# Practical Application of AutomationML in Engineering Toolchains

Fluidic workflow with Siemens NX and AutomationML

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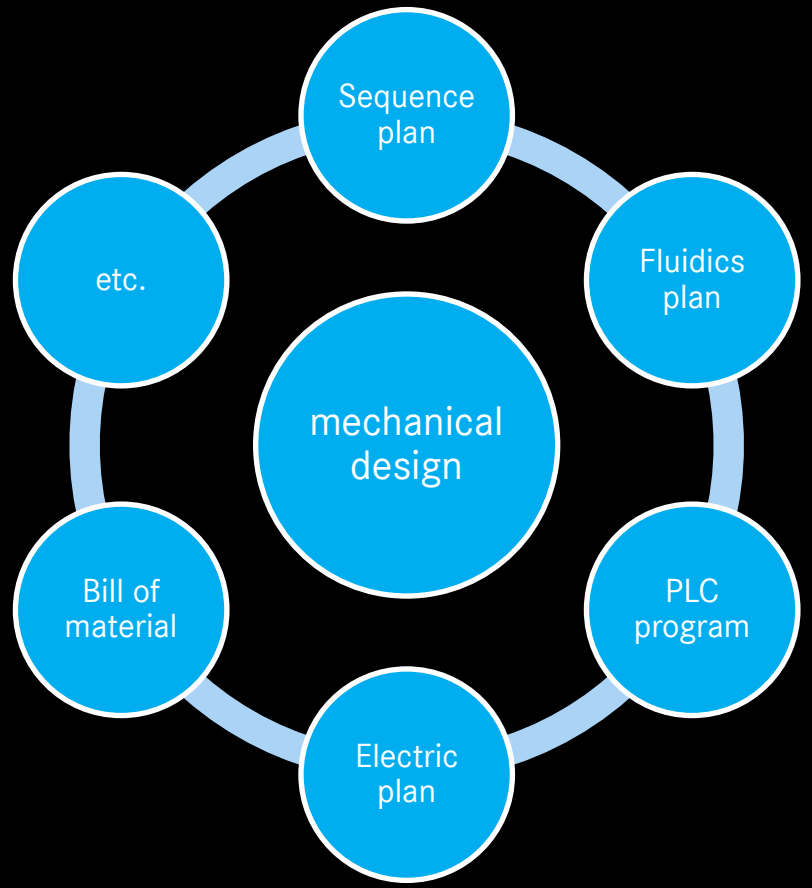
Mercedes-Benz
The best or nothing.

