles d'Ingénieurs". École Polytechnique's world ranking is higher than its Israeli counterpart, Technion. However, while Israel's universities have generated a torrent of technological breakthroughs and startups, we have not seen anything similar take place in France. French universities do not seem to play a prominent role in the French entrepreneurial ecosystem. Given the strong underlying physical and legal infrastructure, one wonders why we haven't witnessed entrepreneurship of significant scale in France.

¹ Parts of this article is based on "Mapping National Innovation Ecosystems", Edward Elgar Publishing, by Prof. Shlomo Maital and Prof. Amnon Frenkel, Samuel Neaman Institute for National Policy Research

The IMD World Competitiveness Yearbook points out a notable difference between France's excellent infrastructure and its very large and cumbersome government bureaucracy, which hinders its business sector.

France ranked only 62nd in the 2013 Heritage Foundation Economic Freedom Index. This index measures the degree to which economies are "free", or instead, are closely regulated, stifled by bureaucracy. France's relatively low ranking reflects, in part, the heavy proactive French government. Opening a company is easy, the legal infrastructure and the physical infrastructure are in place; however a large amount of government regulations and an endless parade of taxes are deterring entrepreneurs from starting up new companies.

Shlomo Maital and Amnon Frenkel (*Mapping National Innovation Ecosystems*, Edgar Publishing) show that French innovation is not driven by entrepreneurs, but rather by "intrapreneurs": innovators within large organizations. However today, with the French economy growing very slowly or not at all, French businesses are reluctant to undertake risky innovation and unwilling to invest significantly in R&D. They also note that a great deal of the French innovation is created over government procurement, which is normally focused on large companies.

The observations above highlight one facet of the social infrastructure concerning entrepreneurship: individuals may take the risk of trying –and risking failure–, within companies, but less so on their own.

A social barrier to entrepreneurship is the fear of failure and the condemnation of failure. While pro-entrepreneurship societies promote a "can-do" attitude, a sense that anything's possible and failure being part of the entrepreneurial cycle, in France, if you fail, you would often be labeled a loser.

Singapore, coping with a similar problem, created a course in school with the motto of "It is OK to fail if you try hard enough" (Ed Mlavsky, Milk and Honey and High Tech). Combined with an efficient business environment that is well maintained (the world's top economy in "ease of doing business"), Singapore benefits from a vibrant entrepreneurial economy.

For many years France was losing one of its most important assets, if not the most important of all: young entrepreneurs making their way to other countries, mainly the UK and the US. Recently we are seeing France address both its bureaucracy and its social climate.

France has launched a "tech visa" for foreign entrepreneurs, and launched a public-investment fund, BPI France, promoting start-ups. Paris is encouraging entrepreneurship, more and more accelerators and incubators are opening, creating "cultural chaos", with a non-hierarchic environment, welcoming youngsters to break the rules, dare and embrace

failure on their entrepreneurial race. Successful entrepreneurs, providing role models, are coming back to assist, advise and encourage their predecessors.

If successful, this new wave of entrepreneurship could create many of the jobs France so badly needs.