



WHITE PAPER

HOW CLOUD SOLUTIONS ACCELERATE RETURN ON INVESTMENT (ROI)

Capturing the Business Benefits of Cloud PLM and QMS

INTRODUCTION

The importance of real-time communication has never been more critical to ensure businesses can navigate a myriad of risks in their quest to introduce new solutions ahead of the competition.

High-tech and medical device companies strive to bring innovative products to market fast and efficiently amid increasing product complexity, regulations, globalization, and cost pressures. Smart, connected technological advances are driving more product intricacies, making it critical for dispersed internal teams and supply chain partners to collaborate—especially during uncertain times where black swan events are becoming more commonplace.



In this white paper, we explore the benefits of cloud software systems aimed at helping companies design, produce, and deliver high-quality products in this global economy. In particular, we look at the benefits of a cloud platform designed for both [product lifecycle management \(PLM\)](#) and [quality management system \(QMS\)](#) solutions. Both solutions provide companies with the necessary product and quality record control needed to effectively convert ideas to products in these challenging times. With that in mind, we'll review the return on investment (ROI) based on insights into:

- The evolution of cloud software solutions
- The business value of Cloud PLM and QMS software
- Key metrics to measure the return on investment for PLM and QMS

THE EVOLUTION AND ADOPTION OF CLOUD SOLUTIONS

Cloud software has evolved over the last decade. Many companies and manufacturers were hesitant to adopt cloud solutions due to perceived risks. Today, many companies are embracing cloud-based solutions to speed time to deployment and adoption, and eliminate long-term capital expenses associated with on-premises software.

Past debates about whether the Cloud was inherently insecure or susceptible to more data breaches prevented many manufacturers from considering enterprise solutions that were not installed within the manufacturer's firewalls. As more software vendors move to the Cloud and introduce more secure methods for storing and managing information, the perceived security risks are diminishing.

Furthermore, CIOs, CFOs, and other executives are expected to produce immediate results and cloud solutions sold under software-as-a-service (SaaS) models offer a quicker ROI. Instead of paying for the entire solution all at once, companies can pay as they go with monthly or annual subscriptions. This allows them to manage cloud software as operating expenses (OPEX) instead of capital expenses (CAPEX)¹—eliminating long-term depreciation of larger investments.

With these financial benefits of SaaS cloud solutions, manufacturers gain faster time to benefits and quicker payback when compared to on-premises solutions. Furthermore, cloud solutions and apps have become ubiquitous. Consumer expectations to subscribe, download, and easily use apps have driven enterprise cloud software vendors to simplify the user experience

and deployment model. These factors have led to faster implementations for significantly less money. According to Deloitte Insights, “cost and performance of IT operations have long been a significant driver for cloud adoption. Cost, although still an influence, has become less of a factor over time as the Cloud’s other business benefits have emerged.”ⁱⁱ It’s no longer a question of whether companies will adopt cloud solutions, but rather how fast and broadly they will.

FINANCIAL BENEFITS OF CLOUD SOFTWARE INFRASTRUCTURE

As touched on earlier, one of the compelling financial reasons for using cloud solutions is the payback period, which impacts the total cost of ownership (TCO). Companies should consider not just the initial purchase cost for the software, but also the implementation, training, and ongoing administration to support and manage software in-house vs. in the Cloud.

Cloud software vendors manage their own infrastructure and technology stacks, eliminating those investments by manufacturers’ internal I.T. departments. By removing infrastructure-related expenses, I.T. resources and expenditures for hardware, software, virtual private networks (VPNs), and other related tools are avoided. Moving away from client/server on-premises software further eliminates the need to establish complex networking solutions or install software on every user’s workstation.

With today’s increasing remote-centric work culture, the ability to enable teams and partners to collaborate via cloud solutions is essential to ensure productivity when teams cannot meet together in person. A Gartner survey revealed that 74% of CFOs and finance leaders will move at least 5% of their previous on-site workforce to permanently remote positions post-pandemic. Engineering, operations, and quality teams need to make remote collaboration an effective part of their normal operating routines, starting now.ⁱⁱⁱ

“I didn’t need to hire a team to manage the infrastructure associated with an on-premises siloed system anymore. I now only needed one person to help me, which kept my overhead costs low.”

– Bruno Strul, Chief Executive Officer, Apical Instruments

THE BUSINESS VALUE OF CLOUD PLM AND QMS SOFTWARE



PLM and QMS software solutions help today’s sophisticated manufacturers get safe, high-quality products to market fast. Both systems bring electrical, software, and mechanical designs together into a single source of truth. However, QMS systems also ensure strict compliance with Food and Drug Administration (FDA), International Organization for Standardization (ISO), European Medicines Agency (EMA), or other directives before medical device manufacturers, biotechnology companies, or other life sciences organizations can sell their products.

