Product Graphics Management Frequently Asked Questions

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What is Product Graphics Management?

Product Graphics Management (PGM) is a new category of enterprise software that integrates, automates, and manages product graphics across the extended enterprise.

Leading manufacturers are adopting PGM to accelerate time to market, increase revenue and competitive advantage, and reduce product lifecycle costs.

How does PGM accelerate time to market for products and product support offerings?

Time to market includes both the time to develop the product itself, as well as the time to develop technical publications, training courseware, marketing communications, product catalogs and more. Rather than waiting for the completion of prototypes, PGM lets you start building support offerings during product design. Furthermore, by automating 2D and 3D graphics publishing processes, PGM compresses support offering development time.

How does PGM increase revenue and competitive advantage?

Rich 2D and 3D product graphics can differentiate both products and support offerings. When choosing between "similar" products, other factors such as the impact of marketing materials and the breadth of support offerings drive the ultimate purchase decision. In addition, PGM reduces the sales cycle through better sales training courseware, better marketing collateral and better product catalogs.

How does PGM reduce product lifecycle costs?

Technical Publications, Training, Marketing, Sales, Service and other downstream departments form a large percentage of overall product lifecycle cost. Rather than recreating product graphics from scratch, PGM lets these groups leverage CAD assets to automatically author technical illustrations, photoreal images, and interactive scenes. As products and configurations evolve, PGM automates changes to impacted product graphics.

Who uses Product Graphics Management?

Far beyond Engineering's use of product graphics for visualization and view/markup, PGM today addresses extended enterprise demand for product graphics.

PGM integrates, automates, and manages product graphics across the extended enterprise including customers, employees, distributors, and suppliers.

In particular, PGM provides the product-based 2D and 3D technical illustrations, photoreal images, and interactive scenes required by Engineering, Technical Publications, Training, Sales and Marketing, Service and Support, and Manufacturing departments, as well as Outsourced Services suppliers.

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What are Product Graphics Management's key functions?

Product Graphics Management software includes a broad set of capabilities that can summarized in three areas:

- Integration
- Automation
- Management

PGM integrates product graphics across CAD/PDM and Publishing applications. PGM leverages CAD models as a source for lightweight graphical models and derivative graphics. PGM then integrates these graphics into Enterprise Content Management (ECM), Digital Content Creation (DCC), and Dynamic Enterprise Publishing (DEP) applications for multi-channel publishing to customers, employees, distributors, and suppliers.

PGM automates 2D and 3D graphics publishing processes using scalable graphics technology and best practice solutions to automate manual activities, integrate already automated ones, and provide better visibility and control at every step.

PGM manages 2D and 3D products graphics in a unified repository that is easy to access, yet secure. Home for lightweight graphical models and derivative graphics (technical illustrations, photoreal images, and interactive scenes), this repository supports all the leading modeling and graphics formats. This allows subject-matter experts, illustrators, graphics designers, and others to author and publish using whatever tools and formats works best, while eliminating the need for engineering involvement.

What 2D and 3D graphics publishing processes does PGM automate?

PGM automates the diverse set of graphics processes required to publish a variety of product communications and support offerings including:

- Technical publications such as operation and maintenance manuals, manufacturing and assembly process sheets, service bulletins, and more
- Interactive training such as IETMs, CBTs, simulations, and more
- Marketing communications such as catalogs, brochures, collateral, presentations, multimedia, and more
- Engineering collaboration documents such as product designs, product mockups, visualizations, engineering change orders, requests for quote, and more…

What are the advantages of using PGM to automate 2D and 3D graphics publishing processes?

Automating processes has several advantages including:

- Gain visibility and real-time control over product graphics and processes
- Replace manual processes with automated best practice solutions
- Scale to support high volume, fast turnaround, and/or continuously changing product graphics requirements
- Ensure accurate product graphics as products and configurations evolve

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How does PGM address the challenge of automating so many diverse 2D and 3D graphics publishing processes?

PGM uses two approaches to address the challenge of diverse publishing processes.

The first approach applies best practice solutions to each process, for example the best practice process for publishing marketing communications. These solutions provide automated processes based on best practices developed at leading manufacturers. These 80-90% fit out-of-the-box processes can be configured to support specific customer-specific steps, authoring tools, file formats, etc.

The second approach applies scalable technology to common functions shared by multiple graphics publishing processes. And example of a common function is transformation of CAD models into lightweight graphical models. This function is used across product communications and support offerings 2D and 3D processes. PGM automates these reusable functions to ensure they are high performance, reliable, and scale with volume.

What are the key stages in graphics publishing processes?

A typical 2D and 3D graphics publishing process has a number of activities that can be grouped into four major stages as follows:

- Plan – which includes balancing graphics supply, demand, and service levels
- Transform – which includes CAD translation and model optimization
- Author – which includes creating derivative graphics
- Publish – which includes integrating graphics into finished communications and support offerings

PGM automates a number of manual activities and integrates already automated ones to optimize graphics publishing processes from start to finish.

Which graphics publishing process should be implemented first?

