What's Next for Spreadsheet Users?

The Gateway to Advancing Analytics Skills Without Code

The sheer volume of data being reported from various business units is exponentially increasing, leaving most teams flooded with data. This means **more time spent** consolidating and transforming data before getting to insights. In addition to the utter volume of data, the fact that it is stored in various locations and multiple formats means even more time is spent tracking down the latest file versions within a fragmented mesh of data sources.

The situation is further complicated when different teams own different data sources, making analysis processes brittle. When embarking on a project, you may have to look through existing spreadsheets and other files to find the necessary data. However, even when you do find the data you need, you may not be aware of the methodology used to produce the numbers or if it is consistent with what other teams are using.

As a result, you resort to extracting data manually from source systems, copy-pasting it into spreadsheets and maybe even running VBA scripts on these sheets to generate additional sheets, which are again manually altered. You repeatedly refine the data, build various scenarios, plugging numbers in real-time and changing formulas to compare the output, striving to get it absolutely right before sharing reports with stakeholders. Only to be sent on another scavenger hunt when they point to a number and ask how you got it, or if you cross-validated it against an ad hoc reference pulled out at the last minute, or why it doesn't add up to an expected value.

You are left grappling with the same challenges month after month, trying to stay on top of deadlines and deliverables. Surely, there must be a better way.

The Opportunity at Hand

Forward thinking teams are already establishing themselves as indispensable thought partners to the business by taking more control, optimizing data processes with the latest technologies, and discovering and sharing insights faster.

Although spreadsheets will always be the perfect tool for some tasks, it is time to adopt a more efficient approach for others. For people spending their days in and out of spreadsheets, performing the same analysis in combination with a low-code/no-code data analytics platform is not only more efficient, it's easier and doesn't require picking up a coding language.

Every spreadsheet user can benefit from combining their work with a low-code/no-code data analytics platform in five major ways:

1. Increased Data Accessibility

Low-code/no-code data analytics platforms let you easily access data from any data source whether a file on your desktop, a software application, a data warehouse, a data lake, or more in a few clicks, unlike spreadsheets where data has to be copied over manually.

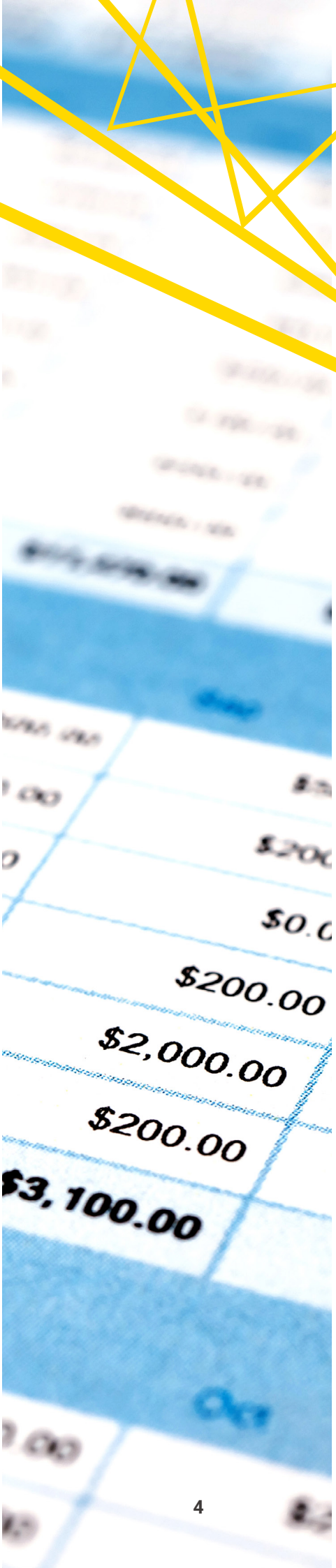
2. Higher Efficiency

Low-code/no-code data analytics platforms let you automate manual and time-consuming tasks with reusable workflows. Once your process is defined visually in the workflow, you can repeat it as many times as you like with new data and compare various outcomes.

By combining spreadsheets with such platforms, you can do away with the most repetitive and truly laborious aspects of your jobs like cleaning and aggregating data. Moreover, low-code/no-code tools handle large amounts of data with ease.

3. Increased Accuracy

With a low-code/no-code data analytics platform, you don't just see the resulting table, like you do in spreadsheets. The visual nature of workflows also lets you see every step that you took along the way to get there.This makes your work explainable to everyone and debuggable when the numbers don't add up. Because the steps within the workflow are pre-defined, your chances of introducing errors inadvertently (or someone else introducing errors) are eliminated.



