



Vendor Profile PTC

Company details

PTC, based in Needham, Massachusetts, was founded in 1985 and has 4,200 employees.

- **URL:** www.ptc.com
- **Last year's revenue:** \$898.2M
- **Offices:** PTC has offices in over 30 countries. 47% of the company's employees work in North America.
- **Customers:** As of January 2002, PTC had an installed base of 32,000 customers.

Product best fit

- **Product scope:** PTC sells Product Lifecycle Management (PLM) software based on a common infrastructure called *Windchill*. *Windchill* modules include *Windchill Projectlink* for project management and document sharing; *Windchill Foundation* for core PLM infrastructure, *Windchill PDMLink* for Product Data Management (PDM), *Windchill ProductView* for visualization, *Windchill Information Modeler* for customer-specific customization, as well as integrations to Computer-Aided-Design (CAD) packages such as PTC's own *Pro/E* and *Wildfire*, engineering, and other enterprise systems and applications. The functional scope of PTC's software includes Product Portfolio Management (PPM), Collaborative Product Design (CPD), PDM, Customer Needs Management (CNM), and Direct Materials Sourcing (DMS).
- **Size of company:** PTC's PLM applications are best fit to mid-size corporations and large corporations or independent divisions of larger corporations.
- **Best fits companies that prioritize:** Product Portfolio Management, CPD, PDM including Bill-of-Material (BOM) and Design Management and Change Management, Customer Needs Management, and Direct Materials Sourcing.
- **Not as strong as other vendors when top application priorities are:** Formula Management.

Functionality review

PTC provides functionality across the entire PLM footprint, with varying levels of capability for PPM, CNM, Collaborative Design, PDM, and DMS. Collaborative design and PDM are two of its strongest areas because of its legacy as a CAD vendor. More recent capability has been added for project management, design-to-order, and sourcing.

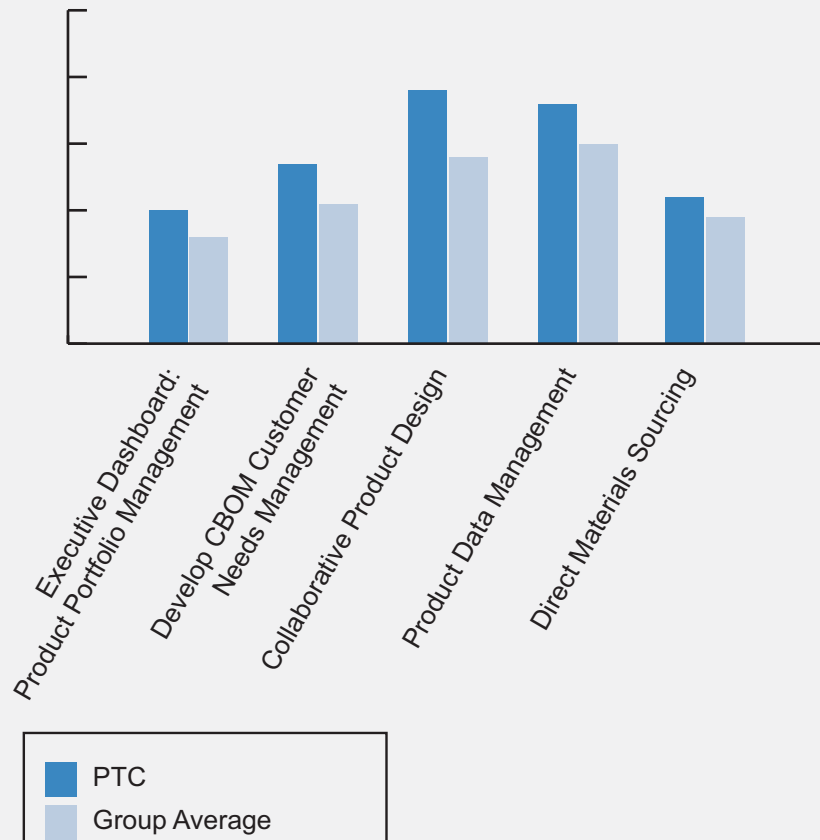
While certainly robust, PTC's PLM is continuing to mature in a few areas. *ProjectLink* is a very good environment for managing supply chain design projects, and while high-level project summaries are available, integration to *Microsoft Project* must be used for detailed charts. Project portfolio optimization is not available, and no real-time integration exists between *ProjectLink* and *PDMLink*, requiring data to be uploaded between project and PDM applications. For sourcing, additional Request-for-Quote (RFQ) capability is due by year-end, but bid analytics is not expected.