There is no right answer to this question. PGM is designed to be implemented in a phased approach. Some PGM users prioritize their highest volume processes. Others start with their most problematic ones. Still others take a product line approach, implementing all the publishing processes for a specific product line before starting on the next product line.

The good news is that automation, integration, and learning done on one process can often be carried forward to the next. So as you automate additional processes, you leverage prior investments and accelerate return.

What are the advantages of using PGM to uniformly manage product graphics?

Uniformly managing product graphics has several advantages including:

- Supply extended enterprise demand for product graphics
- Improve product graphics availability and service levels
- Protect critical intellectual property
- Use existing authoring tools and whatever format works best
- Eliminate the need for engineering help when product graphics are required

How does PGM support all the formats used in CAD and Publishing today?

Full support for all the leading CAD model formats and graphics publishing file formats is a critical PGM requirement.

This requirement can be seen in the following manufacturing instruction example. Notice how PGM manages product graphics in four formats during the process:

- The original CAD model in a CAD format such as .STEP
- The lightweight graphical model in PGM format such as .RH
- The derivative technical illustration in PGM format as .RH
- The authored manufacturing instruction sheet in illustration tool format such as .AI
- The published manufacturing instruction sheet in final published format such as .PDF

How does PGM relate to Product Lifecycle Management (PLM)?

IBM, a pioneer in PLM, in a February 2001 white paper, defined PLM as a:

> "…*combination of technologies like CAD and PDM with product development processes reengineered to take advantage of the Internet. PLM puts products at the center of everything a company does, providing the glue that ties together CRM, SCM and ERP into an integrated whole. The result is more agile, more innovative enterprises that fully leverage their creative potential while reducing costs and cycle times and improving quality."*
>
> *Source: IBM PLM: Build new markets, Steve Shoaf, IBM PLM Solutions, February 2001*

Product Graphics Management is a key component of any Product Lifecycle Management strategy.

PGM provides the product graphics "glue" across all the applications that support the product lifecycle including CAD, PDM, CRM, SCM, ERP, as well as publishing applications such as ECM, DCC, and DEP.

And PGM supports all the PLM business objectives; namely faster time to market, better products, and lower lifecycle costs.

What are the advantages of using PGM to integrate CAD/PDM and Publishing applications?

Integrating CAD/PDM and Publishing applications has several advantages including:

- Streamline publishing of product communications and support offerings
- Improve quality and quantity of product graphics in product communications and support offerings
- Leverage CAD assets for publishing uses
- Leverage existing Publishing applications, content, and skills
- Eliminate product graphics as a new product introduction bottleneck
- Develop product communications and support offerings concurrent with product design
- Provide the product graphics "glue" for any PLM strategy
- Accelerate PLM adoption

What is the difference between PGM and PDM?

Product Data Management applications primarily focus on managing product related engineering and manufacturing data including CAD models, bills of material, and related engineering analysis findings. PDM applications generally support some graphical capabilities such as visualization and view/mockup for their primary user base, the Engineering and Manufacturing departments.

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Product Graphics Management applications primarily focus on managing the 2D and 3D product-based technical illustrations, photoreal images, and interactive scenes. In addition to product graphics are required by Engineering and Manufacturing, PGM applications also support Technical Publications, Training, Sales and Marketing, Service and Support departments, as well as Outsourced Services suppliers.

How does PGM integrate with PDM?

PGM and PDM are highly complementary. PGM leverages the PDM managed CAD models as a critical source for graphical models and derivative graphics.

PGM maintains a persistent link to PDM to continuously synchronize CAD models with product graphics as CAD models change.

PGM then integrates these graphics into Enterprise Content Management (ECM), Digital Content Creation (DCC), and Dynamic Enterprise Publishing (DEP) applications for multi-channel publishing to customers, employees, distributors, and suppliers.

Why can't PDM applications extend to support extended enterprise product graphics requirements?

While good at supporting Engineering related graphics used for visualization, view/markup and the like, PDM lacks four fundamentals required to support product graphics management across the extended enterprise.

First, PDM applications cannot provide the 2D and 3D derivative graphics required to publish product communications and support offerings. PGM delivers this capability out-of-the-box, supplying product graphics in all the leading publishing formats such as .AI (Adobe Illustrator), .AVI (Audio Video Interleave Animation), .MAX (AutoCAD 3D Studio Max), .PDF (Adobe Acrobat), and more.

Second, PDM applications do not directly integrate with Publishing applications such as Enterprise Content Management, Digital Content Creation, and Dynamic Enterprise Publishing. PGM provides this integration as described later in this document.

Third, PDM applications are not designed to be used by graphics professionals such as subject matter experts, technical illustrators, courseware developers, graphics designers, etc. PGM understands these users, how they work, and where automation improves their productivity.

Fourth, CAD models do not address critical product graphic attributes. Examples of attributes supported by PGM data models include softbody animation and interactivity definitions required in interactive training, shaders and materials used in marketing communications, and line widths and orthographic views used in technical publications.

Can new lightweight formats such as JT and 3D XML support PGM requirements?

