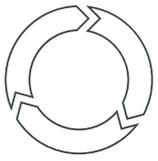




# THE HISTORY OF PLM: From Paper to the Cloud

Explore the evolution of product lifecycle management (PLM), from its origin as a paper-based system to today's cloud-based SaaS platform that is essential for business success.



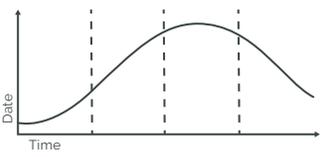
1931

Otto Kleppner, founder of a New York advertising agency, conceptualizes a precursor to the product lifecycle in which products go through three stages: pioneering, competitive, and retentive.<sup>1</sup>



1950

Concept of "[configuration management](#)" is introduced by the U.S. Department of Defense as a paper-based system for documenting and tracking how products are configured.<sup>2</sup>



1966

American economist Raymond Vernon publishes "International Investment and International Trade in the Product Cycle." In this article he theorizes the product lifecycle to include the following stages: introduction, growth, maturity, saturation, and decline.<sup>3</sup>



1969

Software company United Computing (later known as Unigraphics) releases [UNIAPT](#), one of the world's first commercially available computer-aided manufacturing (CAM) products. CAM soon becomes a complementary tool to computer-aided design (CAD).



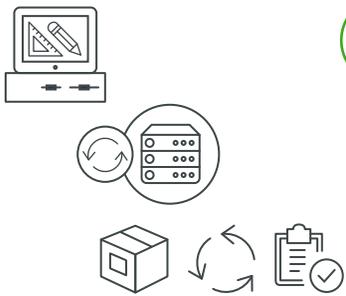
1970

U.S. [military issues standards](#) (i.e., "MIL-STD") on how government contractors should use configuration management. With a focus on management, quality, and interoperability, these standards eventually become one of the key drivers for PLM.



1979

Dan Bricklin and Bob Frankston introduce the first electronic spreadsheet program called VisiCalc. Spreadsheets are eventually adopted as a tool for manufacturing to manage [bills of materials \(BOMs\)](#) for engineering and manufacturing.<sup>4</sup>



Early 1980s

- CATIA, a multi-platform [computer-aided design \(CAD\)](#) software, is introduced.<sup>5</sup> CAD is adopted as a standard tool to help engineering teams create product designs.
- [Product data management \(PDM\)](#) systems are developed to accommodate CAD, as the volume and versions of CAD become difficult to manage.<sup>6</sup>
- Unigraphics, a division of McDonnell Douglas, merges CAD and PDM systems to develop a computer-based PLM solution.<sup>6</sup>



1985

American Motors Corporation first uses PLM to accelerate production of their vehicles, notably the Jeep® Grand Cherokee.<sup>7</sup>



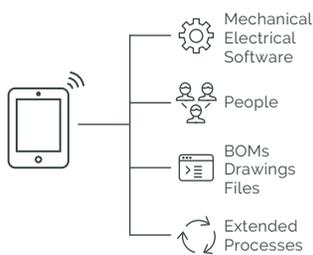
1992

Jeep® Grand Cherokee is the first recorded product built using a process called "product lifecycle management."<sup>6</sup>



2000

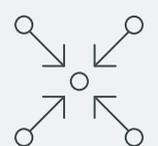
The first multi-tenant Cloud PLM solution, BOMControl, is introduced by Bom.com which later becomes known as Arena Solutions.<sup>6</sup>



Today

## Extending the Boundaries of Traditional PLM

Arena, now a PTC Business, continues to extend the traditional boundaries of PLM. Today's SaaS platform includes advanced quality, compliance, engineering, and integration processes that connect internal teams and supply chain partners to improve quality, reduce costs, and speed new product development (NPD).



Future

## Digital Transformation

The rise of smart, connected products gives way to the next generation of PLM which leverages IoT data to gather greater insights across the entire product lifecycle—from product usage and performance to product maintenance and repair.



## References

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3. Vernon, R. [International investment and international trade in the product cycle](#). *The Quarterly Journal of Economics*. 1966; 80 (2): 90-207.
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