Functionality is described below beginning with the strongest capabilities for PTC:

- **Collaborative Design** is delivered through Windchill ProjectLink, which provides a platform that enables project managers to collaboratively project manage and execute product designs and development. It also enables teams to share a variety of design and program related documents and to have online discussions. Product View supports the application with interactive visualizations and peer-to-peer sharing of designs.
- **Product Data Management** is provided by *Windchill PDMLink*, the foundation for its broader application of PLM. PTC has considerable depth in this category. Particularly strong is the user interface; providing easy navigation through multiple views of a product structure, thumbnail views of drawings, and fluid interaction with digital models. Engineers can search for alternative parts, and the *PartsLink* catalog provides additional parts selection. Configuration management with effectivity dates is available, as well as a federated view of product data from multiple PDM systems. Engineering Change Management (ECM) has strong workflow with the ability to trigger processes based on variables, allows auditing of engineering changes, and provides various analytics of engineering changes in process.
- **Customer Needs Management** is partially delivered by the design-to-order capability of PTC's *DynamicDesignLink*. Customers navigate through a selection of options and compare tradeoffs, and then all CAD and Computer-Aided-Manufacturing (CAM) information is automatically generated. *DynamicDesignLink* can also be customized to create online customer surveys. The *Windchill DOORS* adaptor makes it easy to import Requirements Management data and associate it with the design process. Customer input can be captured online and routed through a review process. PTC does not provide capability to evaluate designs against forward-looking marketing data.

- For **Direct Materials Sourcing**, PTC will generate a parts list for quoting from a product assembly structure, listing make or buy components. Suppliers are invited to quote on a part by e-mail with a URL linking to the RFQ and drawings. RFQ's cannot be tailored for different vendors for the same bid, and bid analysis is not available. *PartsLink* provides a database of components in 3D that can be searched and used to quote. *ProjectLink* is used as a platform to collaborate with suppliers, conducting drawing reviews and on-line discussions. PTC expects to release *SupplyLink* by the end of 2002, a new module to deliver deeper functionality for sourcing.
- **Product Portfolio Management** and an executive dashboard are delivered through *ProjectLink*. It provides an executive view of the status of all projects; showing phase, financial roll-up, percent complete, resource utilization, and status with the use of traffic lights. Users can drill-down and navigate to a variety of project information. Schedule gantt charts are not available, but integration to *Microsoft Project* is provided for detailed project data. *ProjectLink* does not optimize a portfolio of projects, or provide financial analysis and decision support tools for optimizing pricing based on historical sales performance, competitive pricing, or gross margin. Integration between *ProjectLink* and PDM is not real-time, requiring data to be uploaded between application modules.

PTC's PLM functionality compared to averages of 7 vendors



Data as of August 31, 2002

Source: AMR Research, 2002

Technology review

- **Overview:** PTC *Windchill* products support Sun Solaris, HP, Windows NT and AIX operating systems. PTC provides its own *Windchill* Java Application Server for installations, and all customers use databases by Oracle.
- **Ability to integrate:** The next release of *Windchill* will include full support for TIBCO's Enterprise Application Integration (EAI) product suite for message-based connectivity to other enterprise systems. The *Windchill* Application Programming Interfaces (API) includes 80000 methods and 1700 classes. *Windchill* is built with Java Server Page (JSP), servlets, Remote Method Invocation (RMI), Simple Object Access Protocol (SOAP) and Extensible Markup Language (XML). Developers use Java to develop and integrate customizations.
- **Technology fit:** *Windchill* was built from the ground up as a Java-based web application with a clear eye to the full PLM vision. As result, it is highly flexible in terms of UI, workflow and data structures. Implementation consultants are generally very complimentary of *Windchill* for these reasons. The ideal technology environment for users needs to recognize these factors and be able to handle their own system with as little outside support as possible. PTC's greatest failing has been poorly setting customer expectations and loosely scoping engagements. Technology best fit certainly includes those shops running mid-range or higher ERP environments with Oracle databases underneath. Success technically should not be a problem, provided someone on the user side sets the agenda and takes care of the system. In general, this means mid-sized to large companies that don't outsource IT operations.