4. Improved Collaboration

Low-code/no-code data analytics platforms increase the shareability of your work, enable communicable processes, and deliver reliable repeatability. Once you build your workflow, you can share it within your team or across disciplines for reuse. The visual process and the ability to add comments make it easy for others to quickly understand your analysis and replicate it. Over a period of time, you can build your own workflow collections that can be used as a knowledge base by your team to start their analysis faster.

5. Deeper Insights

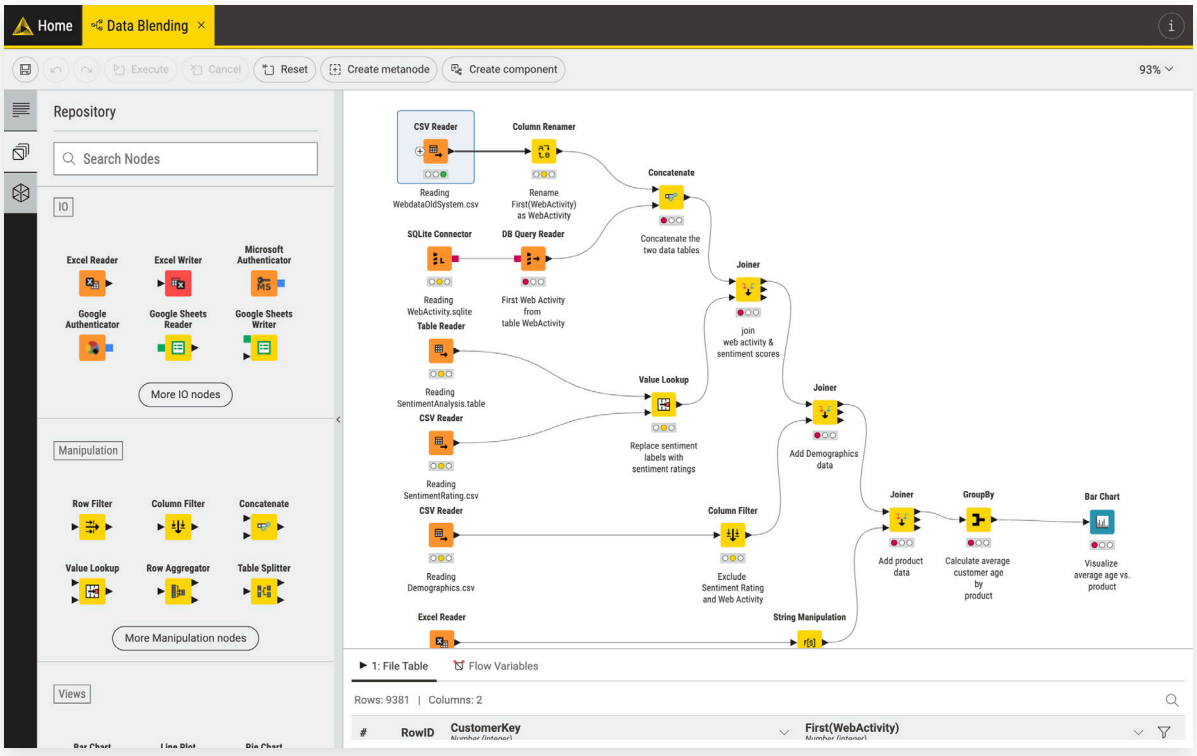
Low-code/no-code data analytics platforms let you perform advanced analysis that gives you a deeper understanding of your data, allowing you to uncover patterns, trends, and relationships that might not be immediately apparent in a spreadsheet.

Easier Than Ever to Get Started with Analytics

Spreadsheets are very easy to use, which is one of the reasons why they are deeply ingrained in businesses. A low-code/no-code tool like KNIME Analytics Platform makes it just as easy for spreadsheets users to start using visual workflows for analysis through its Starter Perspective.

The Starter Perspective comes with a carefully selected set of nodes for common data manipulation tasks such as reading and writing data, cleaning, merging, aggregating, filtering, and applying formulas to data, as well as visualizing data through charts and sending files via email. Spreadsheet users can drag and drop these nodes to set up a workflow that prepares data quickly and efficiently.

