

mathsoft

Calculation Management Suite™
PRODUCT SOLUTIONS GUIDE

WE TAKE A COMPREHENSIVE VIEW OF THE ENGINEERING PROCESS, AND IT BEGINS WITH CALCULATION MANAGEMENT.

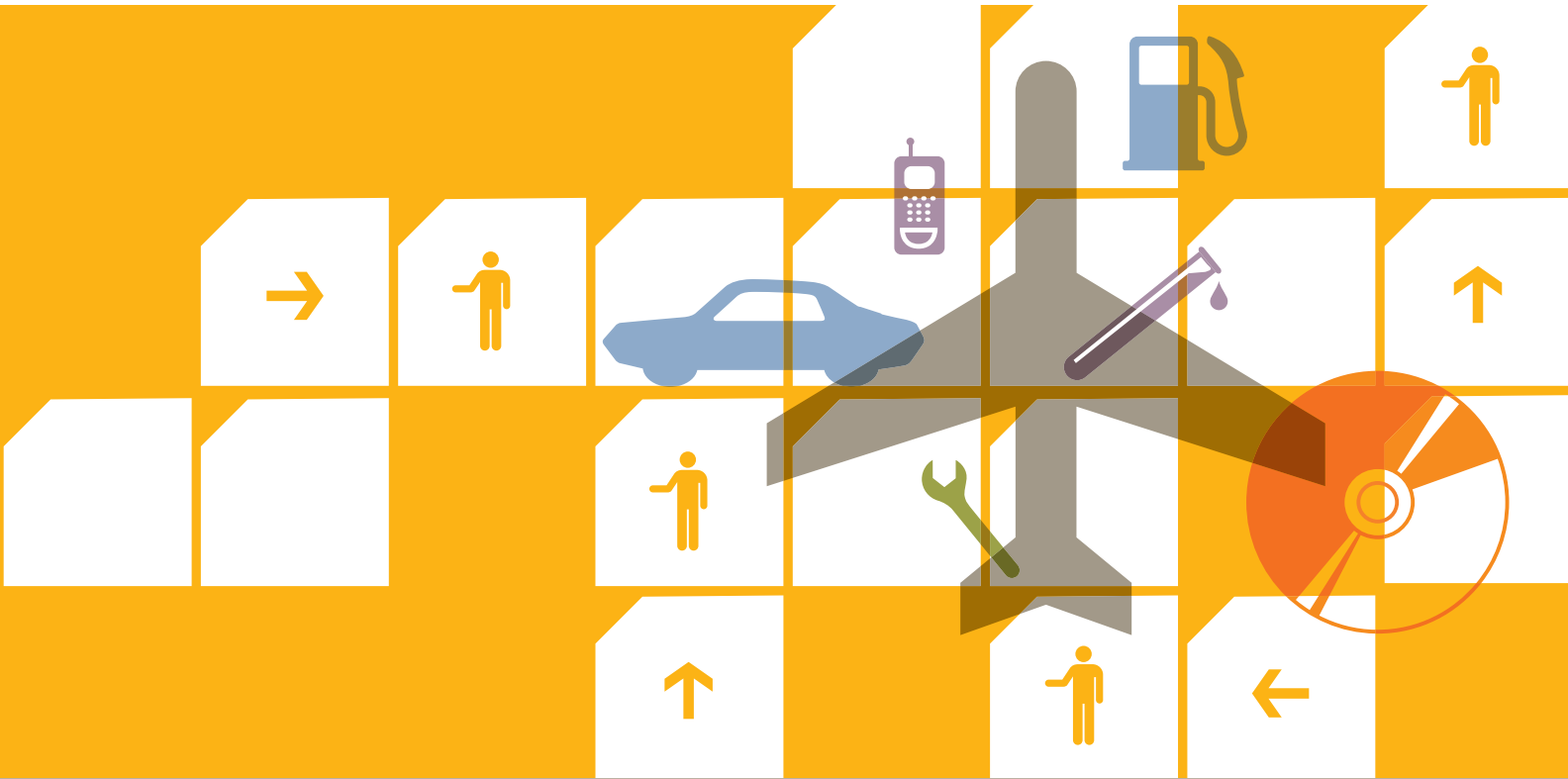
Enterprises across all industries are too often risking errors and undertaking unplanned redesigns that cost them substantial dollars, potential customers, productivity and, in the worst case, individual lives. Organizations are suffering these costs unnecessarily because they have failed to take steps to successfully capture and manage their valuable engineering information.

