

# Materials Data Management



## Industrial relevance

-  Aerospace
-  Energy & Nuclear
-  Medical Devices
-  Industrial & Consumer Equipment
-  Automotive & Transportation
-  Electronics
-  Materials Producers

- Implement best practice materials data management—capture, analyze, and manage all of your materials data a single, searchable, resource
- Save time in materials engineering, avoid lost data, re-use corporate materials knowledge
- Control valuable data, guarantee security, and ensure that information can be traced to original sources
- Deliver materials data to the people that need it, on their desktop, in the format that they require

## Why is materials data management important?

Excellence in the management and use of data about materials (metals, plastics, composites, ceramics) has a major impact on time-to-market, product quality, risk, and cost for engineering enterprises. In highly-regulated and safety-conscious sectors, such as aerospace, nuclear, or medical devices, organizations must ensure that the information used in design has a reliable pedigree, traceable to the data and analyses from which it came. In all sectors, companies want it to be easy to make good materials and process decisions, based on the best available engineering, economic, and environmental data.

This requires in-house, proprietary data from testing, QA, research, suppliers, and legacy sources, plus data from external references. All of this data must be consolidated, analyzed to create useful information, and delivered to the people that need it (designers, engineers, managers, and others). With no system to achieve this, problems include:

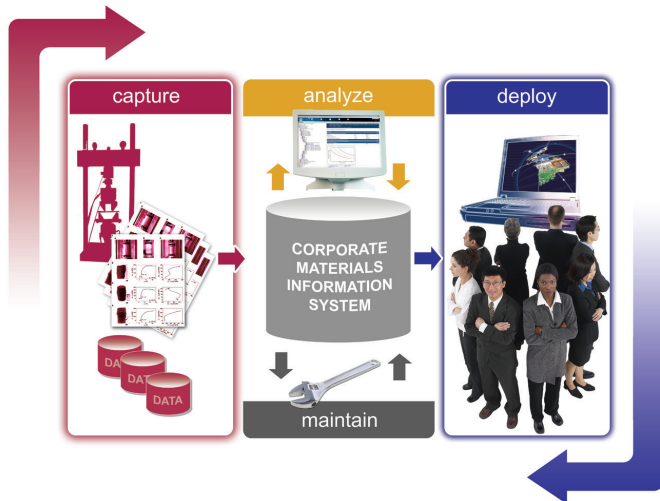
- **“We lose materials property data”**—data from one project is often not preserved or made easily available to later projects, resulting in duplication of effort and giving designers and engineers an incomplete view.
- **“I waste time finding and processing materials data”**—materials data is often scattered across the enterprise in diverse spreadsheets, databases, documents, and even in hard copy. Significant time and cost can be lost as a result.
- **“We get problems with incorrect, inconsistent or obsolete data”**—the lack of a single, reliable ‘gold source’ for materials data risks errors or inconsistencies that delay the design process and, in the worst case, lead to product problems or recalls.
- **“We need to derive data from large data sets and make sure it is traceable”**—a particular challenge in sectors like aerospace is the need to apply specialist analysis tools to create statistically-derived design ‘allowable’ data, and to maintain full traceability throughout this process.
- **“We would like to publish materials information to our colleagues / customers”**—materials experts need to make the right materials information available to the people that need it in the format that they need it, while maintaining appropriate security.

**“ASCO was similar to many engineering organizations in having... no single, integrated system to manage the materials data that supports design and generates ‘allowable’ property values for FEM. ASCO’s goal was to enable full traceability for all data, revision control, easy searching, and quick comparisons.”**  
—*ASCO Industries*

More case studies at [grantadesign.com/mdm/](http://grantadesign.com/mdm/)

## Granta's solution

Granta works with leading engineering enterprises that face such challenges to develop GRANTA MI™, the leading system for materials information management. These include members of the Material Data Management Consortium (MDMC), a collaboration of aerospace, defense, and energy companies, and the Materials Strategy Software Consortium, a group of companies applying materials information in materials selection, substitution, and cost optimization. Consortium members include Rolls-Royce, NASA, Boeing, Emerson Electric, TRW Automotive, Rhodia, GE, and Honeywell.



GRANTA MI creates a single, consistent, controlled source of corporate materials information, combining your proprietary data with your choice of reference information. And it provides tools to manage and use this data throughout its 'lifecycle'. The Consortium members have defined four steps in this lifecycle (pictured above):

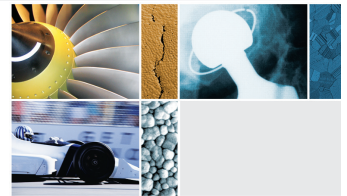
- **CAPTURE**—import data from text files, Excel spreadsheets, and test instruments. Store all relevant objects (numbers, graphs, functions, images, documents, video...). Capture and preserve the vital relationships between data.
- **ANALYZE**—process test data and derive properties such as tensile behavior, compression, fatigue, creep, and fracture.
- **DEPLOY**—enable any user to find, search, browse, and use data via a simple web browser interface. GRANTA MI also integrates with third party software, enabling direct access to materials data within CAD, CAE, FEA, PLM and other applications.
- **MAINTAIN**—apply a sophisticated range of features (access control, version control, smart linking...) to ensure data is traceable, secure, and controlled.

GRANTA MI helps you to increase quality, innovate, optimize key materials business decisions, save time, and reduce risk.

## Further Information

GRANTA MI—[www.grantadesign.com/products/mi/](http://www.grantadesign.com/products/mi/) or read the GRANTA MI product overview.

Technical paper, "Meeting the Materials Data Management Needs of Engineering Enterprises"—[www.grantadesign.com/papers/](http://www.grantadesign.com/papers/)



### Solution features

- Creates a single, consistent source of corporate materials information
- Manages and analyzes highly specialist materials data
- Complete traceability
- Secure and controlled
- Deploys data directly to engineers



The Material Data Management Consortium is a unique collaboration of leading aerospace, defense, and energy organizations focused on the management of mission-critical data. Members apply GRANTA MI and help to guide its development.



The Materials Strategy Consortium is a collaborative project that drives the development of software for systematic materials selection, substitution, and cost optimization.



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