Everything that is done in spreadsheets can be done in the Starter Perspective in a faster and simpler way, without dealing with the steep learning curve of a scripting language. Let's take a look at a few of these activities.



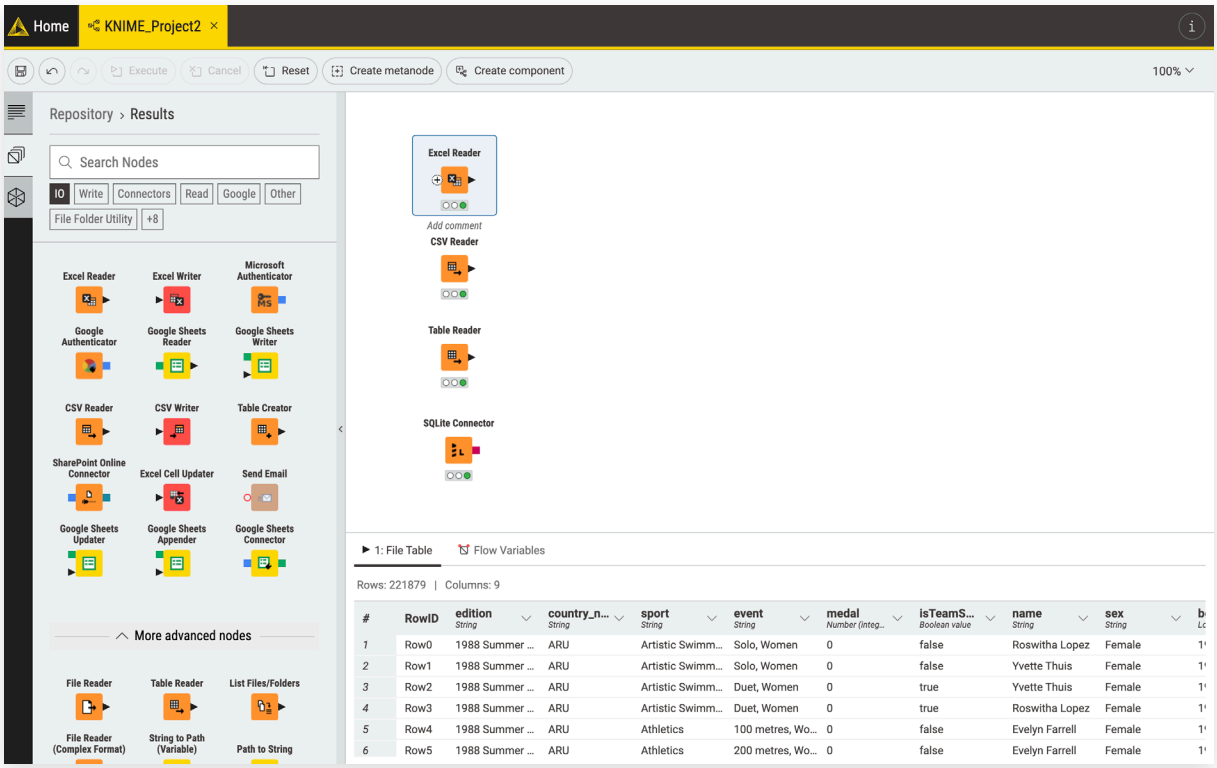
1. Accessing and Blending Data

For spreadsheet users, data analysis often starts with collecting data from various systems and copy-pasting it into a sheet. This in itself can end up being a multi-hour process.

Combining data from different sources is much faster with KNIME, regardless of the number of sources. All you need to do is drag and drop the appropriate reader node onto the editor. You can also directly drop your file onto the editor which will be automatically configured into the right node by KNIME.

There is no need to download data locally first or copy paste the tables. Likewise, you can write your data directly to remote locations and send it directly to the reporting and visualization tools.

> "The ability to integrate different data sources and technologies is probably one of the best things in KNIME. I can pull data from essentially anywhere and store it essentially anywhere without worrying about if it will blend. That's something you often have to deal with in business: you've got data stored on a server, you have data in a smartsheet somewhere, and someone sends you an Excel file. With KNIME you can bring all those scattered pieces of information together, build an analysis out of it, and easily put it back on your server to create a visualization."
>
> Philipp Kowalski, Digital Enablement Agent at Siemens