Calculation Management, an emerging technology discipline, squarely addresses this problem. It is designed to bring to engineering the same benefits that knowledge management (KM), product life-cycle management (PLM), document management and content management systems have brought to other key business processes.

Virtually every industry generates a wealth of valuable engineering information, including specifications, formulas, diagrams and test results. Accuracy and timeliness of this information is vital for accelerating products to market, reducing costs and eliminating the risk of design

failures. Too often, however, this valuable information is hidden from view, lost in filing cabinets, on pieces of paper, in computer code and behind spreadsheet cells. Or it walks out the door when an employee leaves the company.

CALCULATION MANAGEMENT ADDRESSES INDUSTRIES' SPECIFIC CONCERNS



Producing useful, easily retrievable enterprise engineering information is achievable today. The answer is Calculation Management, a concept Mathsoft originated after conversations with tens of thousands of customers about their engineering information challenges. We define Calculation Management as a systematic practice that captures methods and values that represent product development and engineering designs to make them more visible, useful and collectively manageable for the organization.

A Calculation Management solution includes standard engineering tools, centralized storage repositories, templates, and Web-accessible engineering information. It can automatically transform highly technical documentation into standard business format, such as a Microsoft Word file, a polished Adobe PDF document, a Web page, or a sharable XML-based Web service. These formats ensure that all stakeholders – engineers, executives, salespersons, marketers, business partners, customers,

regulators and others – can get all the information they need to make crucial engineering and business decisions, how and when they need it.

The Calculation Management imperative takes various forms depending upon the organization. In aerospace, for example, the error rate simply must be zero. Automotive is rampant with specifications and unit conversions that need to be managed. Electronics companies compete intensively on reducing defects, waste and cycle times, all of which are addressed by Calculation Management. Construction engineers need anytime, anywhere Web access to calculations. In high tech, mergers and acquisitions demand advanced knowledge management to effectively consolidate workforces and divisions. Energy, pharmaceutical and chemical companies have massive regulatory reporting responsibilities. The Mathsoft Calculation Management Suite™ supports all of these critical activities.

