



Photo courtesy of UP42

The screenshot shows the UP42 web interface. On the left is a navigation sidebar with 'TEMPORAL CHANGE DETE' and options like Dashboard, Workflows, Jobs, and Settings. The main content area is titled 'Identifying Illegal Construction' and shows a workflow table with columns for Workflow, Created, and Updated. Below this is a 'Geometric Filter' section with radio buttons for 'Bounding box', 'Contains', and 'Intersects'. A 'Parameters' section shows a JSON configuration for a workflow. On the right, a map displays a satellite image of a coastal area with a blue polygon overlay and a callout box indicating an area of approximately 2.39 km².

Workflow	Created	Updated
Identifying Illegal Construction	08/19/2019, 13:43	08/19/2019, 13:44

```

1 {
2   "oneatlas-pleiades-aoclipped:1": {
3     "bbox": null,
4     "time": "2007-03-01T13:00:00Z/2018-08-20T15:30:00Z",
5     "limit": 10,
6     "contains": {
7       "type": "Polygon",
8       "coordinates": [
9         [
10          [
11            49.985046,
12            26.827403
13          ],
14          [
15            49.980712,
16            26.826024
17          ]
18        ]
19      ]
20    }
21  }

```

Geospatial data

UP42, a subsidiary of Airbus Defence, is a developer platform and marketplace which aims to simplify the way businesses can derive insights from geospatial data at scale. The company launched in early 2019, gaining a lot of traction with a diverse portfolio of companies, and has gone from strength to strength. Sean Wiid, UP42’s CPO, opines on what they’ve done right, and what he expects to see from the company as it finds its feet.

Laurence Russell, News and Social Media Editor, Satellite Evolution Group

Question: UP42 only launched in 2019 so you’re still relatively new to the scene; could you introduce us to the company?

Sean Wiid: We are a Berlin-based start-up with currently 35 employees from 20 nationalities. The name UP42 is a playful combination of two ideas. “UP” refers to the fact that much of our data comes from airborne platforms including satellites, planes and drones. “42” is a reference to the Hitchhiker’s Guide to the Galaxy, where 42 turns out to be the answer to the Ultimate Question of Life, the Universe and Everything. So, we aim to provide the answers to all questions using data collected from above us.

UP42 was founded by Airbus Defence and Space because they realized that there is a large untapped market potential for geospatial data and analytics. They saw that there were

many commercial and technical barriers in place that prevented most companies from being able to efficiently work with this kind of data at scale.

Airbus enlisted the help of BCG Digital Ventures to incubate the company. We launched UP42 and our closed beta in May 2019 after about six months of research, prototype development, collaboration with key partners and ramping up the core team. The beta label came off in September when we announced full commercial availability.

UP42 aims to solve three main customer pain points: Access to data, access to algorithms and analytics, and access to an efficient compute environment to process the data at scale.

We reach out to data providers across the industry, and work to integrate their data into our platform.

This makes it easy for customers to access a wide variety of data sources, including satellite data, aerial imagery, AIS, weather, elevation models and more. We started with Airbus Pleiades, SPOT and WorldDEM data, but we aim to be a neutral marketplace and therefore open to everyone. So far, we have around 20 data sources on the platform, including open data sources such as ESA’s Copernicus program, LANDSAT and MODIS.

We also help developers and analytics companies to publish their algorithms on our marketplace. These algorithms range from simple data preparation steps all the way through to high-value analytics such as NDVI and machine learning-based object detection and classification.

This means that, by using our UI, you can build a workflow that takes satellite data from Airbus and push it



Sean Wiid, UP42's CPO

through an Orbital Insight car detection algorithm in a few clicks without needing to write any code. Using our API, you can run this same workflow over 100s of AOIs in parallel without needing to think about how to scale the infrastructure.

In general, there is no minimum order and customers pay for only what they use. We collect revenue from our customers and share it with our partners according to exactly how much of their data or processing blocks was used in each workflow.

What we do is unique in the market not only in terms of our building block approach, but also in terms of the usage-based revenue share model. Six months after commercial launch, we are seeing good traction both on the partner and on the customer side. We started generating revenue already during our beta phase. So far, we have around 20 data blocks and over 50 processing and machine learning algorithms on the marketplace. We have closed 25+ partnerships and have over 3,000 sign-ups.

Question: That sounds like a very strong start; what's your company's strategy going forward?

Sean Wiid: Yes, it's a strong start, and we are proud of what we have achieved so far. But we are very aware that we are only at the beginning of our journey.

As with any platform and marketplace, our strategic imperative is to grow our ecosystem of partners and customers to the point where network effects and economies of scale start to kick in. Of course, this will take some time. In the meantime, we have two main

priorities to help move us in the right direction.

Firstly, we are focusing on increasing both the number and diversity of data providers on our platform and making it easier for people to find and use the data they need. This is critical to attracting new algorithm partners and customers to the platform.

Secondly, we are focusing on maturing the business enablers of our platform to make it easier for us to handle more partners and more customers at scale. For example, providing shared company accounts and strengthening our billing platform capabilities.

In parallel to these main priorities, we continue to push on bringing on new algorithms, improving the developer experience and ramping up our sales and marketing activities. We have a lot of work to do!