# Information flow

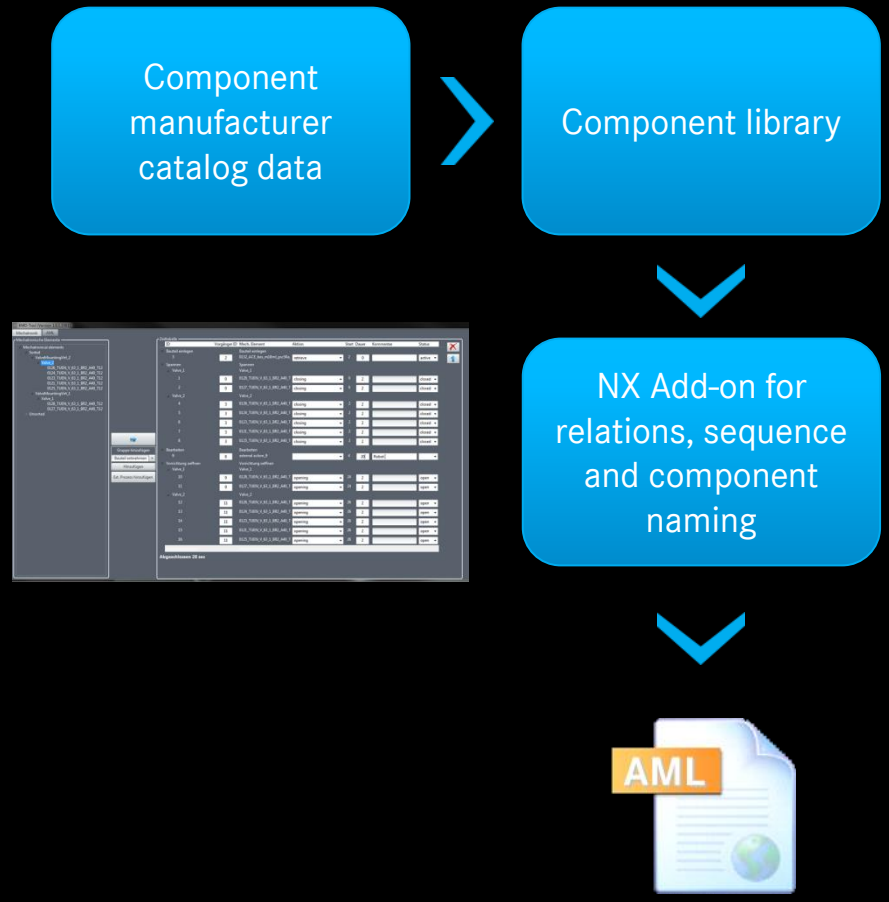



The way from a mechanic design to all related disciplines takes a lot of communication.

In the worst case information are transported via telephone, Email or paper.

Almost every change in one discipline has an effect in another discipline.