THE CALCULATION MANAGEMENT SUITE: A UNIFIED SOLUTION FOR BRIDGING ENGINEERING AND BUSINESS PROCESSES



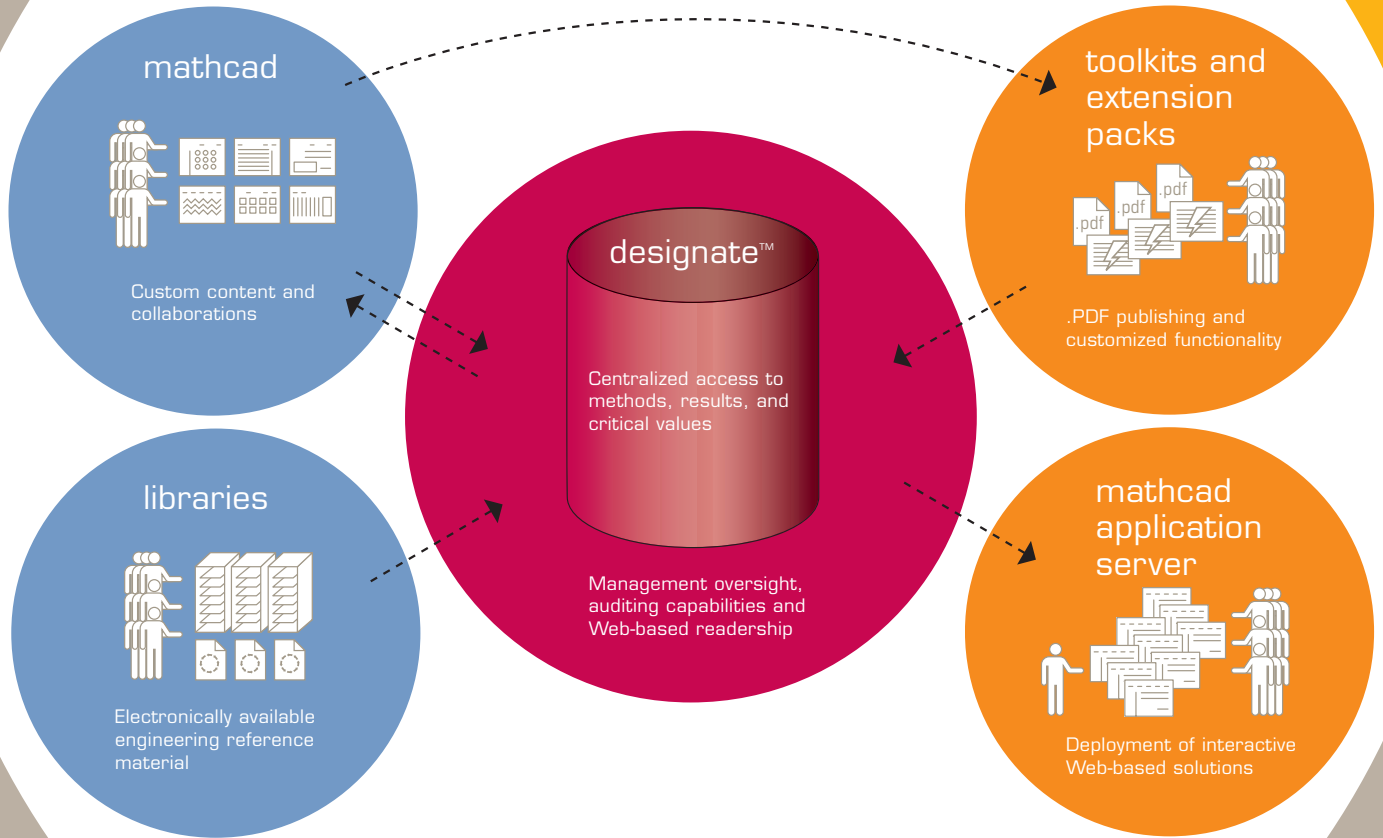
The Mathsoft Calculation Management Suite™ is the first and only enterprise solution that powers enterprise Calculation Management. It creates, captures and manages valuable engineering information while dramatically reducing the risk of costly errors. The Web-based suite lets engineers simultaneously design and document their work, then centrally manage it for reuse, auditing, oversight, publishing and collaboration throughout the entire development process. The result is faster product development, higher product quality, easier compliance with regulations, and seamless integration of Calculation Management services into existing engineering applications.

Benefits summarized

The Calculation Management Suite delivers abundant benefits to every major stakeholder in the engineering organization. For senior management, the suite ensures maximum productivity and brings better products more quickly to market at a lower cost while preserving the organization's intellectual property. The suite helps engineering management track, verify, validate and report activities internally as well as externally with key business partners and agencies. It helps engineers more efficiently perform all phases of their work, reducing errors, collaborating with colleagues, and reusing approved calculations in future projects. Unlike many enterprise applications, the suite makes minimal impact on the IT departments since it operates on open standard, highly reliable and easily integrated technologies such as the Microsoft .NET framework and XML.

