

15/11/2022

Neste: Value of Scheduling tool in Renewable Supply Chain

AVEVA WORLD 2022

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AVEVA

Neste in a nutshell

- We create solutions for combating climate change and accelerating a shift to a circular economy.
- We refine waste, residues and innovative raw materials into renewable fuels and sustainable feedstock for polymers and chemicals.
- We are the world's leading producer of sustainable aviation fuel and renewable diesel, and renewable feedstock solutions for various polymers and chemicals industry uses. We are also developing chemical recycling to combat the plastic waste challenge.
- Our ambition is to make the Porvoo refinery in Finland the most sustainable refinery in Europe by 2030. We are introducing renewable and recycled raw materials such as liquefied waste plastic as refinery raw materials. We have committed to reaching carbon-neutral production by 2035.



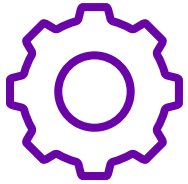


AVEVA Unified Supply Chain at Neste

Optimizing and Scheduling the Neste end-to-end supply chain

- Neste started utilizing Aveva Unified Supply Chain tools in 2010.
- Currently AVEVA Unified Supply Chain is used in:
 - S&OP, Supply chain and strategic optimization: AVEVA Unified Supply Chain Network
 - S&OP & Refinery optimization : AVEVA Unified Supply Chain Plan and Assay
 - S&OE & Trade optimization : AVEVA Unified Supply Chain Plan
 - Scheduling production, logistics and compliance criteria: AVEVA Unified Supply Chain Schedule
- Neste has implemented many integration by using the technologies offered by AVEVA including Excel Add-in, SDK interface, Json data export, Staging database and Connector interface.
- Neste has also implemented AVEVA Offsites Managements solution.

Lack of integrations reduce the quality of Scheduling



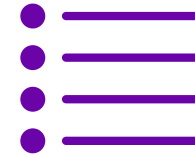
Challenge

- In beginning Neste had standalone solutions for all inputs and outputs related to scheduling.
- Our users were spending a lot of time gathering information from different places which consumes a big part of their day-to-day.
- This takes focus from the primary target on **scheduling optimal targets**.