Arena Solutions was the first to introduce cloud-based SaaS solutions for PLM and, later, QMS. These solutions were purpose-built to help manufacturers in high-tech electronics, medical device, and other electronics-heavy industries develop and deliver innovative products by streamlining new product development (NPD) and new product introduction (NPI) processes between their internal teams and supply chain partners. In addition, Arena PLM and QMS **simplify compliance** to environmental, safety, ISO, FDA, U.S. export controls (e.g., ITAR, EAR), and EMA regulations.

Strategic Business Performance Benefits

- ✔ Speeds time to market
- ✔ Reduces compliance risks
- ✔ Decreases product costs
- ✔ Increases productivity
- ✔ Accelerates revenue growth
- ✔ Enhances product quality
- ✔ Drives innovation

What sets Arena QMS apart from many other document-centric solutions is its product record foundation. Managing parts, bills of materials (BOMs), drawings, specifications, and documents together with quality records eliminates information silos. This [product-centric QMS](#) approach connects all quality records (e.g., CAPAs, SOPs, DMRs, DHFs) to the related product record—ensuring all teams are constantly working around the latest information at all times.

While PLM systems help engineering teams and design partners speed NPD, they also help downstream teams in quality, manufacturing, and the supply chain improve operational efficiencies to eliminate errors and reduce the cost of goods. Gartner’s definition of PLM emphasizes this point by defining PLM as a discipline that has grown from a mechanical design and engineering focus to being applied to many different vertical-industry product development challenges.^{iv}

Bringing People, Product Information, and Processes Together

When companies look to justify their investment in cloud solutions like PLM or QMS, it’s important to understand the strategic benefits. Bringing people and product processes together anytime and anywhere around the world helps keep everyone on the same page. More importantly, it eliminates silos that lead to product design problems, quality issues, and production mistakes. These cloud solutions ultimately help mitigate risk and drive increased profits by helping companies deliver products on time and under budget.

MEASURING ROI

Efficiency and Faster Approval Cycles Deliver Significant Paybacks

The sooner companies can get products to their customers, the quicker they can realize profits and first-mover advantages. Emerging technology companies require [the ability to innovate rapidly](#) with global teams to gain a competitive edge over established competitors. Their very success is measured by the speed it takes to invent and commercialize new solutions or products.

PLM and QMS solutions enable companies and their partners to design, test, develop, produce, and deliver high-quality products that work as designed.

Paybacks achieved through efficiency and faster approval cycles are common and relatively easy to measure. The ability to track business process

improvements for review and release cycles for engineering change orders (ECOs), closed-loop quality management, NPD, and/or overall time to market (TTM) illustrates the types of benefits that can be benchmarked and measured.

According to Accenture research, “Seventy-nine percent of new products miss their launch date due to longer iterative cycles of new product development processes.” The more significant the delay, the better chance your competitors will sweep in and deliver their new product to market or open a window for new competitors to enter the market.^v

KEY METRICS FOR ARENA PLM AND QMS

Over 1,300 Arena customers worldwide have evaluated and implemented our PLM and QMS solutions. We’ve captured key metrics of efficiencies gained by these customers through regular quarterly business reviews (QBRs) and [customer case studies](#). Observed metrics include reduced costs stemming from operational efficiency gains as well as cost of goods sold

(COGS). Additional business process improvements have been identified by accelerating regulatory compliance, reducing scrap and rework, and improving time to market.

CIMdata analyzed PLM benefits and ROI metrics and explained how businesses can realize key benefits.^{vi} Their analysis stemmed from studies for Hewlett-Packard, FMC, and other manufacturers. Given their examples and analysis, CIMdata cited a range of ROI metrics and benefits that could be attributed to the following areas:

- Time to manufacturing—10% to 50% reduction
- Engineering change process—10% to 70% reduction
- Design review process—50% to 80% reduction
- Increased productivity—10% to 20% increase
- Product development costs—25% to 40% reduction
- Time to find information—75% to 90% reduction
- Design errors—10% to 25% reduction
- Time to design—15% to 70% reduction
- Travel cost for design—20% to 35% reduction

“Affirmed Networks reduced engineering change cycle times by 90%.”

