

General Motors and Molex: Case Studies in Enterprise Materials Information Management

At a web seminar hosted by IHS Globalspec in 2016, speakers from industry leaders General Motors and Molex described how and why they are managing materials information.

General Motors: saving time and ensuring consistency



Denise Massa described an enterprise project to manage GM's materials information using the GRANTA MI™ system. Massa is Global Process Lead for Materials Lifecycle Management at General Motors, a position created 5 years ago because materials are regarded as “foundational” to GM's activities. The charter of the GM team working on this project was to take a global view of materials, and to integrate materials management with product lifecycle management (PLM). The first challenge was realizing that everybody has a different definition of materials. A 'material' means a different thing to a CAE person, a release engineer, and a designer. The team had to develop a harmonized definition, which they name a 'materials call-out'. This is the information stored in the GRANTA MI system and authored into their PLM system for use by consumers of materials data across the enterprise.



To figure out how to harmonize and then deliver this data, the GM team 'storyboarded' the materials that GM works with—including plastics, metals, textiles, bulk fluids, and adhesives. They analyzed how these materials touch processes from design concept, through materials selection and sourcing, to production, and beyond. They found that many different tools were used to handle materials information through this process: over a dozen in the case of plastics. These tools often did not talk to one another. The data structures used also made it hard to share materials data across product-lines and geographical regions. They identified three key areas in which they needed to develop and integrate capabilities for managing materials information: materials selection and assignment, environmental management, and certification.

In planning a new system, GM have looked to support the materials information needs throughout this journey, while rationalizing the number of tools involved. They have designed a system based around just two key tools—GRANTA MI, which will be used to manage materials information and 'author' it into the second key tool, their Teamcenter® PLM system. Within Teamcenter this data can be consumed by a diverse audience from engineers, to purchasing staff, to lawyers. GM now have a roadmap for building this new system and have begun the process by migrating information into their GRANTA MI system in 4 key areas: materials properties, materials certifications and approvals, appearance, and raw materials substances. Reporting on progress, Massa concluded: “Integration so far has been very good. We've not had a lot of rework. We've had a few learnings, such as that legacy data requires a lot of cleanup. But, other than that, our configuration has been very easy and Granta has done a great job of making sure that we set it up in a way that will meet our requirements.”

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Responding to a question on the primary advantages of the new system, she explained that **key goals were to reduce time taken on material studies and to ensure consistency across the users of materials data**. She cited an example where a CAE study and a welding engineer could be working on the same material, but using different descriptions: “We want them to all be using the same version of the steel so we have **less rework, better products, no product recalls, and fewer warranty issues.**” Speaking on the business justification for the materials information management project, she explained how a business case had been put together analyzing both direct business benefits that impact the bottom line and indirect benefits: “after we finish each project, we go back and check that we have met our metrics. So far, we are about 50% of the way through the project and have met all of our metrics.”

Molex: reducing cost and increasing efficiency



Brett Rickett, Director of Material and Process Technology at Molex, described materials information management at the leading manufacturer of electrical and electronic connectors. Molex is a global organization with over 1,400 engineers in product development, many of whom need materials information for routine decision-making. The Molex materials



portfolio is weighted towards copper alloys, stainless steel metal strip, engineering plastics, and electro-deposited coatings. Managing information about these materials has long been recognized as an important strategic topic, so that a system has been in place to support this activity for over 15 years. However, in recent years, the company recognized deficiencies in this system and sought to replace it. These included the fact that it did not provide a “single source of the truth” (metals and plastics specifications data and data for CAE were in disconnected databases). Also, because the legacy system had been a custom development project, it was expensive and difficult to make changes—for example, to add new attributes, or roll out information on company preferred materials. In looking for a new system, Molex also aimed to leverage materials data in CAD and PLM and to support environmental compliance objectives.

Molex selected GRANTA MI for their new system following an extensive vendor assessment and, at the time of the webinar, had successfully completed initial deployment to 200 engineers. Legacy data had been transferred and roll-out to the remaining 1,200 engineers was approaching. The biggest challenge in planning the roll-out had been in identifying those materials attributes that were most important to the user community. Planning the implementation with a core team that was cross-functional and globally-distributed was critical in analyzing such issues and getting the answers right. Access to the database is provided both via a web browser and (using the MI:Materials Gateway technology) from within Molex CAD and CAE software. **The results have been greater integrity in capturing and storing data, and in presenting that data to the internal customers at Molex who need it in order to make decisions.**

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Asked about how the business justification for the system had been made, Rickett pointed out that its benefits fitted in with a lot of existing corporate initiatives. One example is a drive on the **cost and efficiency in creating Bills of Materials**, where he commented that benefits come “by taking out a lot of inefficient work activities in the product engineering community through having Granta serve as the source of information that gets rolled up into our NX® CAD system, and then into our PLM. Being able to take out all of the cost and effort there was a great way to be able to show Return on Investment.”

Further information

A recording of this web seminar is available on request.

Further case studies and information at www.grantadesign.com/casestudies/