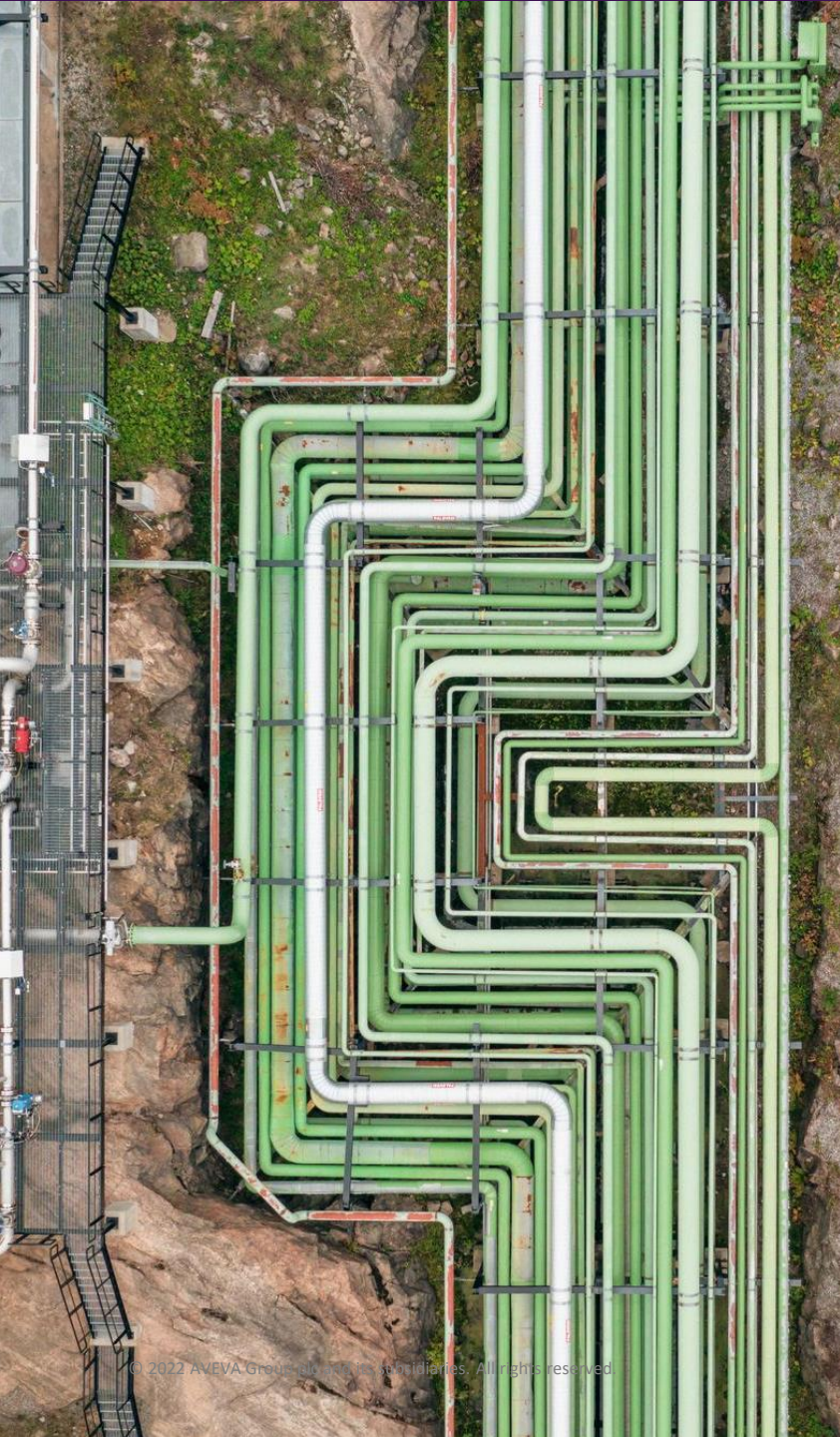
Solution

- We started continuous development pipeline to utilize latest technologies provided by AVEVA with the target to maximize digitalization without compromising usability and performance.



Benefits

- The scheduler time goes to refinery planning instead of gathering and transferring data.
- We have retired many legacy tools and are now able monitor our interfaces in more automated way and with that drive development of our business processes.



Challenge: Lack of integrated input data

Our development to Unified Scheduling input

- Neste started the deployment of AVEVA Unified Supply Chain in 2010. First piloting with the Schedule solution started around 2012 in Singapore Renewables refinery. Part of the deployment was to bring a solution for the input integration.
- Historical ERP solutions existed in most of Neste business areas Refinery, Laboratory, Harbor and Sales/Global operations where crucial input for scheduling lies.
- All data integrations were excel based due to the varying data format. Copy paste was they mostly used function.
- With deployment of new tools for scheduling it made sense to redo also data inputs.



Solution: Road to integrated Scheduling

Part I - Input data into AVEVA Unified Supply Chain staging

- First integration utilized measurement integration into tool by using the Excel Add-in.
- Neste started to export measurement and quality data from ERP systems as csv data files.
- The integration tool was developed with Visual Basic scripting. The tool converted data in csv files into Scheduling tool input format. Data was manually launched into Scheduling models.
- When the Staging database solution was released Neste switched to use it. The former manually launched data upload was moved to network server which automated the data to staging every 4 hours.
- No copy pasting or Excel usage for end users!

Solution: Door to operations data opens

Part II – AVEVA Offsites Management unifying inputs

- In 2015 Neste deployed AVEVA Offsites solution which enabled new simplified integrations to planning tools.
- During the deployment Neste took advantage of the integrated connector solution which improves the usability of Schedule integrations even further.
- With the new integration the users were able to retrieve live tank data into Schedule tool: Tank levels, Tank qualities, Imports and Exports. Whenever they wanted!
- Previously created conversion tools were implemented as configurations in AVEVA Offsites Management.
- No excels in the interface. Everything configured into tools!





