

Tips & tricks

# KE-CHAIN INTEGRATES WITH THE NEW VMAP STANDARD VARIOUS SIMULATION SOFTWARE IN A WORKFLOW

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Moulding Proc  
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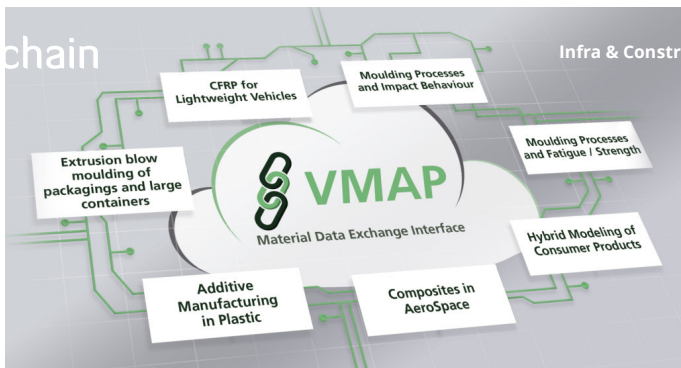
Today's best products are all designed with an integrated approach to development and manufacturing processes. Ideally, all data on material properties and behavior is available throughout the workflow. However, so far, many different interfaces and systems have hindered the use of material data across the entire workflow. Together with 30 international partners we have joined forces to change that in the ITEA3 project VMAP – Virtual Material Modeling in Manufacturing project. With the VMAP standard, we were able to integrate various simulation software into a workflow with KE-chain. Bastiaan Beijer was involved in this as an expert of the KE-chain platform and is happy to tell us more about the project.

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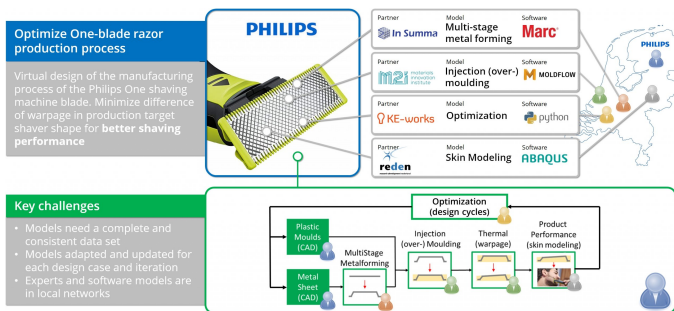
## VMAP standard

Bastiaan: "The VMAP standard has been used in combination with the KE-chain platform to enable multi-\* collaborative design. With multi- \* collaborative design we mean the integration of different models, disciplines, organizations, networks and locations in an integral design process. We deployed KE-chain to enable this multi- \* design process and tested with a use case from Philips based on their One-blade product. Philips makes thousands of these products every year. Saving in waste, material, budget and development time is extremely important to Philips. An integrated and digital design process is key to realize these savings. With the current way of working this is much too expensive and takes too long because of the many manual steps. That is why Philips is also participating in this project, as are Bosch and Audi to name a few well-known names. It's relevant. "



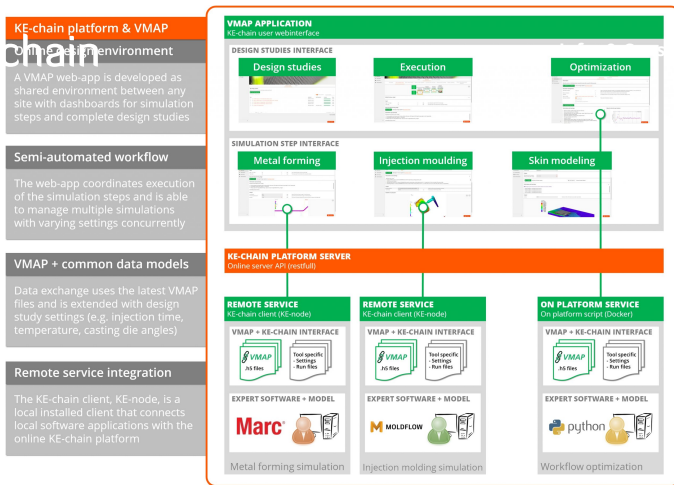
## Today integration means a lot of manual work

To further explain the problem, Bastiaan zooms in on the current design process. "The shaving guard design of the Philips One-blade consists of a metal razor in a plastic cover. To produce this combined plastic-metal product, several steps have to be taken: from bending the metal razor, to injecting the plastic, to simulating the interaction between the razor and the skin. If you want to optimize the design, the design variables are always adjusted to see how the product performs. To determine this, the calculations with the different software models throughout the simulation chain are done over and over again based on the new design, in a specific order. Because the software models are bound to the local environment, each expert has to convert the information received into the correct form, start up the software model, perform the calculation and send the results back on. That means a lot of manual work and exchange between some packages was often not possible at all! "



## Linking of simulation software

The added value of the VMAP standard is clearly shown in this. Bastiaan: "We can standardize these interfaces with the VMAP standard. VMAP is able to remove the "language barrier" between software models, because both "languages" understand the common VMAP standard. KE-chain uses this to automate data transfer and gives the experts control to manage execution with a user-friendly interface. At the back, KE-chain connects to the local software models of these experts so that the entire chain is accessible from one place for everyone in the team to perform calculations, without the team having to install and manage all the software itself. Per process step, the user has a customized user interface with a dashboard to adjust input settings, inspect design results and access VMAP files. In addition, with KE-chain you can conduct and manage multiple design studies. Multiple optimizations can thus be performed in parallel. Very easy if you want to analyze and compare different variants. "



## Philips case: Software as a remote service

Bastiaan: "In the case of the Philips use case, for example, we linked the software models that were used by all partners in the use case. Two well-known simulation software applications are MSC Marc and Moldflow, but our partners' own software applications were also part of this. We were able to make this link thanks to our KE-node software. KE-node makes it possible to link these local software applications with KE-chain as a **remote service**. These applications can therefore communicate with each other via KE-chain, via a secure network, and users are able to perform calculations remotely. In this way, the experts retain control over their application, while they can integrate directly into one simulation chain! "

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