SIEMENS
Ingenuity for life

Driving a citizen data scientist approach
Getting over 3,500 data citizens working better and independently.

The demand for automating day-to-day procedures is growing daily. On top of that, billions of bytes of data, multiple data sources, and hours of manual work put into sorting it all out, make these procedures hugely complex and time consuming.

Since January 2018, the Data Visions Team at Siemens has been developing analytical 'products' to support the Digital Industries (DI) strategy and drive a data citizen approach for future collaboration - preparing for the time when data science will eventually become a commodity. The team has made it possible for not only data scientists to work with data, but also data citizens – those charged with pulling insights out of data – to make decisions and drive change.

Today at Siemens over 3,500 data citizens globally are working better and more independently with data using KNIME Analytics Platform and other integrated software. KNIME has also become an invaluable tool for Robotic Process Automation (RPA), by completely automating many mundane, manual tasks. This has freed up lots of time to work on other areas of the business.

Case in point: Automating competitive analyses with text mining and web crawling

One of the more recent projects that the Data Visions team got involved in, was automating competitive analyses using financial statements from the internet. The projects' objectives were to search for financial reports on company websites, extract relevant financial statements out of the PDF reports, and transform the statements into a structured format and prepare an internal report. From a business perspective, the requirements were to:

- Automate the extraction of financial reports from the web using a crawler
- Identify key KPIs using template-based text analysis
- Integrate the data flow into an existing report workflow

Saving 30 hours per quarter

Previously, the user did a manual website check of the competition with (often) incomplete information. The repetitive task of analyzing competitors was repeated every quarter in a manual and time-consuming process: search competitor website for PDF, extract relevant information, prepare finance report, send to management. The Siemens Data Visions team built a process using KNIME Analytics Platform to automate this entire process. A KNIME workflow, built by a team of data scientists, crawls the competitor's website and downloads financial reports as PDFs. This step is repeated automatically across different websites. The same KNIME workflow then applies data mining, classifies document types, and extracts values out of the PDF. Then using the KNIME Integration with Tableau, a report is created and published in an interactive dashboard. Here, the end user can simply open the dashboard and view the results. KNIME has saved this person approximately 30 hours every quarter. That time is now spent on valuable tasks such as analyzing and interpreting the aggregated statements.

Company

Siemens Digital Industries (DI) is an innovation leader in automation and digitalization. Closely collaborating with partners and customers, DI drives the digital transformation in the process and discrete industries. With its Digital Enterprise portfolio, DI provides companies of all sizes with an end-to-end set of products, solutions and services to integrate and digitalize the entire value chain. Optimized for the specific needs of each industry, DI's unique portfolio supports customers to achieve greater productivity and flexibility. DI is constantly adding innovations to its portfolio to integrate cutting-edge future technologies. Siemens Digital Industries has its global headquarters in Nuremberg, Germany, and has around 76,000 employees internationally.

Solution highlights

30
hours saved per quarter.

Automation & Digitalization

Data Literacy   Production

> *"The open source, free KNIME Analytics Platform was an extremely easy entry point, making it simple and fast to get started. With one simple download, the platform is installed on the desktop and data scientists can start building their workflows."*

Matthias Stephan, Head of Data Visions, Siemens Digital Industries.

Empowering users to work independently with KNIME

As people are the most important factor for success in the digital age, an important aim of the Data Visions initiative is the empowerment of business users to work independently with tools such as KNIME. The advantage of the program is that one can easily start their own activities and is much more flexible with what they create. The aim of the coaching approach is to find people that are open minded, enthusiastic regarding data, and willing to learn new concepts. Those people then act as multipliers in their department and show their colleagues how to get started using tools such as KNIME. In addition to this, with the analysis of web data with respect to competitor relevant information, Siemens has been able to introduce more advanced AI-driven topics that generate - with some effort - additional value for the business.

Paving a way for the future through knowledge sharing and transfer

The work that the Data Visions team is doing, resonates well with the entire company. The interest in automating daily work, freeing up time, and empowering everyone to get insights out of data continues to rise. The team has plans to run more internal workshops to share knowledge across different organizations. An internal intranet has been built for everyone to share their KNIME use cases and tips and tricks, as well as a library of how-to tutorials. Meetups are also being planned where organizations have the chance to learn more about KNIME, share use cases and experiences, and build internal communities to collaborate on future projects.

Why KNIME?

The open source, free KNIME Analytics Platform was an extremely easy entry point, making it simple and fast to get started. With one easv download, KNIME is installed on the desktop and data scientists can start building their workflows. KNIME has many useful features, which, compared to other offerings on the market, made it an obvious choice.

The no-coding, graphical UI makes KNIME very easy for a non-programmer to use and the self-documenting features ensure that work remains transparent and easy to follow-up on if someone leaves the team – which was previously a considerable pain point. It's extremley open with so many nodes available that almost anything is possible. And, if there's no node available, then it's possible to develop one. The community behind KNIME – both the open source community and the KNIME team – provide fast, valuable help and support. Third party, trusted extensions provide assurance that there are no risks when working in production, which provides strong peace of mind. The speed of execution has reduced manual effort of everyday work by automating processes. It's now possible to get results in minutes rather than hours! Lastly, KNIME has made it possible (and easier) for collaboration across teams. Components, for example, will play a more important role over time.

The next step for Siemens is to get a KNIME Server license to provide even more functionality around collaboration, automation, and productionization.