# Advanced engineering toolchain

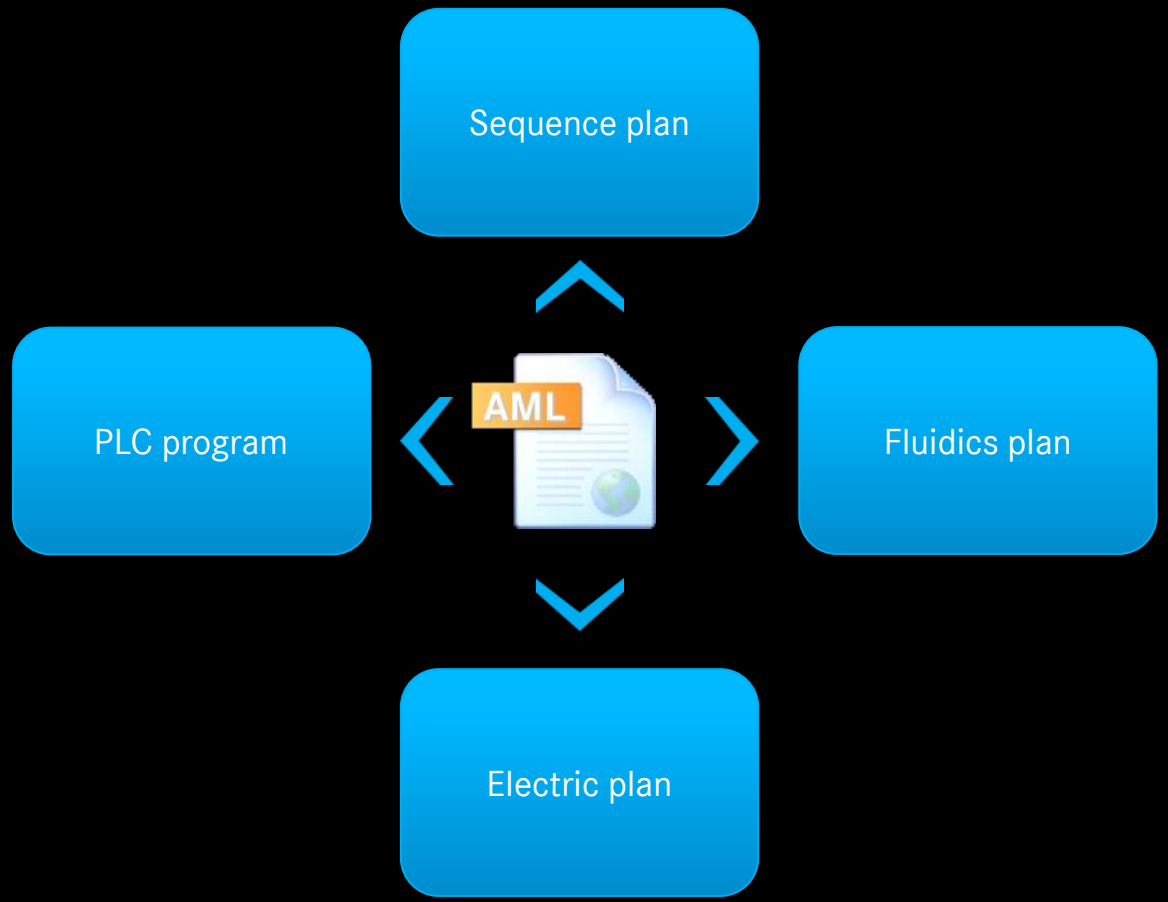



- Store data around the engineering objects as soon as possible
- When possible at the first usage of the object

Examples:

- Relations between a cylinder and his valve
