From JSON to Actionable Insight, Integration with Keyence's Ki Platform

In today's data age so much of our most valuable data may be locked away in a format that makes it unusable by the tools that we have or need to use. This can often be data coming from an API in a JSON format, which is not the simplest to use in an AI analytics engine.

Keyence and Precog have set out to remove this hurdle and to make it simple to make this data meaningful. By using Precog's Data Loader tool and Keyence's Ki Automated Analytics software, there is a way to take even difficult and previously unreachable data and make it usable and actionable.

Consider data from California's own SpaceX. Stored in JSON files through the SpaceXData API (*www.spacexdata.com*), this data *(Fig. 1)* is structured in a format that makes it easy to pull but not as easy to parse. Using the Data Loader tool, users can easily take this data and convert it into a readable URL format that can be ingested into systems like Ki. So with this power at our finger tips, let's see if we can help SpaceX find insights.


Fig. 1

For those who are not familiar with SpaceX, they are a company that is attempting to drastically reduce the cost of space flights by capturing and re-using large components of the rocket. This includes the first stage, second stage, and rocket boosters, which traditional are lost in flight. If these components can be safely returned and re-used it could reduce the cost of space flight by as much as 80%. CEO Elon Musk compared current space flights to "Throwing away an airline after every flight", and over the past decade they have continued to improve the process of landing their components for re-use.

Using Precog's Data Loader tool *(Fig. 2)* the data from the SpaceX API was converted into an easy to use report. Each report contains a list of each SpaceX flight, the payload, the type of rocket used, and if the component was captured successfully for re-use. Once Ki reads the data, we can ask Ki how to fix our target.

Fig. 2
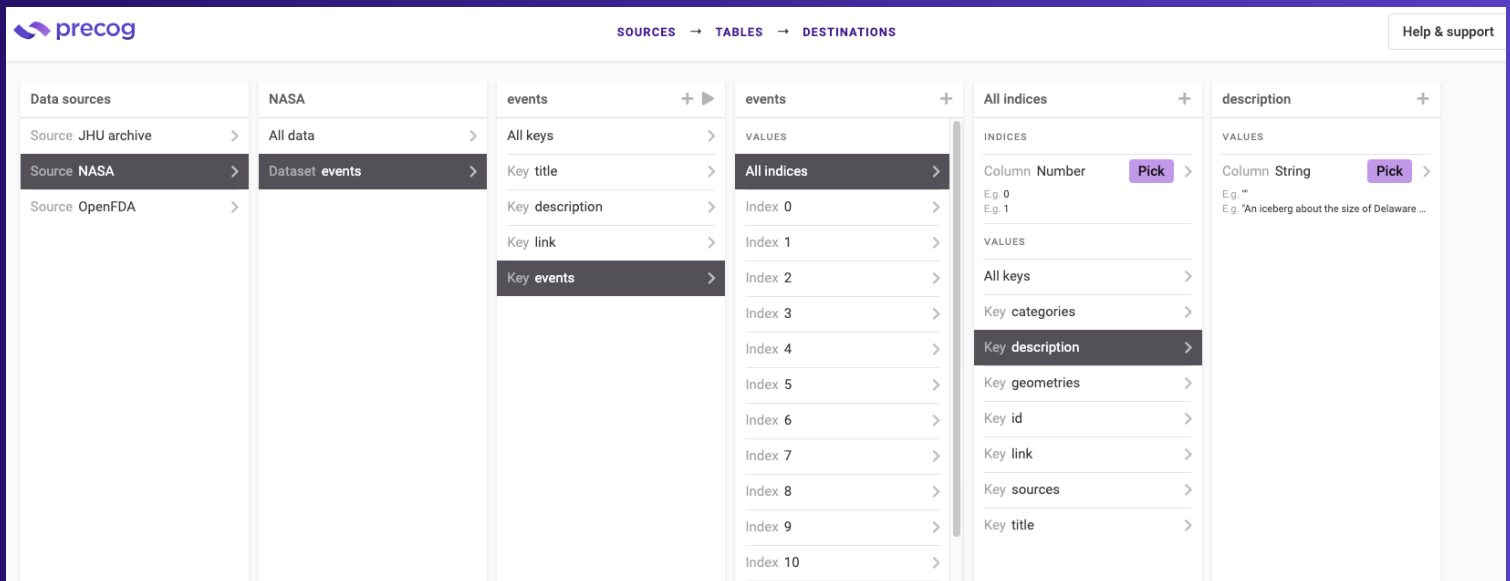
So let's ask Ki:
How do we increase Reused Components?

Ki quickly seeks to find ways to make this data useful, automatically joining and aggregating the data as well as creating meta data from the original data so that it is more useful to us. In just a few minutes, Ki highlights a few impactful features.

Number 1, it's harder to capture components for re-use at Night (from 10pm to 6am). That makes sense, as it's dark and harder for vision systems and guidance systems to correct. But now we have it in empirical data *(Fig. 3)*.