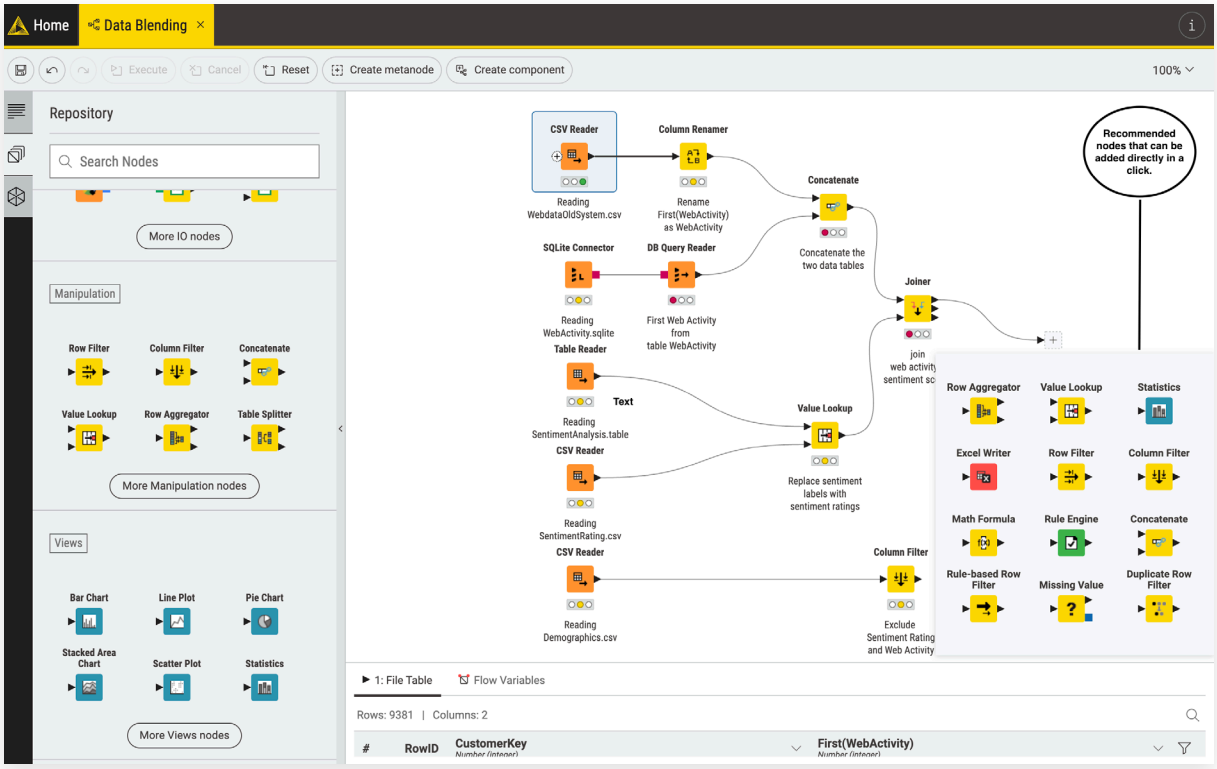
2. Manipulating Data

Once you gather all the data you want to work with, you can carry out any data manipulation task you like, including all the capabilities typically available in spreadsheets such as adding and removing columns, sorting, filtering, and more.

You can select the operation you need to perform from the list of curated manipulation nodes that you can see in the node repository on the left. KNIME also recommends the next operation that you might want to perform on your data. You can add it to your workflow in a single

> Even with little prior experience in using KNIME, controllers at Deutsche Telekom easily **automated the laborious and error-prone process** of collecting information for closing reports from multiple sources.

click as shown in the image below. Once you build your data manipulation workflow, you can save it and reuse it whenever you like without going back to square one. You can further encapsulate the workflow within a component and use that component across other workflows so you or someone else doesn't need to reinvent the wheel.



> "I'm not a coder at heart so for me it's a lot faster and more accessible to build workflows in KNIME. In my opinion, the greatest advantage is how transparent and easy to understand visual data flows are. I can always pull up a workflow, show it to a stakeholder, and we can address questions on the fly."
>
> Evan Bristow, Senior Principal Analyst at Genesys, in a **My Data Guest interview**.

If you are proficient in data wrangling operations in spreadsheets, you already have what it takes to work smoothly and productively with KNIME. Here are a few examples of commonly performed spreadsheet tasks that can be made repeatable by building workflows with the Starter Perspective in KNIME.

- **Combine Data.** Bring data together into a single dataset, using nodes like Concatenate or Joiner. Use Value Lookup to add matching values from a dictionary table to a data table based on a lookup column, like you would in spreadsheets.