- Sequence flow of an fixture
- Component names (cylinders, valves, sensors)
- Article data(component library)

# Reuse information



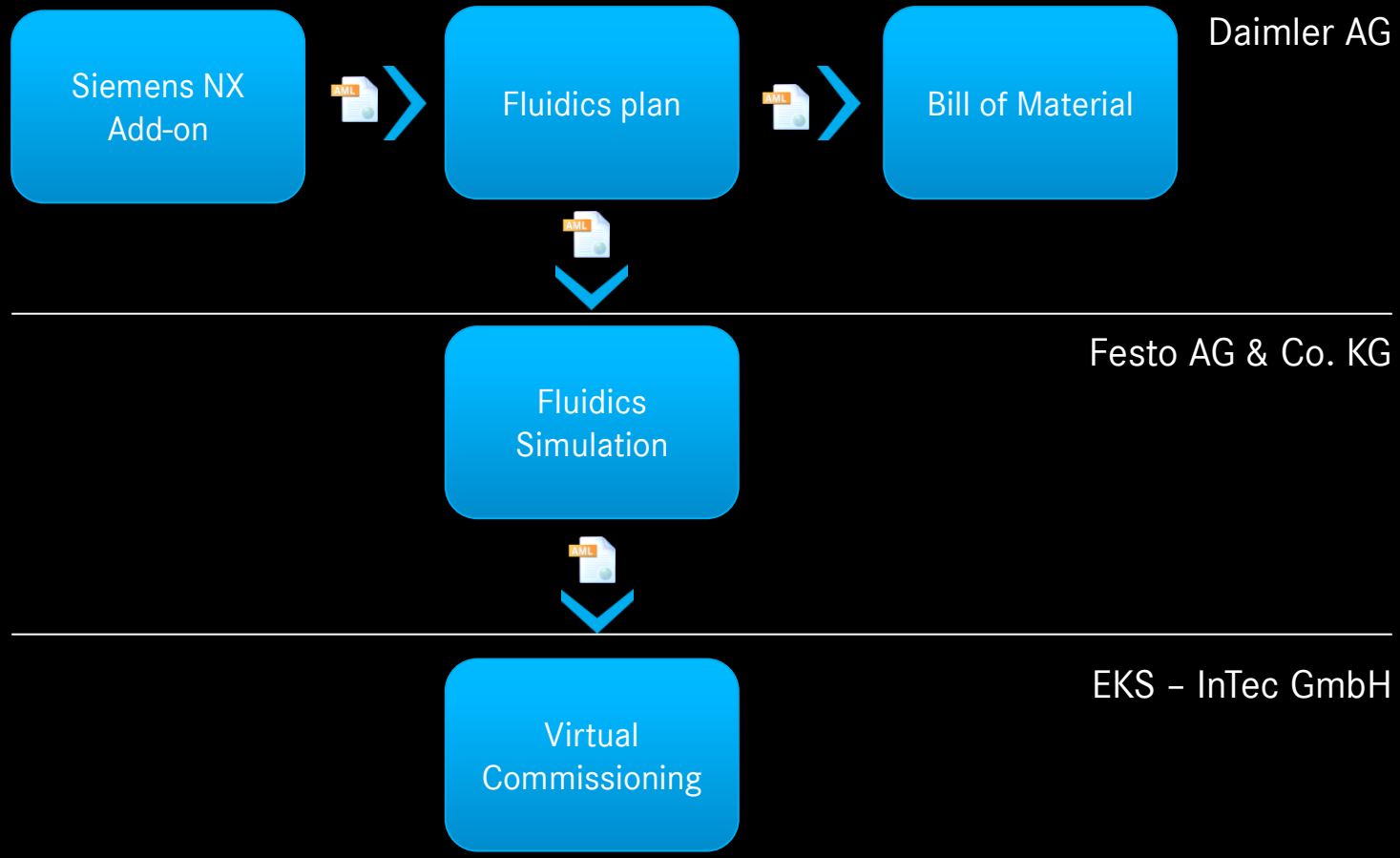

The additional data around an engineering object now can be used by other disciplines.