The Calculation Management Suite™

component diagram



Reap the benefits of your valuable engineering information

THE MATHSOFT CALCULATION MANAGEMENT SUITE ENCOMPASSES THESE COMPONENTS:

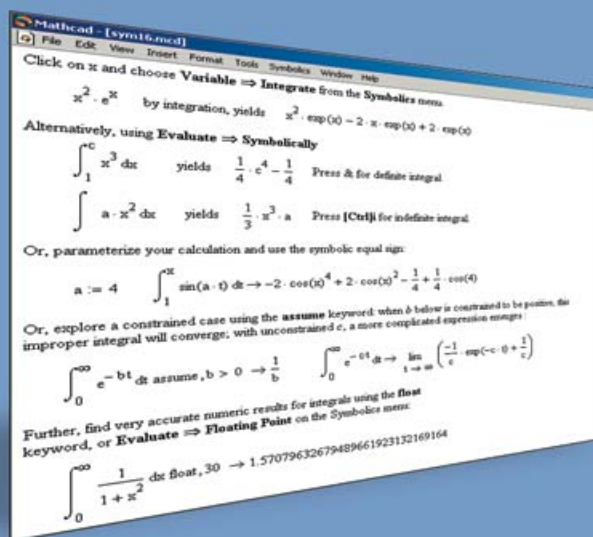
mathcad®

A 100-percent “whiteboard” design environment that allows engineers to easily capture, apply and manage their product requirements, critical data, methods and assumptions for rapid calculations.

Mathcad is the world’s most widely used engineering calculation tool, the choice of more than 1.7 million engineers throughout the world. Via an intuitive whiteboard interface, engineers can combine formulas, text and graphics in a single worksheet, and enter formulas using real math notation. Unlike a programming tool or spreadsheet, Mathcad’s interface accepts and displays natural mathematical notation using keystrokes or menu palette clicks, so no programming is required.

Because the interface is live, a single keystroke returns a result. Changing a variable instantly recalculates the answer or redraws any 2-D or 3-D graphs – thus eliminating any manual recalculation work. The calculations and results are documented in reusable worksheets, which can be saved in several formats, including Word, PDF, HTML and XML. These flexible formats enable engineers to share the fully documented design – including the concept and implementation, not just the code. The XML format makes it easy to share worksheets, methods or values with other users and systems, including document management applications, computer-aided design (CAD) programs, and product data management (PDM) solutions.

Mathcad easily integrates with a variety of data sources and third-party products, including Autodesk’s AutoCAD®, Microsoft’s Visio® and Excel® (as well as other Office applications), The MathWorks’ MATLAB®, National Instruments’ LabVIEW™ Express, Intergraph SmartSketch™, Visual Solutions VisSim®, Dassault Systèmes (DSS)/IBM’s CATIA™, among others.

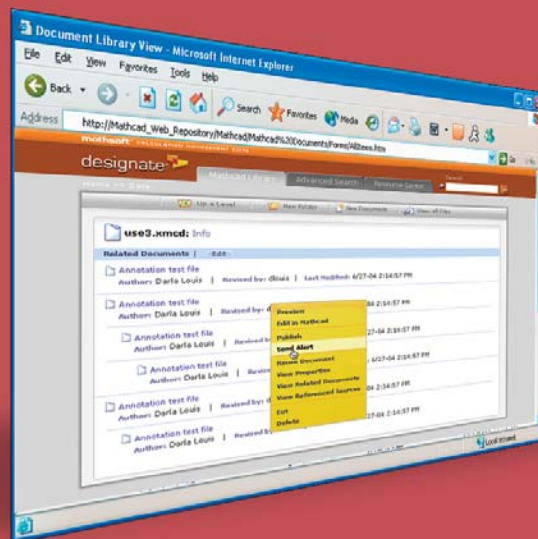


designate™

A Web-based framework for managing engineering design documents.

Designate is Mathsoft's application for viewing, searching, reporting and publishing an organization's valuable engineering information. The heart of the Calculation Management Suite, Designate is the only enterprise application that helps engineering organizations capture the methods, results and critical values behind each project design for reuse, audit and oversight. Designate delivers these organizational benefits throughout the product development process by supplying a Web-based framework for centralized access, auditing, reporting and publishing of design work created using Mathcad as the client-based application.