Financial analysis

Despite waning total quarterly revenues, *Windchill* revenues have been increasing quarterly, and PTC has done a good job at keeping losses to a minimum. Given the company's enormous installed base of CAD customers and recent steps to get expenses in line with revenue, AMR recognizes PTC as at or near positive cash flow. End users should not be concerned with PTC's viability.

PTC's top industries overall, 2001

Top 10 Industries, 2001	Percentage of Revenue
Manufacturing/Machinery	31%
High Tech/Electronics	25%
Aerospace and Defense	17%
Automotive	14%
Consumer Products	8%
Pharmaceuticals/Biotech	2%

PTC's financials—revenue performance

Year	Total Revenue (\$M)	Percentage of Growth
1999	\$1,057	%
2000	\$924	%
2001	\$898.20	%

PTC's financials—revenue sources

Source	Percentage of Revenue	Geography	Percentage of Revenue
License	38%	North America	43%
Maintenance	31%	Europe	34%
Services	31%	Asia/Pacific	23%

PTC's financials—license revenue by company size

Company Size	Percentage of Revenue
\$30M-\$249M	20%
\$250M to \$999M	30%
Over \$1B	50%

PTC's financials—key metrics

Quarter	Total License Revenue (\$M)	Key Metrics	3/1/2001 (\$M)
4Q01	225	Cash Position	249.1
1Q01 (ending Dec 29, 2001)	198	Cash Position	227.7
2Q02	185	Cash Position	196.3
3Q02	183	Cash Position	203.9

Source: AMR Research, 2002

Customer experience

As part of its PLM Deep Dive, AMR Research analysts spoke with 8 companies using PTC software. Overall customer satisfaction is low compared with the other vendors in this space, primarily because of the sales methodology and service/support issues. Users found a lot of value in the *Windchill* products (particularly the workflow), but described integration between the products as immature. Integration of *Windchill* products with corporate Lightweight Directory Access Protocol (LDAP) tools and security packages has also been difficult for users to manage.

Vertical expertise

PTC sells its general products into several industries. *Windchill* currently supports Independent Systems Operator (ISO) 10303 STEP PDM Schema, which provides the tracking and process recording necessary for ISO 9000 certification, and is CMII certified. PTC's Mechanical Computer-Aided-Design (MCAD) products support a wide range of data interchange standards. PTC is a founder/member of PLCS, Inc. in the Aerospace and Defense (A&D) industry, and PTC also supports the ENHANCE project of European aerospace companies. PTC supports standards developed by the AIAG in the Automotive Industry in North America. PTC is a founder and charter member of RosettaNet, a corporate member of Semiconductor Equipment and Materials International (SEMI), and is compliant with FDA CFR 21 part 11 in the Life Sciences industry. In order of importance, PTC reports the following as its top target verticals:

- Aerospace and Defense
- High-Tech
- Industrial Products
- Automotive
- Consumer Goods
- Life Sciences
- Federal Agencies

Frequent competitors

PTC frequently competes with SAP, Matrix One, IBM/Dassault, Agile Software, and EOS.

Software partnerships

PTC holds partnerships with **Groove Networks**, **TIBCO**, **Siebel Systems**, **WebEx**, **Rational**, **WebGain**, **Syntegra** and **Convera**. PTC integrates with 14 CAD products. These systems are AutoCAD, CADDs, CADAM, Cadence, Catia, Helix, Ideas, Medusa, Mentor, Pro/E, SolidDesigner, SolidWorks and Unigraphics.

Professional services

PTC partners with **Accenture**, **Cap Gemini Ernst & Young**, **KPMG Consulting**, **Deloitte Consulting**, and **CSC**. PTC also partners with Gedas and ATEC in Germany, Integraph Corporation, ITC Infotech India, Siemens Business Services, Toshiba, TRW, and several smaller, regional firms.