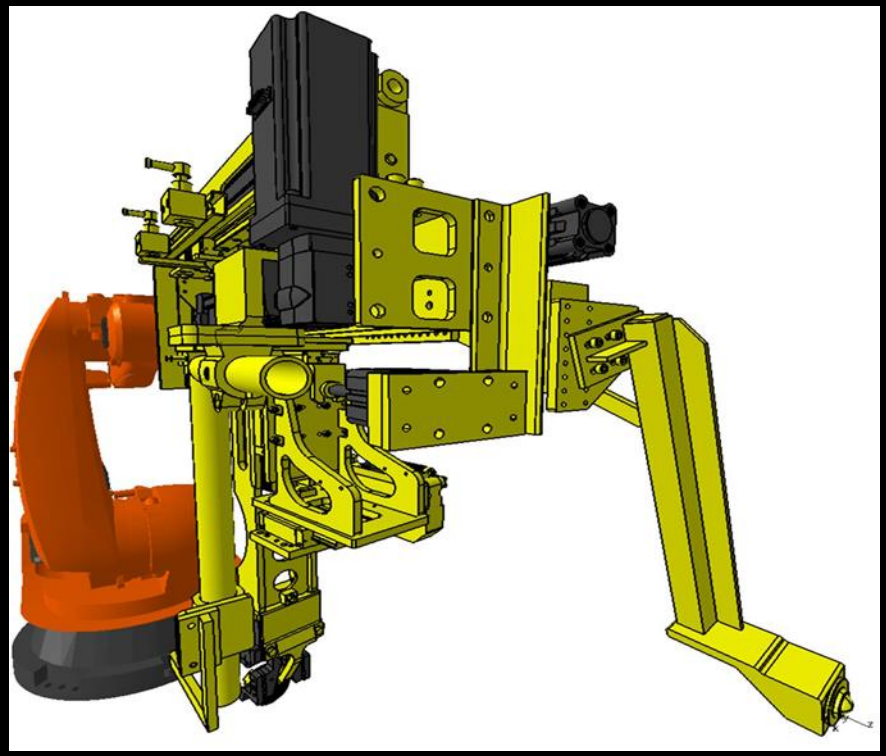
The resulting AutomationML file is containing these data.

- All other disciplines can now use the data
- Using the revision methods of AutomationML enables updates to and from other disciplines

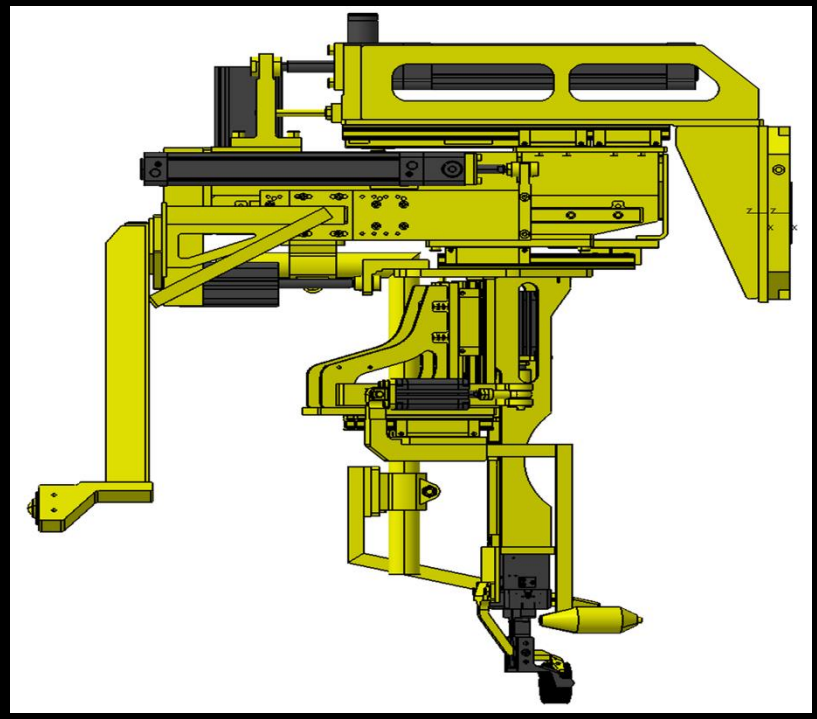
This prevents, e.g. typing errors, recurring information inquiry and multiple importer and converter.