– Ron Garron, Director Operations

CIMdata also provided common investment measurements to consider when evaluating ROI:

- Discounted cash flow (DCF): allows investment comparisons over time
- Net present value (NPV): > 0
- Internal rate of return (IRR): > your cost of capital
- Payback period: the shorter, the better
- Return on investment (ROI): > 100%

Likewise, Arena Solutions has considered key metrics and case studies [across many customers and industries](#). Benefits can vary based on prior tools and solutions used, size of company, outsourcing model, product complexity, and added regulatory compliance requirements. We’ve focused the ROI metrics among four areas of product development and present averages based on our experience:

1. Engineering change review and new product development (NPD)
2. Productivity
3. Design and manufacturing processes
4. Quality assurance and compliance

Automated Review Cycles Speed Time to Market

Managing [product changes](#) within a centralized cloud system accelerates product design improvements and speeds reviews by your internal teams and supply chain partners.

Streamlined engineering change reviews result in faster approval cycles and NPD efficiencies.

“Vizimax reduced NPI cycle time by 80% with Arena PLM.”

– Jean Villers, VP of Manufacturing

Improved Productivity

- ☑ Increased part reuse across products by 59%
- ☑ Reduced time spent searching for information by 65% (real-time access by internal and external teams)
- ☑ Eliminated data entry errors with revision-controlled changes by average of 20%
- ☑ Cut design review cycle time by over 50%

Productivity Gains Through Optimized Processes

Cloud PLM and QMS solutions help optimize the way you document product records (e.g., items, BOMs, documents), review manufacturing processes, and communicate engineering changes to your supply chain.

Productivity gains as a result of improved processes can be realized with better resource allocation, reductions in errors that cause scrap and rework, and time savings associated with central access to information.

Engineering Change and NPD Efficiency

- ✓ Reduced engineering change approval cycle time by up to 90%
- ✓ Reduced NPD cycle time by 45%
- ✓ Reduced NPI cycle time by up to 60%
- ✓ Accelerated time to market by 30%

Quality Assurance and Compliance

- ✓ Increased quality process efficiency by 40%
- ✓ Accelerated FDA document approval cycles by 90%
- ✓ Responded to audits 50% faster
- ✓ Reduced return merchandise authorizations (RMA) by 50%

Simplify Compliance and Reduce the Cost of Quality

Quality issues can arise throughout the product lifecycle. Accelerating product development, quality, and CAPA processes, and the resolution of quality or design issues with product-centric cloud QMS, ensures fast delivery of safe and compliant products.

For medical device companies, [FDA or quality system noncompliance issues](#) can determine the success or failure of a product launch and, sometimes, the company itself. Centralizing the creation, review, and approval of product and quality information reduces audit risks, ensures regulatory compliance, and drives continuous improvement.

Reduced Errors Accelerate Product Launches

Cloud PLM and QMS solutions do more than enable internal teams to work more efficiently. They significantly accelerate change, NPD, and NPI cycles. Connecting internal teams and external partners in a single system of truth eliminates silos and confusion around the latest information. Many companies today rely on multitiered supply chains across dispersed geographic areas.

Leveraging a cloud solution removes barriers to entry and usability for supply chain partners because it's easy to access via a web browser—anytime and anywhere around the world.

Speed Design and Manufacturing

- ✓ Reduced shipping delays by 50%
- ✓ Cut manufacturing errors by 75%
- ✓ Increased product release process efficiency by 30%
- ✓ Increased global manufacturing capacity by 200%

STRATEGIC BENEFITS: TOP AND BOTTOM LINE



Cloud PLM and QMS deliver real, measurable financial benefits that impact the bottom line and the top line. As product, quality, and manufacturing teams become more distributed, cloud-based PLM and QMS solutions keep cross-functional product development teams connected 24/7 to work more efficiently and exceed product launch and quality goals.

For more on Arena and information about cloud PLM and QMS solutions, visit [ArenaSolutions.com](https://www.arenasolutions.com).

“Getting a product to market that exceeds customer satisfaction and quality expectations requires both process and control that are consistent, predictable, and repeatable from design concept to high-volume production.”

– Jeff Sinn, Senior Document Control Manager, Mimosa Networks

REFERENCES

- ⁱ <https://www.investopedia.com/ask/answers/042415/what-difference-between-operating-expense-and-capital-expense.asp>
- ⁱⁱ <https://www2.deloitte.com/us/en/insights/industry/technology/why-organizations-are-moving-to-the-cloud.html>
- ⁱⁱⁱ <https://www.gartner.com/en/newsroom/press-releases/2020-04-03-gartner-cfo-survey-reveals-74-percent-of-organizations-to-shift-some-employees-to-remote-work-permanently2>
- ^{iv} <https://www.gartner.com/en/information-technology/glossary/product-lifecycle-management-plm>
- ^v <https://www.accenture.com/us-en/insights/strategy/digital-unlocks-profitability-product-cost-analysis>
- ^{vi} https://www.cimdata.com/images/Webinars/CIMdata_Webinar_PLM_Benefits_ROI_28May2020.pdf