

The Success Story of Daikin & eLichens

Daikin and eLichens work together to create an evolved HVAC service offering

Our batch startup, eLichens, teamed up with Daikin, a global HVAC manufacturer, to transform Daikin's business. Daikin worked with eLichens to create a comprehensive air monitoring device, setting the foundation for enhanced service offerings by providing them with deeper customer insight.

The Innovation Partnership Success Stories is a series that focuses on key projects that emerged through our Internet of Things platform.

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Corporate Partner



Daikin is a Global No. 1 Air Conditioning Company headquartered in Japan. Traditionally focused on equipment manufacturing, Daikin wanted to deepen their connection to their end users by providing them with more customized HVAC systems and additional service offerings. In order to do this, Daikin needed to transform their business from a manufacturer to a solutions provider.

Partnership Background

Daikin set out to evolve the traditional model of HVAC manufacturing. In order to transform, Daikin realized the need for data analytics and a deeper, consultative approach with their customers. More specifically, Daikin's mission was to go beyond traditional methods to assess HVAC needs and begin to gather deeper data sets. They partnered with Plug and Play to find IoT solutions to enhance their HVAC services. Daikin's primary focus was air quality monitoring, and they needed a solution that monitored all aspects of air quality in a given space. With this data, Daikin would be able to customize the indoor air experience for the customers with increased energy savings, levels of comfort, and overall customer satisfaction.

Our Task

Plug and Play was tasked with helping Daikin meet IoT solutions to address their business challenges. In this specific instance, Daikin utilized Plug and Play's array of events and networking opportunities to discover eLichens at one of the first events Daikin attended.

Startup



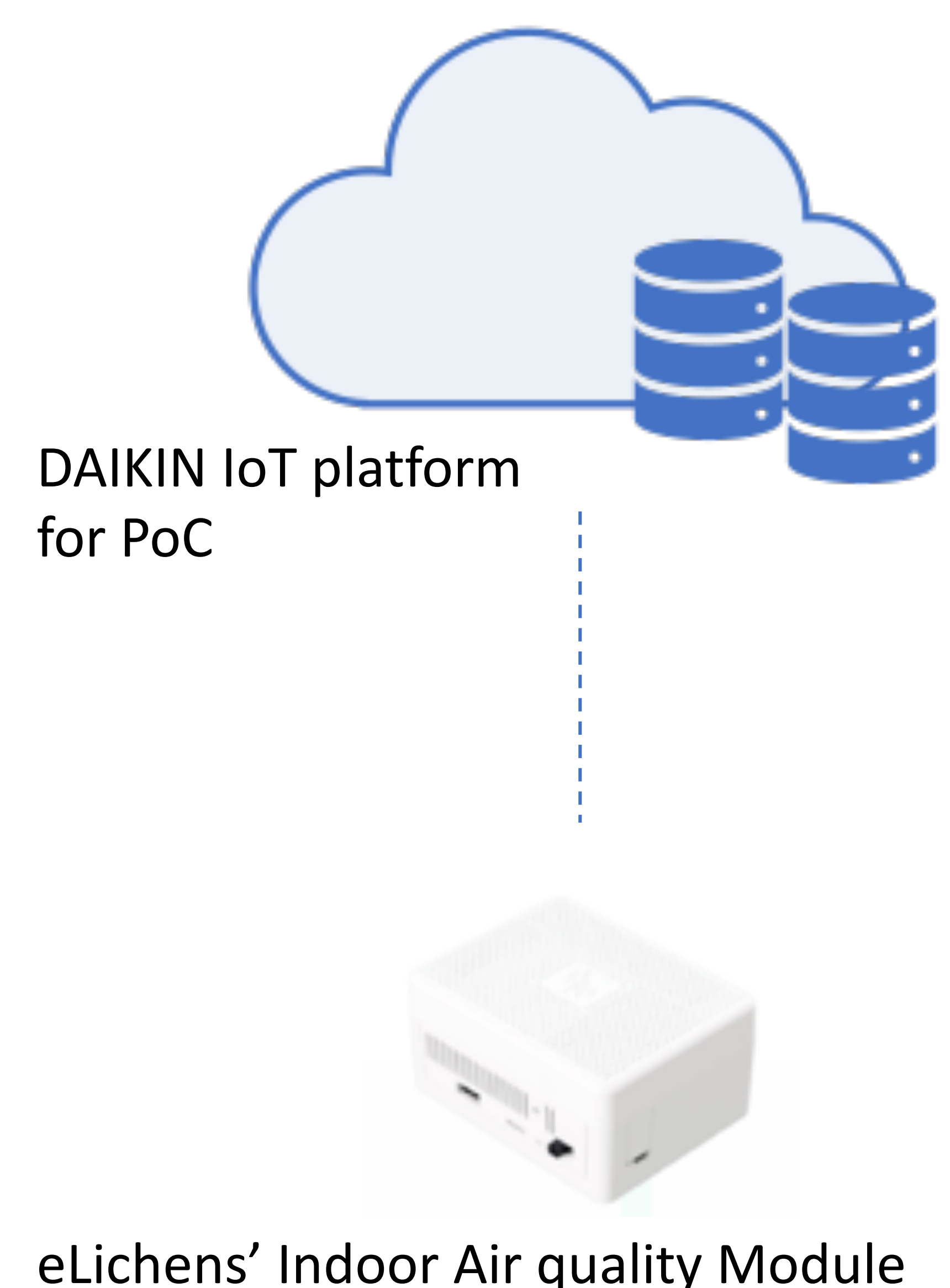
eLichens is a designer of patented gas sensors and the first comprehensive air quality analysis and prediction platform. They are start-up with a mission to help individuals digitize their environment. The company relies on a portfolio of patents, know-how and skills which enable it to develop and market complete sensor and data services solutions to address the industrial, smart home, smart city and consumer markets.