Designate enables organizations to perform relationship analyses on Mathcad documents that share common features and interdependancies, or which equations are copied from other worksheets. The software takes advantage of Mathcad's unique auditing and document tracing features to reveal the relationships between calculations. Designate's other features include Mathcad-specific templating options, powerful searching, document collection, change management, multiformat publishing, and customized report generation using Mathcad content.



ORGANIZATIONS CAN CUSTOMIZE THE CALCULATION MANAGEMENT SUITE TO ADDRESS THEIR UNIQUE NEEDS WITH OPTIONAL COMPONENTS, SUCH AS:

Mathcad Application Server

The Mathcad Application Server lets companies create and distribute fully interactive Mathcad worksheets on the Internet and intranets. This makes the worksheets accessible to colleagues, customers, partners and others via standard Web browsers without requiring them to install Mathcad on their desktops. Any engineer – internally or externally, including contractors, consultants, partners or clients – can interact with approved Mathcad documents through simple HTML form fields. Decision makers and engineers do not need to download any special plug-ins or require any knowledge of HTML or other Web-based programming languages. Mathcad Application Server supports all built-in math functionality, including graphical output of results, for the creation of Mathcad Web pages – which can be saved and reused in multiple engineering projects.

The Mathcad Application Server supports up to 90 worksheet transactions per minute and enables as many as 30 simultaneous browser sessions at a time, per processor.

Other Calculation Management Suite options include:

Customization Toolkit, a set of APIs and a software development kit to integrate the suite with other enterprise systems and processes.

Publishing Toolkit, a product for flexibly viewing, and displaying XML data generated by the suite and transforming it into professional business documents.

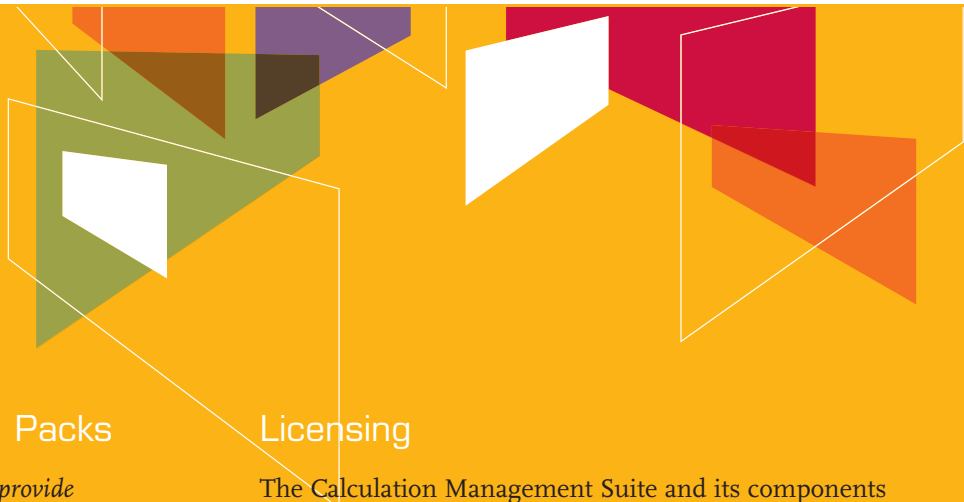
Vertical Libraries

Mathsoft has created extensive content-rich software libraries, which contain several well-known reference books delivered as interactive e-books. The three libraries are job-specific and designed for:

Civil Engineering: The Civil Engineering Library combines the encyclopedic “Roark’s Formulas for Stress and Strain” with easy-to-adapt structural design templates and examples of thermal design problems.

Electrical Engineering: The Electrical Engineering Library provides hundreds of standard calculation procedures, formulae and reference tables used by electrical engineers.

Mechanical Engineering: The Mechanical Engineering Library combines the encyclopedic “Roark’s Formulas for Stress and Strain” with easy-to-adapt calculations from a classic McGraw-Hill reference book and an interactive introduction to the finite element method.



