# Introducing the Analog Garage

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Today we speak to Pat O'Doherty, a vice president for the Emerging Business and Technology Group at Analog Devices. Start-ups can become an important area for semiconductors. Analog Devices has generated an internal start-up program called Analog Garage. Could you please tell us a bit more about it?

Questions about Analog Garage
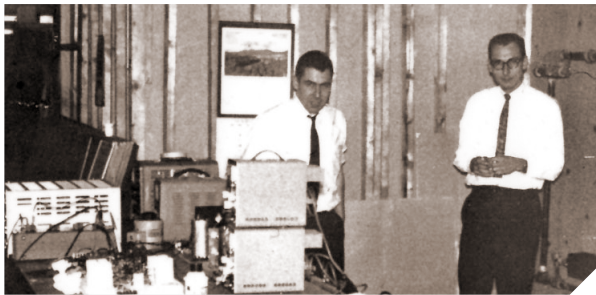
What is Analog Garage?

The Analog Garage is a corporate incubator intended to provide external entrepreneurs and ADI *intra*preneurs with a path to propose, explore, and scale new breakthrough technologies and business models. It's called the Analog Garage for two reasons: 1) to recognize the importance of analog know-how in many of the applications that are instrumenting the world, and 2) to give a nod to all the garages, basements, and other nondescript quarters that have served as home for countless beginnings in the history of technological innovation. Through the Analog Garage, start-ups, universities, research centers, and teams of our own employees get the support they need to solve tough problems and collaborate in a fast-paced, roll-up your sleeves, experiment-focused, and risk-tolerant environment.

The Analog Garage was started four years ago in Cambridge, Massachusetts with about 20 engineers and moved to Boston one year ago when it outgrew its previous space. The Boston site now holds approximately 70 engineers with backgrounds in signal processing, machine learning and AI, materials scientists, system engineers, security technologists, and software and cloud developers. These are nontraditional skillsets for a typical semiconductor company.

Although the Analog Garage is headquartered in Boston, it is not all located in one place. The Analog Garage has active initiatives across the globe focused on identifying breakthrough new technologies and business models that will help build our future. Any employee of ADI, whether they are based in India, China, Ireland, Germany, or the United States can propose a new idea. A team within the Analog Garage then works with the project champions to refine their idea and, if it meets our criteria, pitch it to a venture board. From there, the board decides whether to fund it. Once funded, the project team can work on the project part time or full time, leaving their previous roles for the duration of the project. The projects are managed exactly like external venture capital-funded start-ups with angel, seed, Series A, and Series B stages with strict focus on achieving project milestones, funding, and speed.

How is Analog Garage organized? What is the difference between Analog Garage and R&D departments and where do they overlap?

The Analog Garage is part of ADI's Emerging Business and Technology Group, which reports to the CTO and is separately managed and located physically apart from the business units comprising the rest of the $6 billion parent company. The Analog Garage focuses entirely on opportunities that are high risk, high return ventures with the potential to turn into significant revenue within five to 10 years. The R&D groups within ADI's business units typically focus on technology that is expected to convert into product revenue within five years. However, the business units and the Analog Garage collaborate intensively on many projects that are ADI's highest priorities.

What motivation do employees have to work on a project in the Analog Garage?

Many of our Analog Garage employees have Ph.D.s in signal processing, machine learning, or materials science, and tend to come from the leading research universities around the world and a variety of deep tech start-ups. They are motivated by the breadth of foundational technology possessed by ADI and the huge opportunities to create new breakthrough technology that spans sensing, signal conditioning, interpreting, connecting, and analyzing real world signals.

How do you communicate Analog Garage projects within ADI?

Communications with the business units and our manufacturing group are constantly maintained via face-to-face management reviews, technical reviews, project collaborations, etc. The information is also shared via an internal website allowing any employee to see what projects have been pitched, funded, stopped, or graduated back into the business units to seed new businesses.

How do you utilize Analog Garage's projects and its results? How do Analog Garage employees benefit from the utilization of project results?

Graduating Analog Garage initiatives either move into a business unit to seed a new business—which is the typical path—or can be set up as a new business unit or spun out to grow entirely independent of ADI. This determination is made by the business units and is largely based on strategic alignment and fit.

The employees within the Analog Garage and the ADI employee participants in the Analog Garage from all around the world get the opportunity to work on breakthrough projects that they are passionate about. This has turned out to be of great personal benefit to them as well as to ADI, and positively impacts our ability to hire and retain the best people.

What expectations does Analog Devices have of the Analog Garage and how should it develop in the future?

We expect to continue growing the Analog Garage to enable the discovery and development of more breakthrough technologies that will significantly contribute to ADI's long-term growth and diversity.

About the Author

Patrick has worked in the semiconductor industry in a variety of roles at Analog Devices in Ireland and Massachusetts, ranging from engineering, process development, quality, manufacturing, marketing, and product line leadership (running operations in Massachusetts, California, Ireland, and Spain), including leadership of several internal start-ups that have grown to be successful and sustainable businesses. He previously spent six years as VP/GM of ADI's healthcare business unit and is now VP of emerging business and technology, where he is responsible for exploring and developing new breakthrough businesses and technologies inside and outside of ADI. This role includes start-up outreach and breakthrough university research.

Patrick has a B.E./B.S.E.E. degree from University College Cork, Ireland and an M.B.A. from Northeastern University in Boston. He can be reached at *pat.odoherty@analog.com*.

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