Right Hemisphere® Business Solutions
Collaborative Development and Sourcing

Meeting the Needs of the Innovators

Today's innovative product manufacturers employ globally dispersed cross-functional teams that must collectively contribute expertise to design today's complex products. The teams include in-house engineers and technicians and a community of component suppliers, design partners, and customers. The knowledge and skill sets of these diverse teams add complexity to product communication and collaboration, with different tools and conventions creating barriers for effective knowledge sharing.

Business pressures to lower costs and reduce time-to-market are driving product development teams to shorten cycle times and perform more work in parallel. For example, many organizations have implemented standardized Integrated Product & Process Development (IPPD) processes to concurrently develop manufacturing processes for a product design in progress.

The Right Hemisphere Collaborative Development and Sourcing solution accelerates business process efficiency through visual product communication and collaboration for:

- Product Design Reviews
- Supplier Communications
- Engineering Change Orders
- Customer Briefings
- Quality Inspection & Reporting

Right Hemisphere Collaborative Development and Sourcing Solution

Recognizing the need to securely, accurately, and easily exchange product knowledge, Right Hemisphere offers a Collaborative Development and Sourcing solution. Product information—based on current design data stored in CAD and PDM systems—can now be automatically published into secure and common document formats such as PDF and Microsoft® Office. The Right Hemisphere solution reduces the time to prepare design packages, supplier communications, and other engineering deliverables, making it possible to:

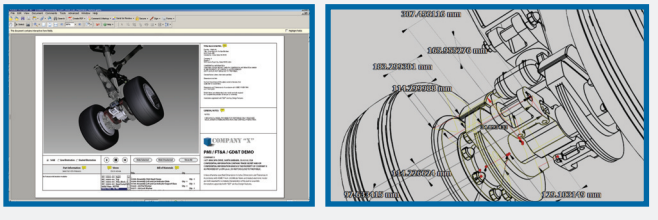
- Increase the efficiency of concurrent design processes.
- Reduce / eliminate design errors and late-in-the-process engineering changes.
- Validate customer requirements as designs evolve.
- Improve process capabilities sooner in product lifecycle.
- Improve the efficiency of quality inspections and reporting processes.



Right Hemisphere enables precise and up-to-date product design communication and collaboration to all cross-functional team members.

"This is the next evolution in engineering collaboration. Since we design and think in 3D, we need to communicate in 3D. Right Hemisphere helps us automatically synchronize the engineering design with downstream supplier and manufacturing communications - all in 3D".

Engineering and Manufacturing Automation Manager, Fortune 100 Medical Device Manufacturer



Communicate design intent in 3D PDF with Geometric Dimensioning & Tolerancing (GD&T) and other Product Manufacturing Information (PMI).

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Introducing Efficiencies to Business Process Workflows

Product Design Reviews

Product designs must be accurately communicated to collaborating engineering groups, downstream departments, customers, and suppliers. Many designs need to be integrated at each development phase milestone, with some complex products requiring constant coordination of the functional, system, platform, process, tooling, assembly, and service designs. Any miscommunication results in delays and potential mistakes downstream. Traditionally, concurrent engineering has been difficult due to limited access or incomplete product information. Many companies have invested in CAD & PDM systems, as part of a PLM strategy, to manage engineering data and change management processes. However, the expected benefits of these investments have not been fully realized due to the difficulty in integrating product information from multiple data sources (e.g., CAD, PDM, ERP) into secure common document formats such that design intent is quickly understood.

The Right Hemisphere Collaborative Development and Sourcing solution leverages existing PLM systems and IT infrastructure to deliver complete, accurate, and precise product information. Current engineering design data is automatically transformed into 3D model views and drawings with associated annotations and other product information that can be published into 3D Adobe PDF documents, Microsoft Office documents, or 3D simulation and visualization formats. Pratt & Whitney significantly reduced design cycle time for engine maintainability using Right Hemisphere Deep Server to create interactive 3D graphics for visualization of maintenance procedures. Similarly, a major aerospace and defense manufacturer expects to reduce engineering action items by 40%, as a direct result of introducing a Right Hemisphere Collaborative Development and Sourcing solution. By replacing large CAD data sets with lightweight 3D documents, product design reviews can be carried out using Web conferencing or viewed and marked up online without using expensive and complex CAD viewing programs.