Sales strategy

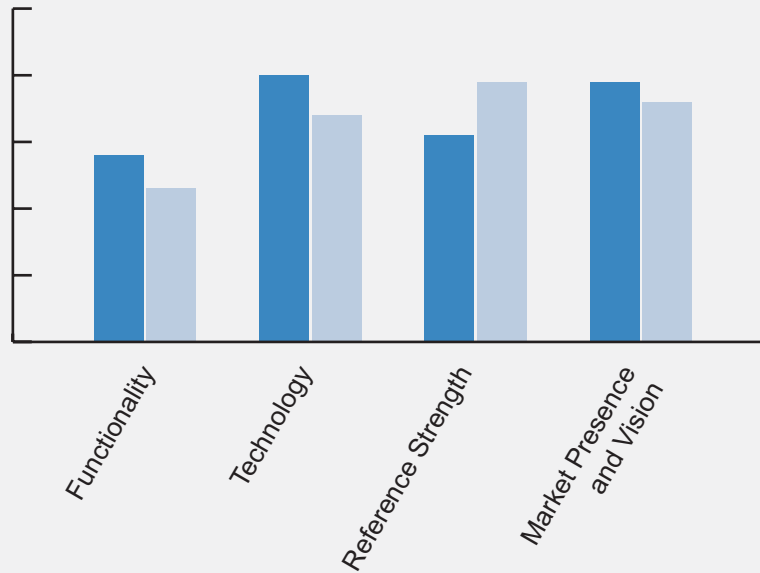
100% of sales are from PTC's direct sales force accounts for approximately 90% of revenue. PTC products are also sold through resellers in the United States, Europe, and Asia.

AMR Research's opinion

PTC is the high beta PLM vendor. A pure play dependent on the success of the PLM space like MatrixOne, Agile and Eigner, but also a CAD vendor like EDS and IBM/Dassault, PTC is in some ways the defining vendor in the PLM market. It is fair to say that PTC had the earliest and most compelling vision for PLM (although it got stuck calling it CPC for a while). It also built *Windchill* from the ground up as a Web-based application. The good news is that the company has experience; the bad news is that the gaining of this experience has been a "bleeding edge" for many. Today's PLM offering which is comprised of an extensive set of *Link* application products built on the *Windchill* platform is the widest true suite available in the market. Its technology foundation is well conceived for the primary strategic issues of PLM, namely the ability to reach many different kinds of users over the web with very rich product information. On top this, PTC's well established *ProE* CAD package is being morphed from a personal productivity tool into an enterprise productivity application with *Wildfire* which puts browser access to business systems directly into the CAD user experience. For these reasons, PTC is high on the short list of most users considering a PLM strategy. If things go well, PTC could be *the* market leader over the critical next three years.

What could go wrong? Early adopters of *Windchill* have suffered growing pains along the learning curve and are pretty quick to share their gripes. Anecdotes about the notoriously aggressive PTC sales force (which we believe is changing) continue to impact deal cycles, and user skepticism probably lowers price points. The bottom line about PTC is that it's better than most people realize functionally and technically; unless its bad reputation kicks of some sort of tailspin, PTC should not only survive, but thrive.

PTC's overall scores compared to averages of seven vendors



■ PTC
■ Group Average

Data as of August 31, 2002

Source: AMR Research, 2002

Related AMR Research publications

Please visit www.amrresearch.com to access these publications.

AMR Research Alert articles

“PTC Results: Still Mostly Bad News, but Hope is on the Horizon”
July 19, 2002

“Engineering Collaboration is a Reality for Small Manufacturers Too”
April 24, 2002

“Is There a Shakeout Coming in PLM?”
April 5, 2002

“PTC’s DynamicDesignLink Streamlines Ordering of Custom Products”
December 18, 2001

AMR Research Reports

“The Product Lifecycle Management Applications Report, 2001-2006”
July 15, 2002

“What is the Return on Design Collaboration in Automotive?”
January 1, 2002

“Customer Needs Management: The Days of If You Build It, They Will Come Are Over”
July 19, 2002