Fig. 3
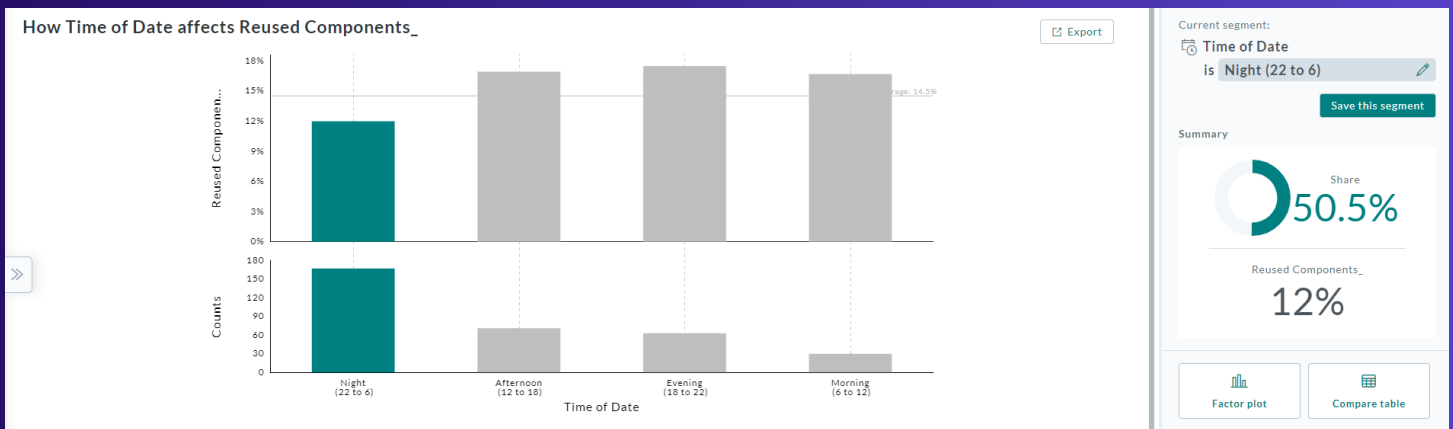
Specifically Ki highlights an issue with 11pm. Looks like the team has had 6.1% of flights at that time, but has never successfully caught any of those components. So while the entire night time is difficult, that 11pm time slot is the worst *(Fig. 4)*.

Fig. 4
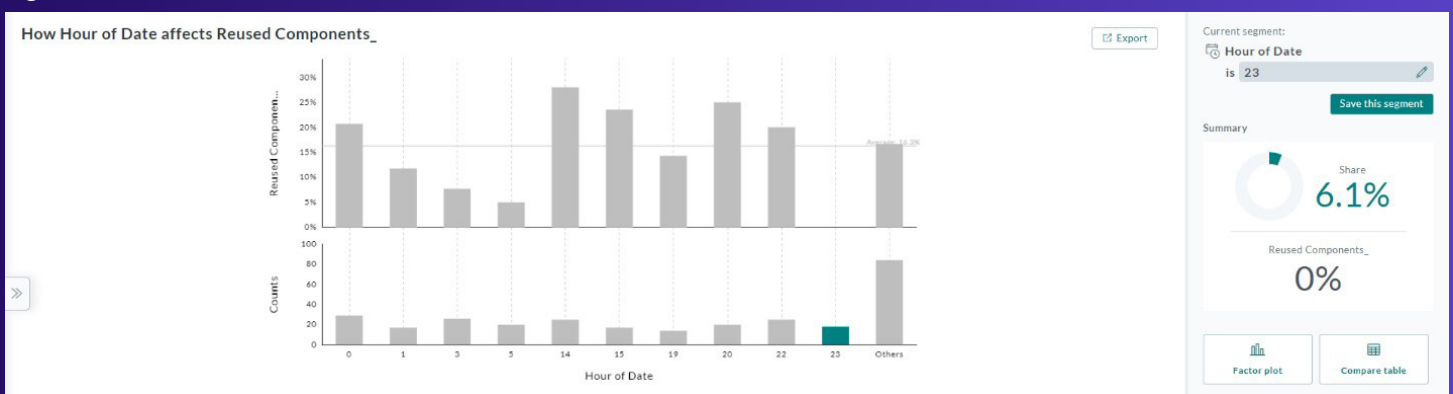
What Else Has Ki Found?

Well, it seems that the weekend launch crews may not be as successful as the weekday launch teams. We now have two key factors that compound on themselves to point to a weak point in SpaceX's process. Weekend Night Flights have a worse chance of re-capturing components, and at $11 million per re-used component, that could be an incredibly valuable insight.

All from an API and its unstructured JSON file format that would have been useless just a few short minutes ago due to its inability to be ingested by analytics software.

KEYENCE

Summary

When it comes to making action from data, we often wish we had that little bit more, or we are concerned that the data that we have is not clean enough, or useful enough. But those of us who are familiar with analytics and how it can be used in today's businesses know that these are just excuses, preventing analytics from making the larger impact that it can. Removing barriers is half of our jobs, and Precog's Data Loader tool and Ki by Keyence lets you go from useless, to actionable, all in a count of 10, 9, 8, 7, 6, 5...

If you want to see how Precog can enable flexible, fast and powerful analytics for your business email **contact@precog.com**