



Solar-sector startups attract the greatest investment in Africa, with \$61.1 million.

with clients from around the world. Wyliodrin helps users program embedded devices through a browser on any computer. The platform offers remote programming in multiple languages, as well as a language for visual programming, accompanied by a series of tutorials for beginners. It supports many mainstream processors, including Intel Edison, Intel Galileo, Intel IoT Devkit, Raspberry Pi, BeagleBoneBlack, Arduino, chipKIT, BrickPi, Rapiro, Grove, GrovePi, and UniPi.

The Wyliodrin concept emerged from Innovation Labs mentoring sessions. It was where we decided to abandon a tourism-related idea in favor of a platform to facilitate programming for makers from all walks of life. Given our engineering background and passion for technology, the team, the idea, and its implementation still represent a thrilling adventure. Our greatest challenge was the ambitious business-development plan we created with help from Innovation Labs mentors.

Networking and visibility through Innovation Labs opened the door to success for Wyliodrin; as a first step, we were accepted and ultimately won the How To Web 2013 contest in Bucharest, then followed with a week of mentorship in the U.S. Going to the U.S. was an unexpected turning point for the team, an achievement that motivated us toward startup-building and software-development work. Wyliodrin is proof that innovation is more than a big idea, but also a road from concept to product that teams travel with perseverance and an attentive eye to user experience.

#### Biography

Răzvan Rughiniș is a professor in the Department of Computer Science at the University Politehnica of Bucharest and a co-founder of the Tech Lounge Association. Since 2013, he has coordinated the Innovation Labs prototype-development program, empowering tech founders to realize their vision and connecting Romanian universities to the worldwide digital innovation ecosystem.

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## How Startups Changed the Way We Do Science

Startup companies have transformed the way innovative science is conducted worldwide. The timeline of a startup is mainly established by a group of engineers or practitioners, who identify a market need and develop an innovative product or service to meet that need. Funding is typically the next step, and depends on the prospects and potential popularity of the product. Such prospects imply the decisions about design and product implementation are the sole responsibility of engineers, while investors (whose background might have nothing to do with the market need the startup aims to address) choose whether or not to invest in the product.

In the past, most engineering products would be designed and produced almost exclusively within an industrial organization. Engineers would be hired to innovate within the limits of the organization employing them. One key moment changing this trend in the semiconductors industry was in 1957. Eight engineers at Shockley Semiconductor Laboratory (SSL) of Palo Alto, CA decided to leave SSL and seek out funding for their own project. These eight (also called the “Traitorous Eight” by William Shockley, then the company’s director) managed to reach a funding agreement with Sherman Fairchild, a U.S. businessman and inventor, to create Fairchild Semiconductor in Sunnyvale, CA. Fairchild Semiconductor quickly became the leader in the emerging semiconductor industry and a driving force in creating Silicon Valley. Fairchild’s semiconductors and its engineers also represented the seed for the creation of other semiconductor companies, including AMD and Intel.

Our everyday lives have benefited enormously from tech-oriented startups; examples include Uber, Dropbox, and Snapchat, as well as Amazon, Apple, Google, and Microsoft. The startup model favors private and group initiatives, and will continue to be a source of innovation for years to come as more and more people gain access to higher education and the Internet.

—Vasileios Kalantzis



The “Traitorous Eight.”