Supplier Communications

Manufacturers are sourcing more parts and assemblies from a globally expanding community of external suppliers. The design, selection, purchase, and delivery of every out-sourced component involve sometimes lengthy and iterative processes. Companies must provide suppliers with precise geometric dimensioning and tolerancing (GD&T), but this often requires sending the original CAD files and numerous 2D drawings with associated Product Manufacturing Information (PMI). If the supplier does not use the same CAD system, they often rely on translated 3D CAD formats and specialized viewers.

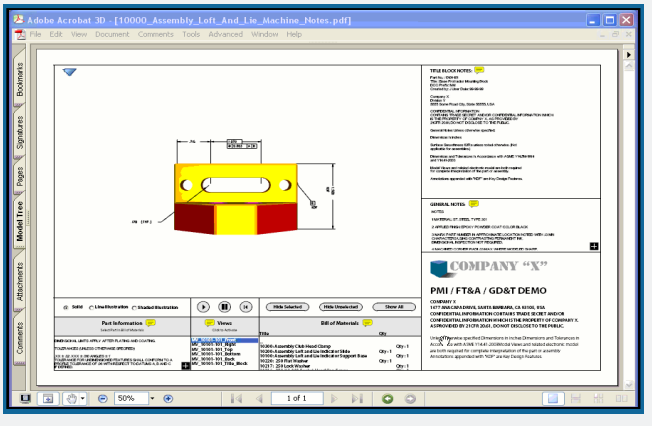
The Right Hemisphere Collaborative Development and Sourcing solution enables companies to automatically publish a lightweight product information document. 3D graphics are combined with an interactive BOM and associated PMI in a 3D PDF document. All information is extracted from current engineering design data in the CAD and PDM systems. These 3D PDF documents can be securely sent to suppliers for viewing and markup with the ubiquitous Adobe Reader. All 2D drawings can be eliminated—the 3D model conforms to the ASME Y14.41 standard providing standard model views (orthographic, isometric, sectional) and conventions for attaching specifications, annotations, and other data to the various views. One medical device manufacturer estimates that 3D PDF supplier communications can save 40% compared to the time required to process changes to traditional 2D drawings. This manufacturer also expects to eliminate up to 95% of errors with the automated solution. As a result, this manufacturer expects to reduce sourced component failure rates by 5-10%.



Optimize knowledge transfer of complex manufacturing assembly instructions. Simply click on the image to play demo.

Benefits

- Reduce engineering action items by 40%
- Deliver accurate & up to date product information in sync with latest engineering designs
- Eliminate manual steps involved in preparing for design reviews
- Enable both real-time web conferencing and offline document reviews in PDF or MS Office
- Make better upfront decisions to avoid costly mistakes downstream
- Create product graphics with only relevant information to help protect IP



Efficiently communicate design intent to component suppliers. Simply click on the image to play demo.

Benefits

- Reduce sourced component failure rates by 5-10%
- Reduce time-to-market by resolving component supplier issues earlier in the development cycle
- Avoid development costs associated with incorrectly manufactured sourced components
- Enable smoother transition from prototype suppliers to product suppliers
- Reduce IT desktop license & maintenance costs
- Avoid costs of $50,000 and 2 person-weeks for each incorrectly manufactured complex part

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Engineering Change Orders

Reducing the time spent on engineering changes—and especially late-in-the-cycle change requests—translates directly into cost savings. Achieving these savings requires that each stakeholder be able to quickly understand the intent and design impact of the change and efficiently find all relevant information associated with the change.

The Right Hemisphere Collaborative Development and Sourcing solution increases the visual clarity and understanding of engineering changes. Lightweight 3D graphics are combined with associated BOM and engineering change information in an easy-to-review Adobe PDF or Microsoft Office document. The Right Hemisphere process engine automates many previously time consuming manual steps related to finding and retrieving product information stored in disparate systems to combine with visually interactive product geometry. Published documents, based on pre-defined templates, can be stored in a document vault in conformance with existing procedures and policies. Reviewers can quickly view, understand, and markup change orders without any knowledge of engineering applications or CAD viewers.