Connection

Daikin met eLichens at Plug and Play's Winter Summit in 2015, just a few months after Daikin joined Plug and Play's ecosystem. After the initial meeting, Daikin and eLichens connected at CES in January of 2016 where eLichens presented their CO2 sensor prototype. The prototype ignited Daikin's vision for a broad air quality sensor-based solution. Within just a few months, an NDA was put in place and initial engagement was underway. With Daikin's developed idea, they asked eLichens to develop a standalone air quality module for Daikin. Therefore, a collaboration agreement was put in place.

Goal

Daikin had a strong vision about the future of air quality. Building off of that foundation, Daikin and eLichens worked together to develop an inventive IoT air quality sensor as a standalone module with connectivity to the IoT and data analytics platform. The data from the sensor module would provide detailed feedback about the end users' situation and help Daikin to enable their customers to achieve and maintain a desirable indoor climate experience, evolving from a traditional manufacturer to a solutions provider.



The Project

Overview

The engagement between Daikin and eLichens was led by Daikin’s Silicon Valley Team and included three different Daikin teams in total: Daikin Innovation Team in Silicon Valley, Japan, and Minnesota. Through a PoC and a pilot with eLichens, iterations of the prototype started soon after the collaboration agreement was put into place. eLichens presented multiple iterations that were received by Daikin’s Silicon Valley team and sent to Daikin’s team in Japan for testing. Once testing was completed, the pilot commenced with the Daikin’s Minnesota team.

PoC

Daikin worked amongst their Silicon Valley team and Japan team to test various iterations of eLichens’ module. First, the Silicon Valley Innovation Team tested data stability and cloud connection. Next, Daikin’s Japan Team tested data integrity. Once initial module testing was completed, Daikin moved to a pilot.

Pilot

Daikin’s Silicon Valley Team worked with Daikin Minnesota team to conduct a pilot with one of their customers, deploying more than 20 sensors at a large commercial building. Within this pilot, both Daikin teams measured and monitored data remotely and assessed the types of possible solutions based on the indoor air quality data.

Result

From their assessment, Daikin gained new insights into potential services they could provide to their customers, such as zone-based analysis and HVAC system optimization.

NDA ———> PoC ———> Pilot ———> Analysis ———> Customer

The Timeline



December 2015

Meeting between startup and Daikin at PnP event

January 2016

Follow-up meeting between startup and Daikin at PnP event and at CES

March 2016

Signed NDA

Rest of 2016

Initial internal sensor testing with CO2 only (R&D driven)

March 2017

Concept idea was born at Daikin with enhanced business focus

July 2017

Collaboration agreement signed and project goals defined

July - October 2017

PoC execution and collection of data

October 2017 - April 2018

Internal discussion and definition of final specs

April-July 2018

eLichens manufactured second iteration of prototypes

April 2019 - Present

PoC testing at large commercial facility in the United States

Future Outlook

Further research will be conducted to learn customer needs

Take Aways

INVOLVING INTERNAL BUSINESS UNITS

Daikin had three different teams involved throughout the engagement with eLichens. It was important to have these stakeholders to ensure each step of the process was handled with the appropriate expertise. The result was enhanced internal collaboration throughout Daikin and external collaboration with eLichens.

COMMUNICATION IS KEY

Clear and open communication amongst all parties was paramount to success. With all three teams spread across the globe, Daikin realized the importance of streamlined communication both amongst themselves and with eLichens. Clear requirements need to be set, and feedback needs to be given early and often.

ADAPTIVE MINDSET

Pilots often include product pivots and the emergence of alternative objectives. An adaptive mindset will allow for these changes, and keep the process moving. Daikin adopted this mindset and the result was a broad air quality solution evaluated with eLichens that evolved from a standard CO2 monitor.

How We Can Help

We are the ultimate innovation platform, bringing together the best startups and the world's largest corporations. Collaborating with startups is a great source of inspiration and innovation ... but can be a challenge. Let us show you how to adopt the concept of open innovation to help your business succeed.

ABOUT PLUG AND PLAY

[PNPTC.COM](https://pnptc.com)

Plug and Play is a global corporate innovation platform which helps to connect corporate partners to startups in order to help solve their greatest challenges. We also operate as a venture fund and startup ecosystem. To date, we have helped over 3,000 early-to-growth stage startups raise over \$3.5 billion. Plug and Play is consistently ranked among the most active VCs in Silicon Valley.

For additional information, please contact iot@pnptc.com

ABOUT DAIKIN

[DSV.DAIKIN.COM](https://dsv.daikin.com)

Daikin is a Global No. 1 Air Conditioning Company headquartered in Japan.

For additional information about Daikin Open Innovation Lab Silicon Valley, please message contact@dsv.daikin.com.