# Example AVANTI Demonstrator



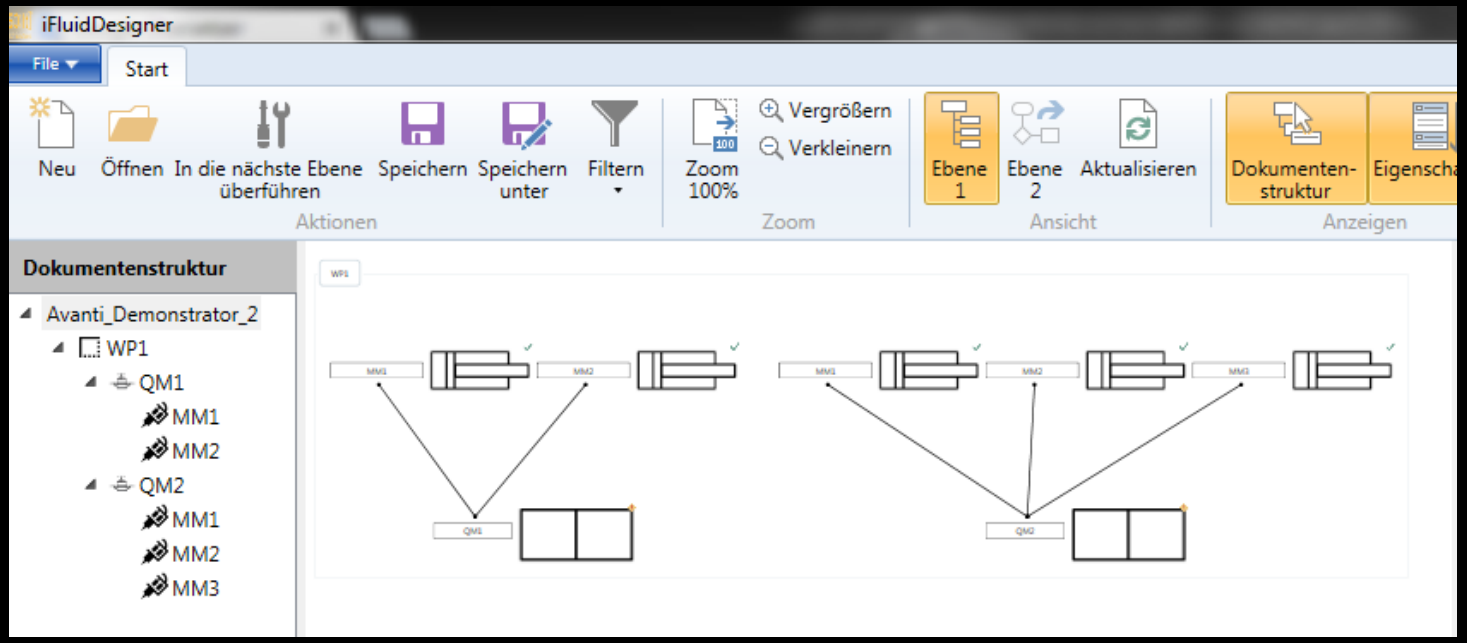



# Example AVANTI Demonstrator Step 1

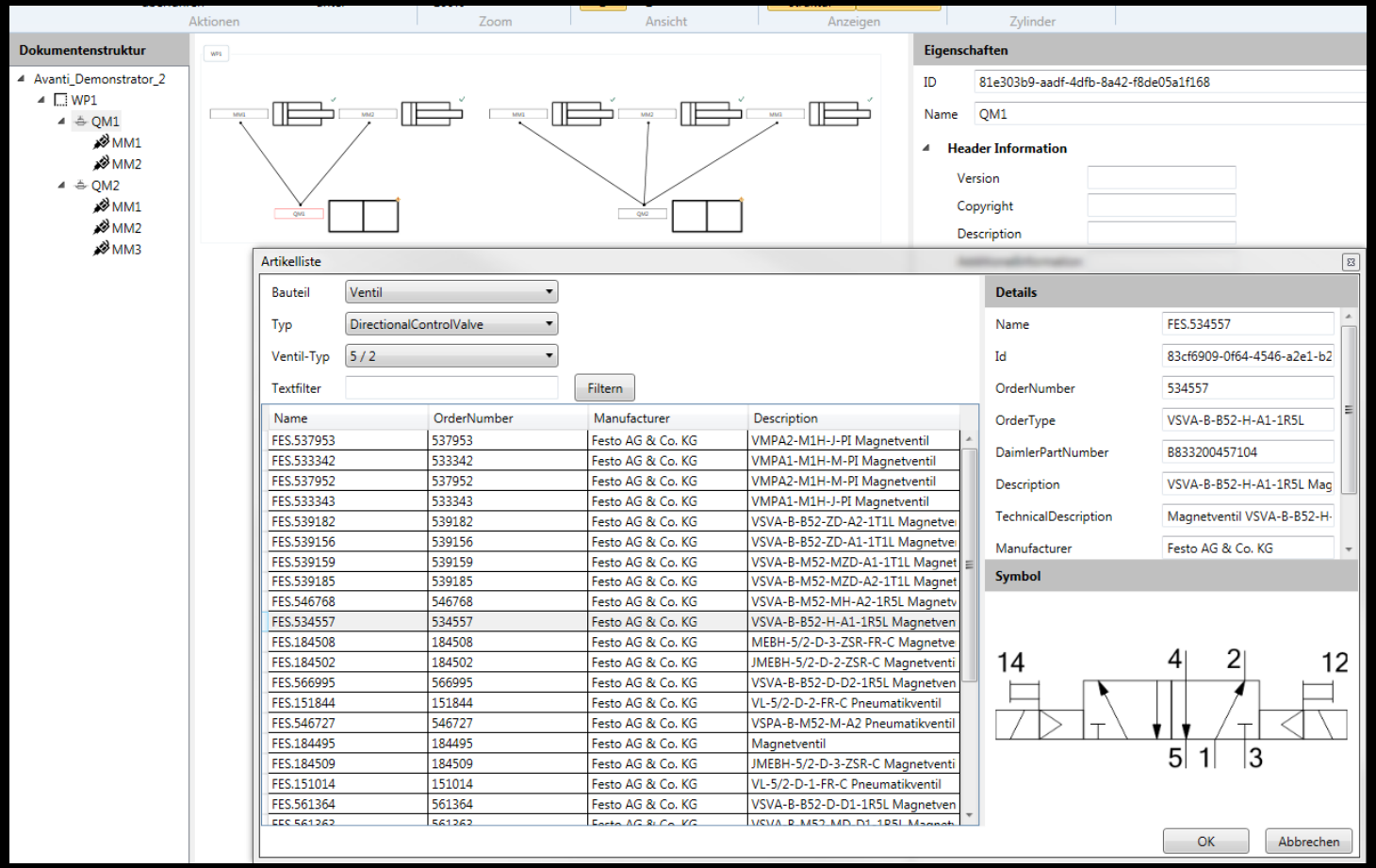
Using the NX Add-on to add information about cylinder / valve relations and fixture sequence