Question: What industries stand to benefit from geospatial data and satellite imagery?

Sean Wiid: I think the easier question to answer is which industries don't benefit from geospatial data and satellite imagery?

There are many studies that have been conducted over the last few years that show how the overall impact of geospatial data and services on the economy, on society and on the environment far outweighs the size of the geospatial market itself. One study estimated that geospatial technology improves revenues and costs by at least five percent in sectors contributing approximately 75 percent to the global GDP. That is staggering. Imagine what

could happen if we truly made it easier for everyone to take advantage of this technology?

In fact, this universal relevance of geospatial technology and its overall impact to society is at the core of our company mission and also what has kept me personally engaged in this industry for over 20 years.

More concretely: At UP42 we currently see the most interest from companies that want to monitor infrastructure, including oil & gas pipelines, railway networks and electricity grids. We also have customers who are using our platform for precision agriculture, insurance and environmental monitoring. The main advantage in using satellite imagery and machine learning is to be able to regularly extract insights over huge areas to support decision making at a scale that would be impossible or prohibitively expensive to do manually.

Question: Among the applications of your platform, you list your ability to monitor forestry, arctic ice and offshore turbine batteries. With investment in environmental technology growing, do you anticipate a significant portion of your resources going to optimising these services?

Sean Wiid: We're definitely passionate about environmental topics. Many of the data sources we have or will be onboarding are optimized for use cases such as air quality monitoring and forest fire detection. For example, we have recently added Sentinel 5P, which is specifically geared toward measuring a wide variety of air quality metrics such as methane levels globally on a daily basis.

What we find very encouraging is the number of large corporations who are starting to use satellite imagery and analytics to drive environmental and sustainability topics, for example deforestation monitoring for sustainable supply chains. This is important, as it increases the possibility for companies such as UP42 to be healthy businesses while also benefiting society as a whole.

Question: Your platform's architecture appears to have been designed with accessibility in mind. We've several other satellite technology developers prioritising the accessibility of their products and services. Do you agree there is a trend of making satellite applica-



tions more accessible, and if so, why do you think that's started appearing now?

Sean Wiid: I would agree that this is certainly a trend, and a fairly inevitable one at that.

Firstly, it's about what developers want. Over the last several years there has been a massive shift in general towards APIs and platforms. I often hear APIs described as the glue that holds ecosystems together. Being able to tap into stable, well-documented APIs to get access to data or a service is a far more efficient way to build digital products. It has also put developers into a key decision-making role in the buying chain and as a result having a strong developer experience is a critical success factor. We have customers that use us primarily because of our developer experience.

Secondly, with so many new constellations and data sources coming online, and the sheer volume of data being collected each day, it no longer makes sense to deliver data in any way other than on-demand via APIs. For many companies, finding exactly the right data at the right time is more important than having a full copy of all the data to work with on their own infrastructure. As the industry starts to push past the traditional large government and defence contracts, it makes more and more sense to focus on removing friction for the middle and long tail.

Finally, it's about the audience. If we as an industry want to address a broader market, we need to hide more

of the complexity of satellite imagery, remote sensing science, data processing and machine learning behind easy to use services. Otherwise, it's too hard for many to get started.

Nevertheless, I think we still only at the beginning and as an industry still have quite a way to go to make the technology truly accessible.

Question: What do you expect to see from the geospatial market in 2020 and beyond?

Sean Wiid: It's really interesting to imagine what's about to happen in this market. I'd like to compare it to the period where Google Maps entered the mainstream.

Fifteen or twenty years ago, people would get directions by writing them down with paper and pen. The first wrong turn you'd make trying to navigate that way would render you utterly lost. You'd be left pulling out the map from your glove compartment and staring at it for a half hour trying to work out where you were before even working out where to go next.

Then Google beta-ed an interesting application that did those things for you, and perhaps within a year, it had eclipsed all other methods of navigation to become something many people simply couldn't navigate without. Suddenly we knew where we were, where we were going, when we were going to get there, and what the traffic would be like.

It changed our lives, but in a startlingly organic way. It went from an app no one had heard of, to an

irreplaceable pillar of 21st century life, ingrained into our muscle memory. Like it was a puzzle piece that fit so neatly into our lives, it almost felt like it was always a part of us. It went on to be connected to most other apps, and almost every business with a physical address. It became the means by which people found places. It became a very fundamental commercial platform everyone had to be on.

We've seen these sorts of movements before. It's just what happens when you open up a very advanced technology to the venture community. As we open up this industry to use even more powerful geospatial data, we're not just talking about map information. We're talking about state-of-the-art imagery with 30-50cm resolution and complex machine learning analytics. When innovators turn all those tools into apps, we may well see more watershed moments like Google Maps popping up through the rest of the early 21st century.

We see ourselves as a part of this market evolution. Moving forward we'll be integrating many, many more diverse data sources and algorithms on the platform, further increasing its capability. At the same time, we'll be working to keep that increasingly varied experience simple and accessible.

I would love to encourage people to give UP42 a shot. We offer free credits to get you started, and we're very open to hear any and all feedback about your needs. Whatever you're trying to achieve in the geospatial sector, let us help to get you there. ■



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