

TRENDALYZE

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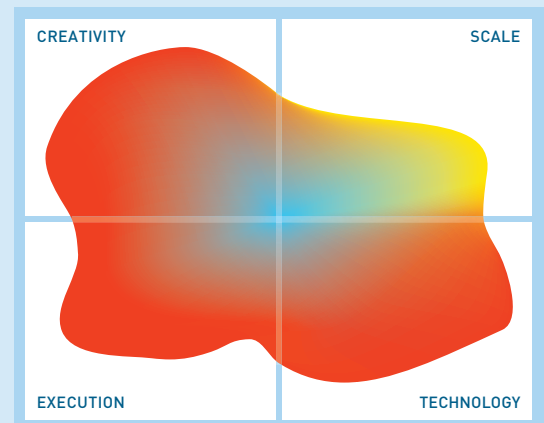
Trendalyze

The company

Trendalyze, which is the name of both the company and the product, was founded in 2014. It has headquarters in the United States (New York) and offices in London, Toronto, Sofia and India. The company was initially funded through a grant from the EU but has since raised venture capital. Its go-to-market stance is primarily through partners though it also has a direct sales force. Its client base is diverse, ranging from gaming through medical research to the financial sector, and it has a specialised internal group developing financial solutions. The company has partners developing solutions for Internet of Things based applications in areas such as manufacturing and retail. Trendalyze also has partnerships with a number of universities.

What is it?

Trendalyze describes its core capability as the discovery of motifs (and anomalies) within time series data. You can think of a motif as a micro-pattern but it is more accurately a shape. **Figure 1** provides an example, where a recurring motif is highlighted in red. Once a motif of interest is discovered, or defined, then Trendalyze will search through your time series data to look for recurrences of that motif or for occurrences of shapes that resemble, within parameters that you define, the motif in question. You can then raise alerts that will be generated as this motif is recognised in real-time.



The image in this Mutable Quadrant is derived from 13 high level metrics, the more the image covers a section the better. Execution metrics relate to the company, Technology to the product, Creativity to both technical and business innovation and Scale covers the potential business and market impact.

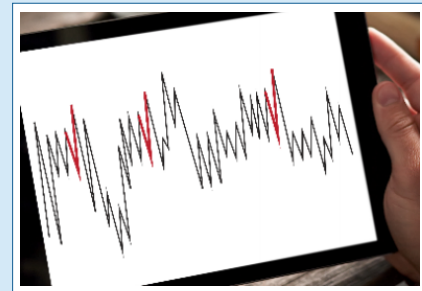


Figure 1 – Highlighting a recurring motif

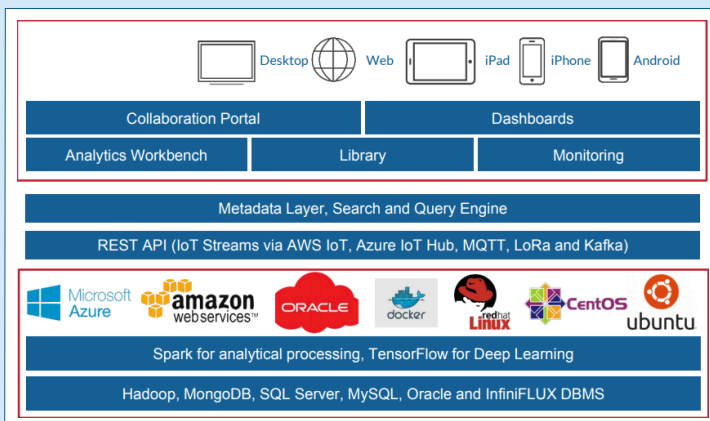


Figure 2 – Trendalyze architecture illustration

The architecture of the product is shown in **Figure 2**. As can be seen, the software is provided as a service running in the Cloud (Azure, Amazon or Oracle) or you can deploy it on-premises running on Linux. The databases shown in the bottom layer are examples rather than being a comprehensive list. InfiniFLUX (known in the United States as MachBase) is a time series database that should not be confused with InfluxDB.

There are several supported technologies whose presence in this diagram is important to note, especially the support for Spark and TensorFlow, for example, to support machine and deep learning, though there is also an in-built

| | |
|-----------------------|-------|
| Analytics & modelling | ★★★★★ |
| Architecture | ★★★★★ |
| Deployment | ★★★★★ |
| Development | ★★★★★ |

| | |
|---------------|-------|
| Innovation | ★★★★★ |
| Integration | ★★★★★ |
| Self-service | ★★★★★ |
| Visualisation | ★★★★★ |

machine learning module (based on metadata) that supports recurrent neural networks and linear regression. There is also integration with Internet of Things (IoT) platforms and Apache Kafka. Also notable are the collaboration portal and dashboards, which are intended to allow Trendalyze to be used by business analysts and others who do not have deep technical skills.

What does it do?

The way that Trendalyze works is that you inspect time series data looking for micro-trends (motifs) that are of interest. Take predictive maintenance as an example.

What you are trying to achieve is to predict when a particular asset is likely to fail and repair it before it does so. To do this you require a large body of historical time series data. The standard approach is to have a data scientist build machine learning or other algorithmic models that will make the relevant prediction.

The concept behind Trendalyze, however, is that there will be specific micro-trends in the time series data that can be used to make these predictions and once a relevant motif has been found you can use this as your predictor. And, specifically, while it may be relatively easy to spot a pattern – when displayed visually – it is not easy to spot a recurrence of that pattern, let alone any slight variation on that pattern. This is what Trendalyze aims to automate for you. The software applies search principles to look for instances of an identified motif within the dataset being examined. Once discovered you can set threshold parameters around your motif (in other words, supporting variations to the motif), which can be used to predict assets that need maintenance.

Once you have discovered a relevant motif, which can be stored in a library for reuse, you can set the software to look for that and raise an alert or other action when it occurs. Conversely, if you are looking for anomalies, then you can automate an appropriate action when a motif doesn't occur. You can also look for combinations of motifs or anomalies: for example, in anti-money laundering

you might look for, say, five anomalies occurring within a given time period. In either case, you can still create predictive models (via the product's support for Spark and TensorFlow support) if you wish to, though the reason that Trendalyze provides its own modelling capabilities is to give users the ability to deploy machine learning without having to understand modelling.

Finally, note that Trendalyze is not intended as a replacement for a conventional business intelligence or analytic environment but, rather, as a complement to such tools.

Why should you care?

Experience suggests that motif-based prediction can be much more accurate than using conventional approaches based on data science. For example, at Lockheed Martin Trendalyze was able to reach a 97% success rate at predicting engine failures, while other approaches that were tried got no better than 50%. In the pull-out quote from RummyCircle.com, which is a gaming site, a similar dramatic improvement (actually we understand that 75% is a conservative estimate) was performed but here the "assets" are people and the predictions are about churn, based on how much gamblers are spending over a relevant period of time.

The other big advantage, apart from accuracy, is that you don't need any coding to achieve these results. In the Lockheed Martin example there was no coding required to get 97% accuracy, but alternate approaches did require coding by data scientists. Thus, there is significant cost saving potential resulting from the deployment of Trendalyze.

The Bottom Line

We are impressed by Trendalyze. One of the big problems with artificial intelligence is that it is often difficult to put machine (let alone deep) learning into operation, typically because there is a disconnect between data scientists, who often work for business departments, and IT. As an end user tool Trendalyze obviates this issue.

“ [Using Trendalyze] we could flag churn or reduce spend with 75% precision. Our results were much superior to Machine Learning based predictive approaches where the observed precision was under 50%. ”
RummyCircle.com

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