These formats cannot fully support PGM requirements for three reasons.

First, at present these formats are being marketed as lightweight solutions for Engineering and Manufacturing use cases such as visualization, view/markup, and collaboration. PGM also requires support for the format and publishing needs of Technical Publications, Training, Service and Support, Marketing and Sales, etc. For example, graphic artists cannot add a texture or background using their DCC application of choice on a JT or 3D XML file.

Second, while marketed as “standards”, it turns out most large companies have multiple CAD/PDM applications inside and across their supply chain. Further, most use multiple DCC applications. Adoption of a single “standard” lightweight file format at these companies will be challenging. PGM supports all leading modeling and graphics formats rather than forcing convergence on a single standard.

Third, as mentioned above, JT, 3D XML, and other CAD formats lack critical graphic attributes used by graphics designers, technical illustrators, and the like. As such these standards cannot be adopted by departments such as Technical Publications, Training, and Marketing. PGM already supports all the formats used by these groups.

What is the difference between Product Graphics Management and Enterprise Content Management (ECM)?

Enterprise Content Management applications from EMC Documentum, IBM, Interwoven, Microsoft, Open Text, and Vignette allow users to store, manage, and deploy all types of content (documents, web pages, rich media, and XML).

PGM applications allow users to manage 2D and 3D product graphics content.

How does PGM integrate with Enterprise Content Management?

In many PGM implementations, ECM applications are already in place managing a range of content and processes. In those cases, the PGM graphics content and processes are typically integrated into the established ECM application.

On the content side, this means that product graphics assets managed in the PGM repository are linked to the ECM asset management applications to provide a single point of “asset” control.

On the process side, PGM transformation and authoring processes are linked to revision, review, approval, and deployment processes managed by the ECM system to provide a single point of “process” control.

What is the difference between PGM and Digital Content Creation (DCC) applications?

Digital Content Creation applications such as 3ds max, Deep Creator, Lightwave 3D, Cinema 4D, Flash, Illustrator, Maya, Photoshop, and XSI are sophisticated 3D animation, modeling and rendering applications used by creative professionals. DCC applications are used to author video games, television commercials, animated movies, movie special effects, interactive training courseware, high end marketing brochures, and more.

2D and 3D product graphics (e.g. photoreal product images, interactive scenes showing assembly or disassembly steps, etc.) are often a key source of digital content used by DCC applications. In addition, product related DCC content is often managed within the PGM graphics repository.

How does PGM integrate with DCC applications?

PGM and DCC integration is typically done in support of specific publishing processes, for example, marketing brochure development. In this case, a lightweight graphical model of the product is created in the PGM system based on the original CAD model. Next, the graphic artist uses the PGM system to author a photoreal image of the product, which is then saved in an appropriate DCC format (Max, Maya, etc.). Then the graphic artist uses the DCC system to perhaps add further lighting and background elements to the image. Finally, the finished image in DCC format is saved in the PGM graphics repository along with that product’s lightweight model and derivative graphics.

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How does PGM integrate with Dynamic Enterprise Publishing (DEP) applications?

Dynamic Enterprise Publishing applications, such as those from Adobe and Arbortext automate complex document production and publication processes.

Product graphics are one source of content that can be can merged with text and other content and then published by the DEP application. For example, product based technical illustrations are generated in the PGM application and then merged with other pricing and marketing text in DEP application to publish product catalogs

What is Right Hemisphere's role in Product Graphics Management?

Right Hemisphere is the leading enterprise software company providing PGM applications.

Five of the top six automotive OEMs, nine out the top ten aerospace and defense contractors, and hundreds more rapidly implement Right Hemisphere's PGM software to accelerate time to market, increase revenue and competitive advantage, and reduce product lifecycle costs.

Right Hemisphere's Deep Server™ integrates, automates, and manages product graphics supporting over 120 leading modeling and graphics formats.

Right Hemisphere provides solutions for Technical Publishing, Interactive Training, Marketing Communications, and Adobe Intelligent Documents today.

Right Hemisphere also provides client products, Deep Exploration™, Deep Creator™, and Deep Publish™ to author high impact product graphics.

Sold via a direct sales force and a reseller channel, Right Hemisphere's PGM software is available around the world. Right Hemisphere's target markets include Aerospace & Defense, Automotive & Transportation, Construction & Agricultural Machinery, and Industrial Equipment manufacturers.

Strategic partners include Adobe, who licenses Right Hemisphere technology to enable viewing of 3D objects in Adobe® Reader® 7.0 and NVIDIA who teams with Right Hemisphere to optimize graphics performance and shading.

Right Hemisphere software is open and standards based leveraging key technologies such as XML, Microsoft SQL Server™, and Microsoft.NET ™.

Founded in 1997, Right Hemisphere is privately held. The company received Series A funding from Sequoia Capital in September 2003 and Series B funding from Sequoia, Sutter Hill Ventures, and NVIDIA in April 2005.

RIGHT HEMISPHERE®
39355 California Street, Suite 201,
Fremont, California 94538
www.righthemisphere.com
sales@righthemisphere.com
510.818.2880

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