Quality Inspection and Reporting

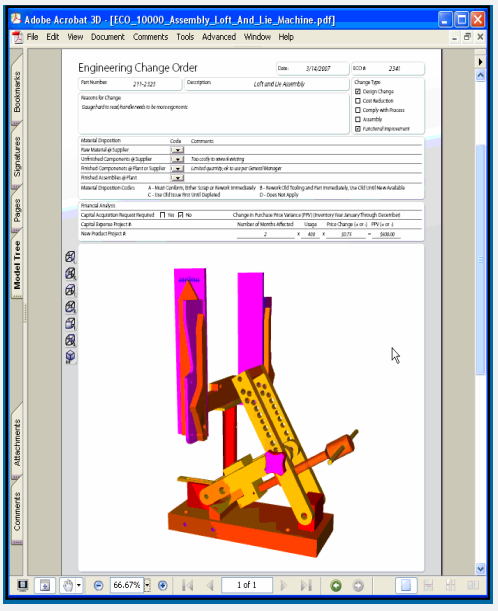
Many manufacturers and their suppliers must meet the requirements for advanced product quality planning (APQP) compliance. Industry standards such as Failure Mode & Effects Analysis (FMEA) and Production Part Approval Process (PPAP) are also used extensively. For example, engineering needs to communicate to the quality team numerous test procedures and failure modes relating to the inspection of first-article completions from component suppliers.

The Right Hemisphere Collaborative Development and Sourcing solution simplifies the documentation of the complicated procedures dictated by these standards. 2D illustrations or interactive 3D graphics can be delivered in secure, common document formats (Adobe PDF, Microsoft Office). These documents are based on current engineering design data and pre-defined templates set up to support a manufacturer's standard quality procedures and policies. Visually communicating complex analysis and testing procedures using lightweight 3D graphics with model views and PMI can minimize errors. Automatically or with fewer manual steps, the graphics and documents are updated as engineering designs evolve during the development process. More graphical testing and inspection procedures also improve compliance among international, multi-language workforces. Quality personnel can quickly reference how to perform acceptance tests, check for discrepancies in dimensions, tolerances, and appearance, and submit results back to Engineering all within a single PDF document.

Delivering Value to Manufacturers

Introducing profitable products to market today requires a continuous dialogue with design partners, customers, and suppliers—to validate requirements, define specifications, integrate design events, and prepare product launch and support deliverables. A product that does not meet customer expectations or is late to market can mean a huge loss of its revenue-generating capability.

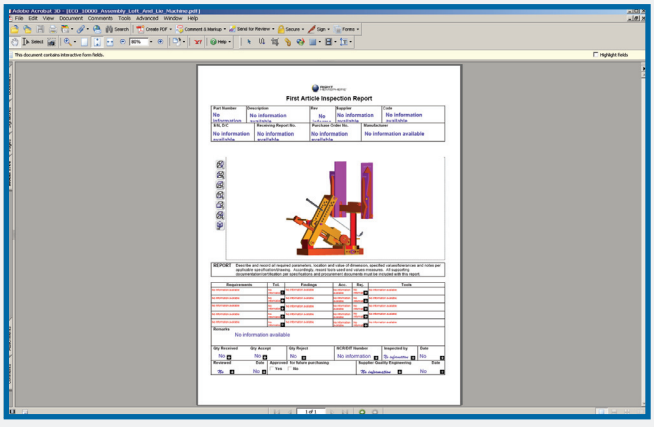
One major aerospace manufacturer is implementing initiatives to improve their Integrated Product and Process Development (IPPD). Some of the company's immediate goals are to reduce the time to prepare for design reviews, improve communication with non-engineers, and optimize design release processes. The company chose the Right Hemisphere Collaborative Development and Sourcing solution to automatically create content for customer briefings, design reviews, supplier communications, engineering change orders, and quality inspection & reporting. Real-time data from CAD and PDM systems is transformed into common document formats such as PDF and MS Office. Engineers avoid the time-consuming, manual tasks of finding, assembling, and reformatting the design data and the published document materials are automatically updated as designs evolve. This aerospace manufacturer expects to save over $2 million in program savings by reducing the number of engineering actions by over 40% and reducing the time to prepare for design reviews from one month to under a week.



Combine part change information from disparate systems with geometry in a single change order document.
Simply click on the image to play demo.

Benefits

- Improve understanding of change intent & design impact to reduce errors and rework
- Reduce number of late changes by improving communication & collaboration across functional teams
- Conform to existing change process procedures & policies
- Reduce component prototype & change order costs by 5-10%



Communicate complex test procedures for 1st Article Inspections.