Industry-Specific Extension Packs

There are also five Extension Packs that provide additional functionality to Mathcad:

Data Analysis Extension Pack: allows engineers to easily import, manipulate and analyze data patterns and relationships in Mathcad.

Signal Processing Extension Pack: offers more than 70 built-in signal processing functions, adding extensive capabilities for performing analog and digital signal processing, analysis and visualization.

Image Processing Extension Pack: performs smoothing, crisping, edge detection, erosion and dilation algorithms on color and grayscale images – useful in medicine, astronomy, weather, geophysics, geology, forensics and radar, among other fields.

Wavelets Extension Pack: facilitates a new approach to signal and image analysis, time series analysis, statistical signal estimation, data compression analysis and special numerical methods. Engineers can create an almost limitless number of functions that duplicate any natural or abstract environment – a function useful for engineers that need to compress vast amounts of data, such as those involved in fingerprint identification or coding an MRI.

Solving and Optimization Extension Pack: delivers the most powerful solving technology available for Mathcad, enabling you to handle the most complex problems in engineering, finance, operations research and manufacturing.

Licensing

The Calculation Management Suite and its components offer you a broad range of installation and licensing options. Mathcad software, meanwhile, may be installed on local PCs or run from a server. In server-based installations, companies use FLEXlm® license management software to monitor and manage license usage. Mathcad can potentially be used by thousands of workstations on the same network. Volume licensing is available for corporate, education and government.

Software Assurance

When you purchase the Calculation Management Suite, you will always have access to the latest Calculation Management technology. With the Mathsoft Software Assurance program, you will receive all product releases, updates, electronic content, and other resources released while your organization is actively on software assurance. You will also receive the highest-priority technical support, by telephone, email, fax, or through the extensive Web-based Mathcad Knowledge Base. Other benefits include the opportunity to participate in the beta testing program and also receive regular product newsletters and offers.



Services

Mathsoft's Consulting service enables customers to quickly benefit from the Calculation Management Suite with customized solutions that operate smoothly in any corporate setting. Services include:

Repository Integration: Calculation Management functionality can enhance the value of any corporate repository, including Documentum, Microsoft SharePoint Portal Server, and Open Text Livelink.

Data Integration: Organizations can access data in third-party products, including product life-cycle (PLM) systems, either by importing their data into Mathcad worksheets or by extending Mathcad to incorporate their data in its native format.

Document Publication: Mathcad worksheets can automatically become printer-friendly technical documentation, such as Microsoft Word or Adobe Acrobat files. This may require the development of customized Mathcad templates, document conversion utilities, or style sheets.

Math Migration: Organizations can convert Microsoft Excel spreadsheets or computer programs into Mathcad worksheets for easy viewing, reuse, analysis and reporting.

Process Integration: Mathcad consultants can help organizations incorporate Calculation Management Suite capabilities into any standard operating procedure or process.

Training

To get you up to speed quickly, Mathsoft's proven training courses teach your organization how to optimize Calculation Management Suite usage and capture engineering knowledge and calculation work. Mathsoft Training Services offers two-day and three-day onsite training programs with options for online training and management seminars, all led by Mathsoft Certified Trainers and customizable to your organization's needs. Outside the United States and Canada, contact your local distributor for training options.

Because Mathsoft is at the forefront of Calculation Management, we are continuing to partner with leading global distributors, strategic partners and systems integrators (SIs), and work with enterprises in all key industries. Our Solution Services group, which consists of consulting, training and technical support, is expanding to make every dollar count in our customers' engineering design processes.



About Mathsoft Engineering & Education, Inc.

Mathsoft Engineering & Education, Inc. pioneered Calculation Management solutions that protect engineering innovation, investments and intellectual capital while improving efficiency and productivity across the enterprise. Mathsoft software is the internationally recognized standard for technical calculations and applying mathematics. Ninety percent of Fortune 1000 companies, 500 government agencies and 2,000 colleges and universities around the world use Mathsoft to capture the strategic value in their engineering calculations. More information on Cambridge, Mass.-based Mathsoft is available at www.mathsoft.com.



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