Solution: Standardizing pre-nominations

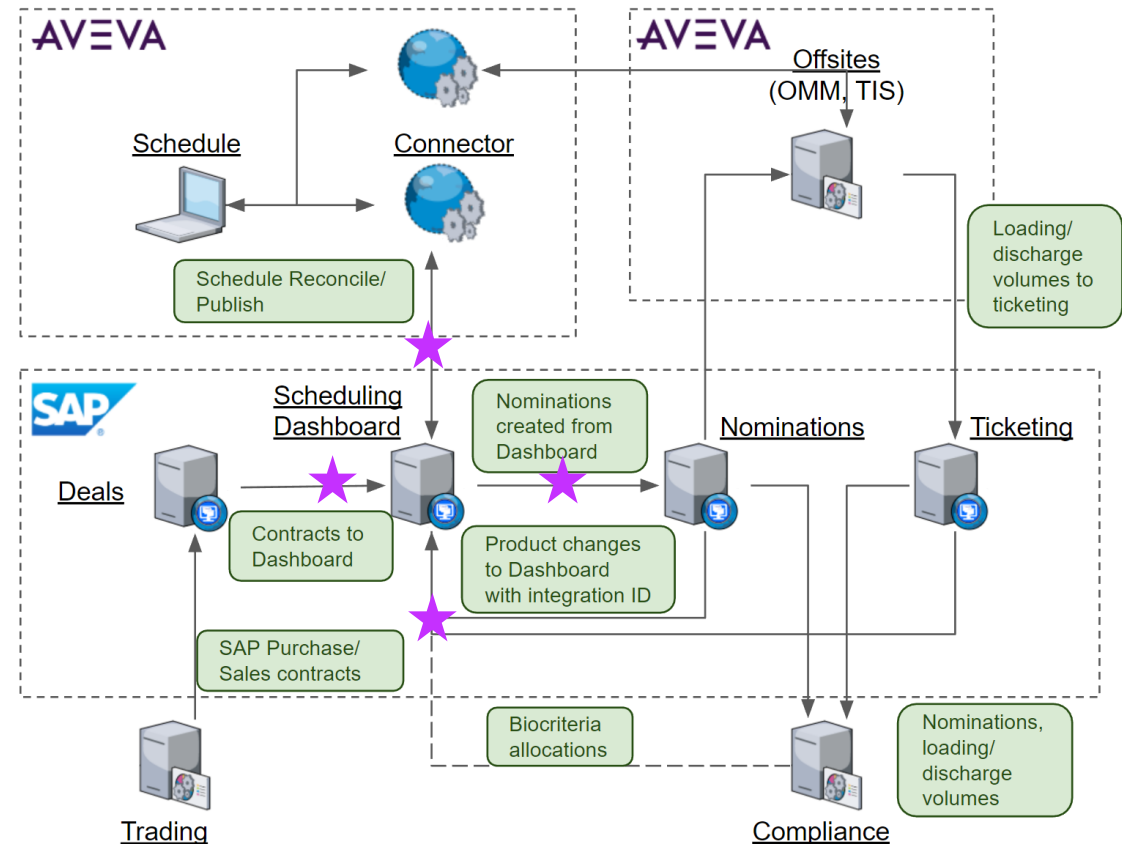
Part III – Integrated workflow around imports and exports

- In 2020 Neste team identified a development need in the import and export planning process.
- Our pre-planning was done in emails, chat messages and Google sheets. This caused constant incidents as scheduling could not keep up with the changes or didn't even receive the update. We had no transparency.
- In Renewables scheduling the focus is on the next two months which is necessary to follow the bio criteria. Missing preplanned imports or exports would cause massive deviations to the plan resulting as lost EBIT.
- To support this process Neste started to design a planning dashboard. The tool was built as an extension to SAP and it utilized AVEVA Unified connector interface to transfer data from Compliance tools and SAP to AVEVA Unified Schedule tool and vice versa.

Design of the new Scheduling Dashboard

Automated integrations to support the process

- Existing Contracts available in the preplanning
- Dashboard plans integrated into Schedule
- Updates from Schedule integrated into Dashboard



- Nominations created from Dashboard
- Actuals flowing from Offsites to Dashboard and to Schedule with Compliance details

Pre-planning integrations in action

Benefits and Impact to Neste business

- With AVEVA Unified Supply Chain Solutions we were able to build flexible ways to build integrations to support business needs.
- New system has capability to unify nominations, compliance and logistics planning processes.
- Neste global operations team has one point of data instead of multiple sheets and chat groups.

In the end building tools is easy. Changing ways of working is tricky. We still have improvements that are needed.



“Schedule tool is serving it’s purpose nicely for scheduling Singapore refinery and logistics. New integrations have enabled us to plan our bio criteria in more accurate way as part of the refinery planning.

Still there are many things to develop and functionalities which we could utilize. Change will continue!”

Ms Irene Chow and Mr Tan Kok Wah, Singapore Planning team



We are not done yet!

Change will continue

- Next we want to have
 - More flexibility to our schedulers by improving the current scheduling dashboard integration
 - Less chatting and emailing daily instructions to refinery by automating target setting process from Schedule to Offsites
 - Optimal targets for blending by automating the integration from Schedule to AVEVA BOSS blend optimization

New technology developments enable us to improve in ways that were not possible a few years ago. We have to take charge of change!



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Over 20,000 enterprises in over 100 countries rely on AVEVA to help them deliver life's essentials: safe and reliable energy, food, medicines, infrastructure and more. By connecting people with trusted information and AI-enriched insights, AVEVA enables teams to engineer efficiently and optimize operations, driving growth and sustainability.

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