# Example AVANTI Demonstrator Step 2 iFluidDesigner Level 1

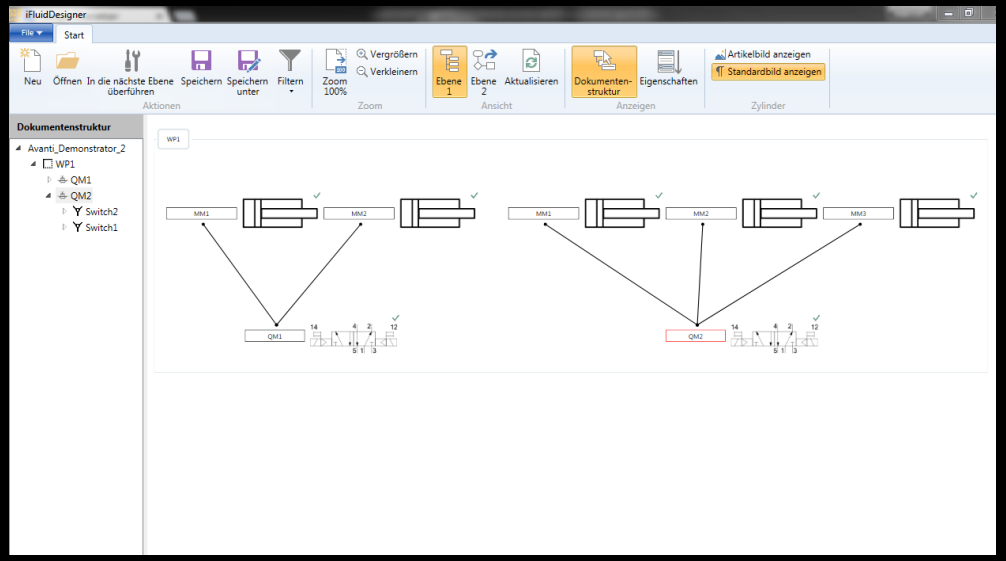

- The AutomationML file is read by iFluidDesigner which allows a easy editing of the fluidics information from the NX model
- In Level 1 only the relations between cylinders, valves and the valve block are shown

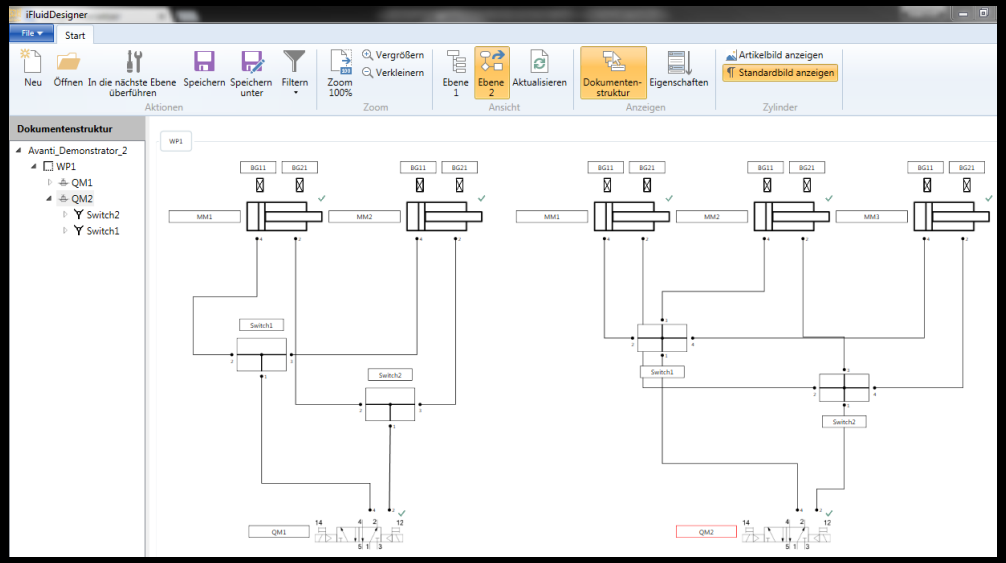
# Example AVANTI Demonstrator Step 3 iFluidDesigner Level 1




- To enrich the given data from NX, the fluidics engineer must assign the correct valves from the component library
- NX and iFluidDesigner use the same base component library, so iFluidDesigner already knows the cylinders which are used in the NX model