- **Clean Data.** Replace missing values in the input table - either globally on all columns, or individually for each column separately with the Missing Value node or detect duplicate data with the Duplicate Row Filter node.

- **Filter Data.** Remove unnecessary data with Row or Column Filter nodes. Choose to filter based on more complex logic with rule-based filters. Crop your input table based on the chosen row and column range using the Table Cropper node or sort the input table according to a defined sorting criteria and keep only the first few rows that you need with the Top k Row Filter.

- **Aggregate Data.** Use a node like GroupBy to group rows based on their unique values, create Pivot tables with the Pivoting Node, and perform manipulation such as renaming, filtering and reordering with the Table Manipulator node.

- **Convert Data Types.** Easily convert between Strings, Integers, Date and Time, or whatever kind of data type you need.

Take a look at this **cheat sheet** to learn more about the most popular nodes for spreadsheet users and their functions.

You will also be able to spot any discrepancies in the process quickly by following the operations from left to right on the workflow. Node-wise step-by-step execution in KNIME is a huge benefit as you can immediately see the results after each node. In spreadsheets, you often end up writing very long formulas, and it's easy to miss a bracket or a semicolon. In KNIME workflows, there are no formulas hidden behind the table values, no data is lost in a series of copy-paste transformations, and errors can easily be traced back and corrected.

The FDA automated data processing by moving from Excel-based manual processes to KNIME workflows and saved hundreds of labor hours. Using KNIME, analysts at the FDA were able to import data from various disparate sources such as the financial system, the budget planning system, and the consumer price index and perform current as well as historical data analysis with minimal manual intervention.

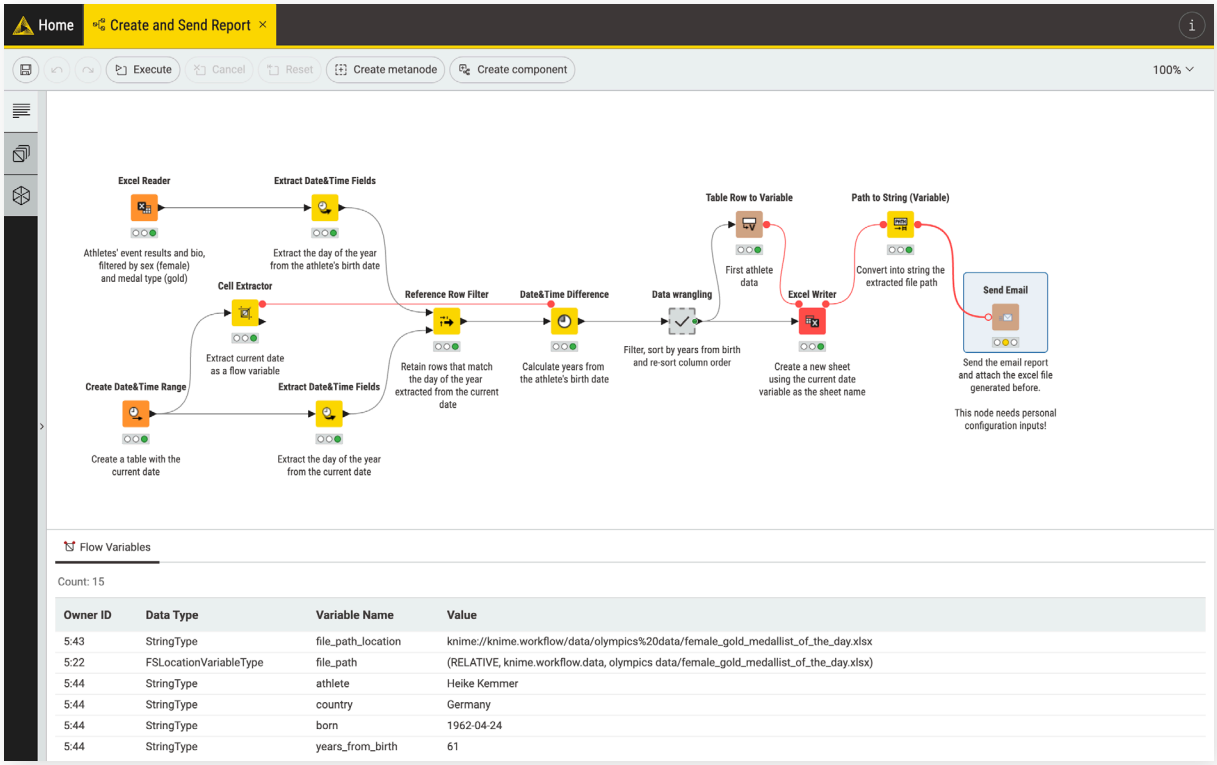
3. Up-to-date Reporting

One of the most laborious parts of using spreadsheets for analysis is ensuring that all your reports are up-to-date with the latest data. In KNIME, since your step-by-step process is already set, you can simply replace old files with updated ones.

