

# Combining the Power of KNIME and PowerBI for Automated Sentiment Analysis

## Increasing the efficiency of social media campaign reporting to get to insights quicker

Sport England run cross-platform media campaigns to encourage participation in sport and physical activity. Reporting, however, is always a manual task. Sport England wanted to increase the efficiency of this process to not only generate insights more quickly, but also reduce unnecessary manual work.

Previously, the process required logging in to each of the social media platforms, collecting statistics from accounts, transforming the data so it was comparable, before visualizing it in Excel and producing a report in PowerPoint. This was a labour-intensive process, which could only be done by one person and created a significant lag in reporting. The delay in reporting meant that while a view of overall success was available to senior management, information was not available for operational decisions where a nimble response to events might be required.

Off the shelf solutions were considered but could not provide the targeted approach or custom visuals required by Sport England for their *This Girl Can* campaign.

## Blending technologies for an automated, bespoke, and branded reporting solution

Atos (a Trusted KNIME Partner) created workflows in KNIME Analytics Platform to collect, transform, join, and write data from social media platforms to an SQL database on Azure, where it was visualized in Power BI. KNIME Server was used to schedule data collection and an analytical application was made available via the KNIME WebPortal to allow a supplementary data file to be uploaded in a user-friendly way by their admin team.

Atos used functionality already built into KNIME to connect to Twitter, Python nodes to connect to, navigate, and retrieve data from Facebook and Instagram graph databases, as well as web-scraping for data from Medium. Python nodes were also used to query Google and YouTube APIs. Data was transformed and joined in KNIME to provide a comparable snapshot of activity over the previous 24 hours when the collected data ranged from cumulative counts to six-week windows.

The workflows were scheduled to run shortly after midnight on KNIME Server, which was running in a virtual machine on Sport England's Azure platform. Data was saved to an SQL database where it was available to Power BI for visualization.

Initially Azure Cognitive Services were to perform sentiment analysis on tweets in Power BI, but this functionality was folded back into KNIME. Therefore, a tweet was only ever passed to Cognitive Services once, and the score was stored in the database for cost and efficiency savings.

### Company

**Sport England** is an arms-length body of government responsible for growing and developing grassroots sport and getting more people active across England. They're working to keep movement, sport, and physical activity central to the lives of everyone through a combination of National Lottery funding and grant-in-aid from the Department for Digital, Culture, Media, and Sport, which classifies them as a non-departmental government body.

### Solution highlights

Reporting automated and reduced from **monthly to daily**.

Public Body   Marketing  
Sentiment Analysis



## KNIME Success Story

*"The visual workflow builder enables workflow creators to explain the process to the media team and others outside data specialist roles who don't necessarily have the technical data science knowledge ... this means the solution is less of a "black box", but rather something that end users can use with confidence because they understand how the parts fit together."*

Rob Blanford, Artificial Intelligence & Machine Learning Manager, Atos (KNIME Trusted Partner)

Atos created custom metrics for rating features such as a user's influence, which could be explained, understood, and adapted as necessary. These were then visualized to Sport England's specification in adherence with their internal style guides and branding to make it their tool. This highlighted that the data that was important to them and the success of their campaign.

### Automatic data processing and increased reporting frequency

The frequency of reporting was increased from monthly to daily. Instead of relying on a single person to generate the report, which would take half a day, the latest data was collected and processed automatically and made available via a Power BI report at the beginning of the day. The Power BI report was more useful than the PowerPoint report because it allowed users to apply multiple filters to find the data they needed – instead of relying on the analyst to anticipate requirements and generate insight.

### Why KNIME?

KNIME makes it easy to seamlessly blend core functionality for data manipulation with highly complex and bespoke operations for data collection and cleaning using R and Python. The visual workflow builder enables workflow creators to explain the process to the media team and others outside data specialist roles who don't necessarily have the technical data science knowledge, drawing parallels to how data was treated in the manual process. This means the solution is less of a "black box", but rather something that end users can use with confidence because they understand how the parts fit together.

KNIME Server makes scheduling data collection a simple task and provides feedback that the workflows are executed without errors. Additional benefits include the ability to work remotely in the cloud, and the ability for Sport England to easily manage the data governance to sandbox this project from their other data.

The licensing structure of KNIME Software provides unparalleled flexibility and inclusivity. The free and open source KNIME Analytics Platform can be installed on multiple computers and

VMs for development. This allows all team members to participate and learn, not only those already sufficiently proficient to merit a paid-for seat. The commercial KNIME Server is used for the delivery of business value; workflow scheduling, as well as making workflows easily accessible for business users via the WebPortal. This means costs are only incurred once business benefits have been proven and are ready to be used by the client. KNIME Server functionality is great because it "just works". It is simple to upload workflows and set scheduling. It is also easy for administrators to set and manage permissions.

The KNIME team is responsive and friendly in helping. There is also an active community in the KNIME Forum, which is monitored by KNIME, so users often receive assistance from the experts. Being a KNIME Partner, this gives Atos the confidence to innovate for clients, knowing they have willing support to complete a workflow or server integration if needed.



Atos, a KNIME Partner, is a leading international IT services company with a client base of international blue-chip companies across all industry sectors. Atos is focused on business technology that powers progress and helps organizations to create their firm of the future. Atos is proud of the collaboration with KNIME where clients have been empowered to derive value from their data. Learn more at [www.atos.net](http://www.atos.net)