# Example AVANTI Demonstrator Step 3 iFluidDesigner Level 2



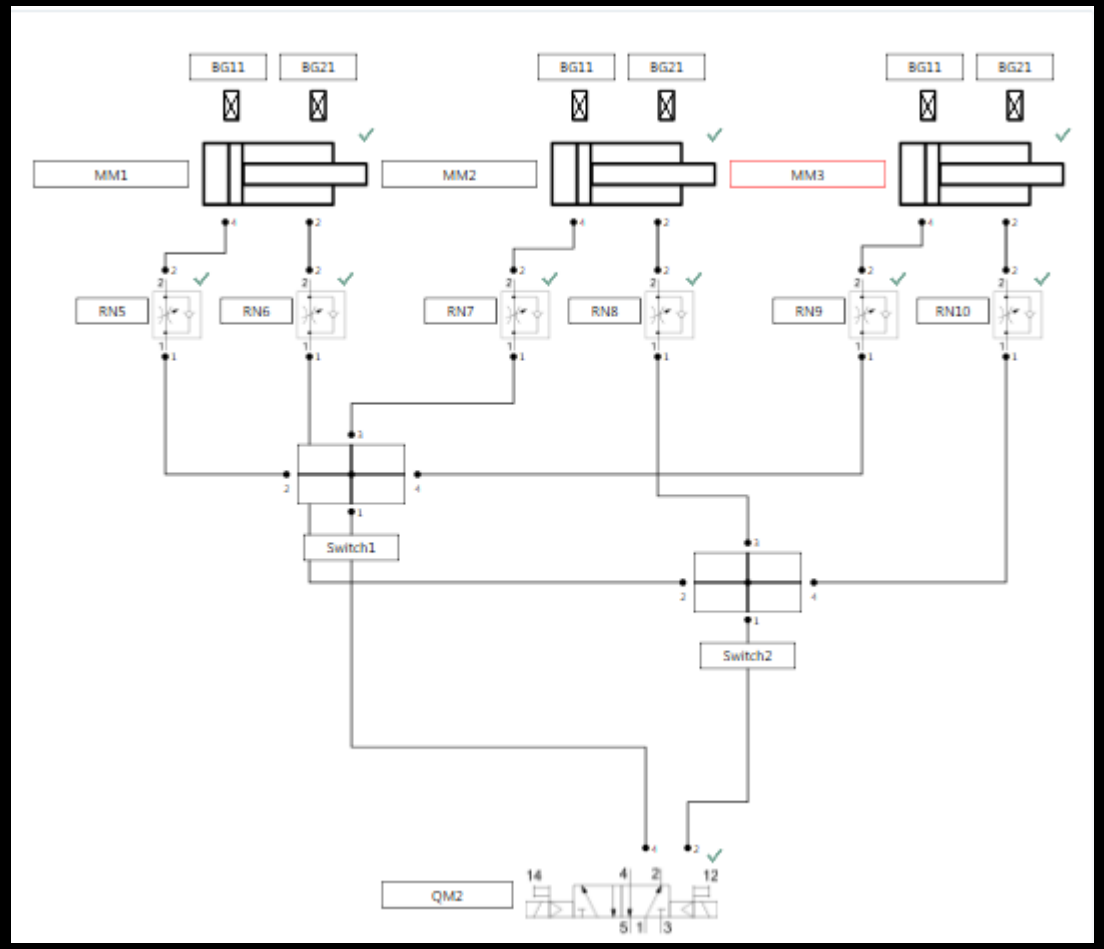




- With assigned article data, iFluidDesigner is able to create a functional fluidic plan
- iFluidDesigner has not the task to create a perfect fluidic plan, it just presents the result in a easy manner
- In every step its also possible to change the relations between cylinder and valve / valve and valve block easily, if necessary. Also the initial position of a cylinder can be changed
- Changes to the original NX data use the revisioning methods of AutomationML
- This enables the NX Add-on and other tools to keep track of changes

# Example Step 3 iFuidDesigner Level 1 to Level 2

iFluidDesigner Live

# iFluidDesigner next steps




Next steps for iFluidDesigner are:

- Import created fluidic data to a fluidic engineering tool like EPLAN Fluid or Festo FluidDRAW to create a fully qualified fluidics plan
- Implementing Level 3, which means that all relevant objects like tubes, fittings etc. has attached article data for creating a bill of material