If you are consistently receiving the same data, in the same format, you can quickly update your reports based on fresh information. Even if not, you still don't need to recreate the process. You can reuse steps of your designed process, rather than starting from scratch each time. Compiling a report every month, year after year, now needs to be done just once.

Commentary can get complex to follow in spreadsheets, making it difficult for you to explain what you are doing when the analysis stretches across multiple cells and sheets. Below is an example of a process designed as a KNIME workflow to create and send a report. With annotations and clearly defined steps, you can take portions of it and copy and paste to another workflow.

Business users at **Continental automated** certain repetitive Excel-based tasks such as reporting for controlling and logistics, production planning, and project management using KNIME resulting in time savings of over 80%.

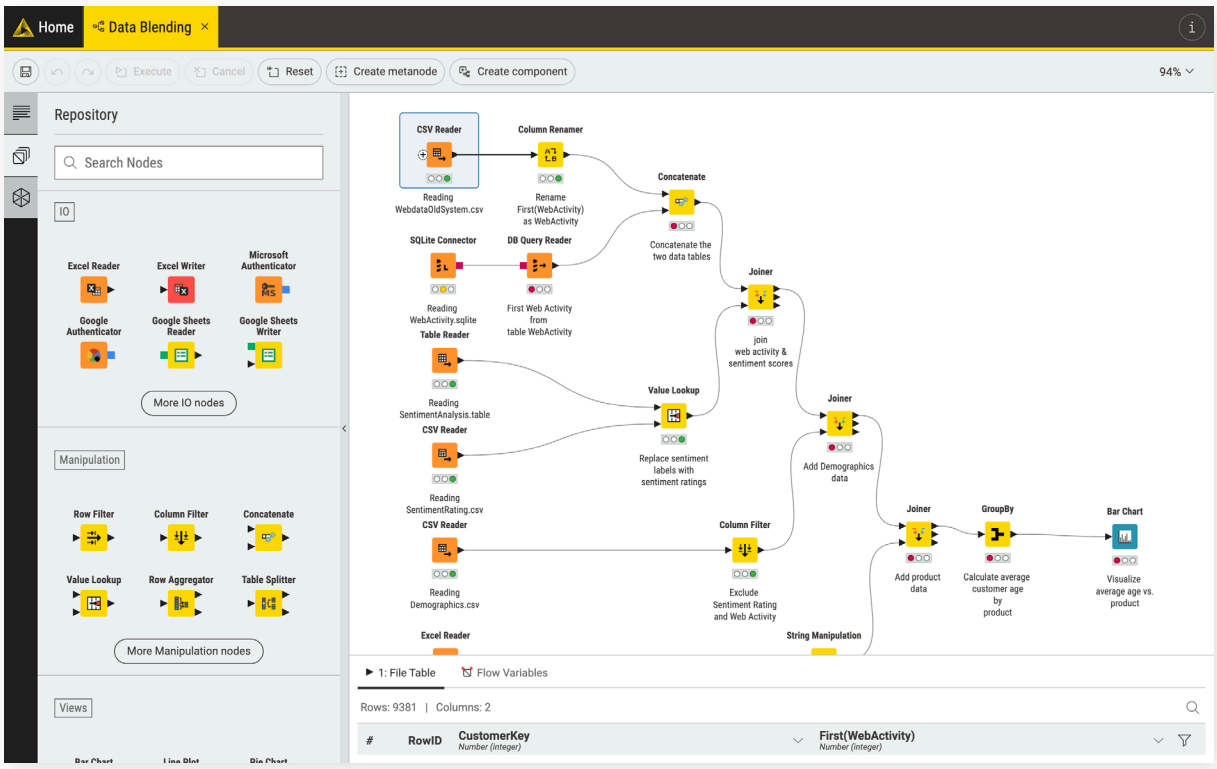


"KNIME helps us save a lot of time by powering the digitalization of several business processes. For example, the first workflow I built reduced my reporting effort from 3 hours a month to 10 minutes. For a different project, we automated journaling of current demands, and that reduced the effort per employee from 30 minutes each day to almost nothing."