Benefits

- Minimize time-to-understand new test procedures as product designs evolve
- Minimize testing & inspection errors by providing lightweight 3D graphics with model views and PMI
- Integrate interactive 3D quality procedures into standard process documents (e.g. APQP, FMEA, PPAP)
- Markup and comment within 3D PDF documents, to provide immediate feedback to Engineering

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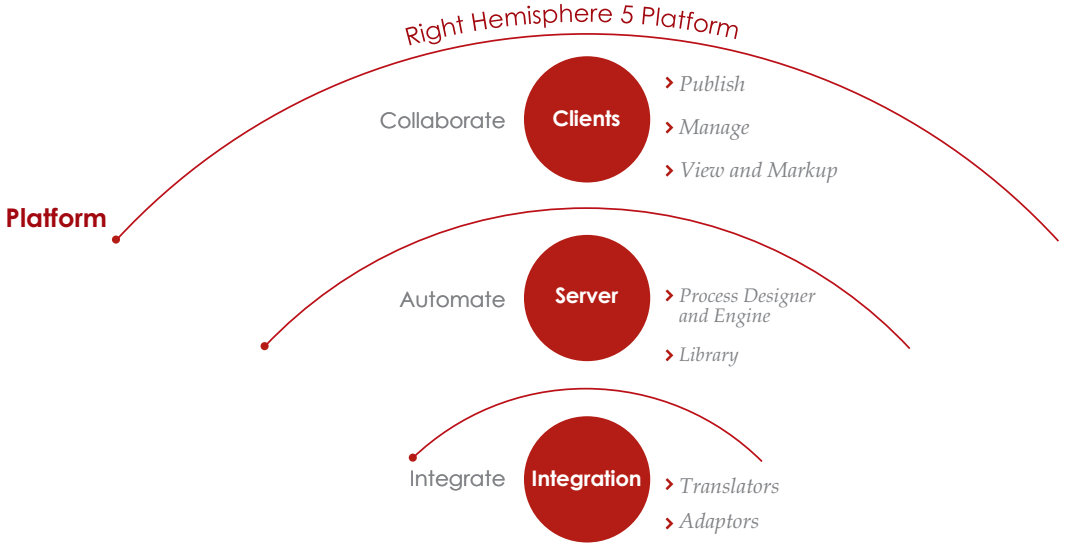
RH5 Platform for Visual Product Communication and Collaboration

The Right Hemisphere 5 platform is a fully integrated set of products with services that leverages the investments you have made in other enterprise applications such as CAD, PLM and ERP to optimize product communication and collaboration across the extended enterprise.



- **Client Products**
  - *RH5 Deep Exploration CAD Edition*
  - *RH5 Deep Exploration Standard*
  - *RH5 Deep Creator*
  - *RH5 Deep Publish (FREE)*
  - *RH5 Deep View (FREE)*
- **Server Products**
  - *RH5 Deep Server*
- **Integration Products**
  - *RH5 Enterprise Connect*

Integrate

Integrate existing 3D CAD data with associated metadata such as BOMs and assembly part attributes together with pre-defined document templates using CAD translators, PLM/ERP adapters, and Deep Server Connect.

Automate

Deep Server, our flagship product, then automates the creation of reusable lightweight 2D and 3D product graphics that conform with industry standards such as S1000D and ASME 14.41, and publishes secure 3D documents in common industry standard document formats such as Adobe PDF and Microsoft Office PowerPoint, Word, and Excel files that can be integrated into business-specific workflows.

Collaborate

Right Hemisphere also provides authoring tools and publishing modules to add additional animation, photorealistic imagery, and interaction to published documents. These collaborative design documents are then immediately available as product designs or other pertinent documents to communicate and collaborate with customers, suppliers, and other key stakeholders.

About Right Hemisphere

Right Hemisphere is the leading provider of enterprise product communication and collaboration solutions enabling manufacturers to optimize their global product development launch and support processes.

Organizations have invested in operational processes and IT systems to improve product lifecycle efficiencies, yet delivery of precise and up-to-date product information to the extended enterprise in a timely, efficient and usable form is difficult today.

Right Hemisphere maximizes knowledge transfer efficiency of product information to downstream stakeholders by automatically publishing product information readily available in CAD, PLM, and ERP systems into common document formats and business applications.

Learn more about Right Hemisphere at www.righthemisphere.com

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