Philipp Kowalski, Digital Enablement Agent at Siemens

You can download this exact workflow and other similar workflows for spreadsheet users from the **KNIME Community Hub**.

You can create visual reports using one of the many visualization nodes such as bar charts, line plots, pie charts, and more or have the output written back to a spreadsheet in the format you desire.



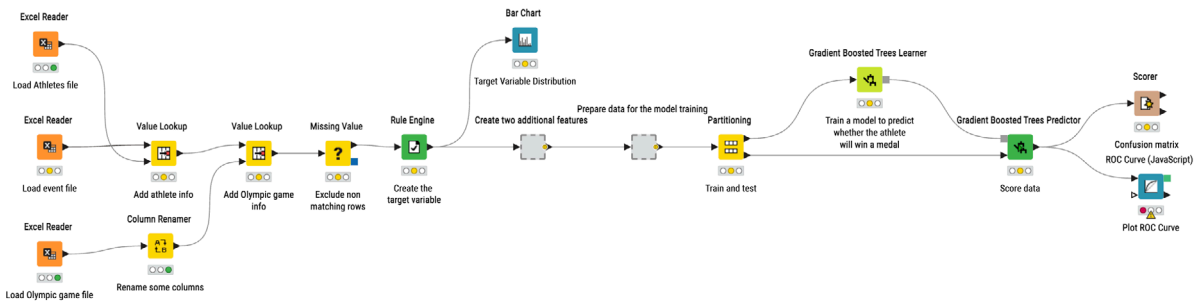
Analysts at BMW moved away from manually creating a Bill of Materials (BOM) in Excel. They **started using text processing and machine learning** with KNIME's low-code capabilities to create a BOM with a lot less effort.

Gradual Upskilling to Advanced Analysis

As you get familiar with building these workflows, you can slowly start progressing towards more advanced use cases such as training predictive models using spreadsheet data. As you can see in the sample workflow below, you start with loading and preparing data using the nodes that you are already accustomed to such as the reader nodes, value lookup, missing values, and more.

Next, you learn how to extend your workflow by using this prepared data to train a predictive model through the Gradient Boosted Trees Learner and Gradient Boosted Trees Predictor nodes. KNIME companion resources for spreadsheet users such as **this one** walk you through each step of creating an advanced workflow of this kind and also let you download the workflow to use as-is.

While it may take some time to get the hang of it, by leaning on a similar ready solution available on the **KNIME Community Hub** and taking advantage of the ease of use of visual drag and drop, you can eventually start building advanced analysis workflows. **We have seen** marketing analysts implementing NLP solutions for sentiment analysis, auditors developing workflows to trigger fraud alarms, and operation managers building demand prediction systems with KNIME's low-code approach.



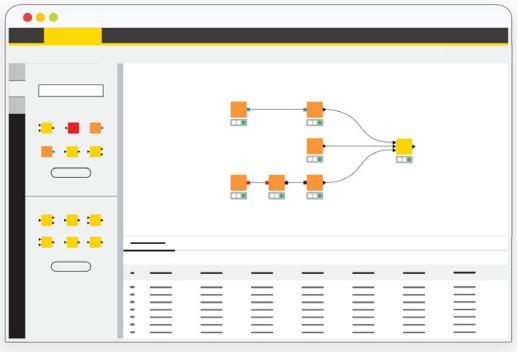
The Ease of Spreadsheets with More Power and Choice

KNIME and spreadsheets go hand in hand. You don't need to choose one over the other. Instead, you read the data in your .xlsx (and any other) files with KNIME and build reusable workflows to take care of the repetitive sequence of steps in your work. Likewise, you can always use KNIME to write your results back to a spreadsheet. You get your time back with high reuse and automation while being able to collaborate more organically with your team.

By using the two together, you can take advantage of the best of both worlds, combining the familiarity of spreadsheets and advanced data analysis capabilities of KNIME. Every data professional needs to have the right set of tools in their kit – and to know how and when to leverage them.

Early Access: KNIME Analytics Platform 5

Try out the early access version of KNIME Analytics Platform 5, with a Starter Perspective specially designed for spreadsheet users. Ease into building visual workflows to prepare data quickly and efficiently with a focused set of tools.



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