



Tech-Clarity Perspective: PDM/PLM Satisfaction Survey

***Status Quo is Satisfactory,
But Needs are Changing***



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Executive Overview

Tech-Clarity conducted an online survey of over 500 PLM users to gauge their satisfaction with their PDM/PLM systems. The survey attracted a wide and experienced base of users. One-half of survey respondents have more than five years of experience with PLM, and over three-quarters have used more than one PLM system in their careers.

The survey evaluated satisfaction with the PLM system, the use of it, and how well their PLM system is supported. Perhaps more importantly, they were asked whether PLM helps make their jobs easier. The results show a varied level of PLM system satisfaction. The most interesting findings relates to PLM satisfaction based on the individual's role in the organization and how often they use their PLM system, specifically:

- The higher in the organization, the happier respondents are with PLM (Figure 1)
- Design engineers (those that contribute the majority of the deliverables to PLM), are less satisfied compared to those leveraging the information downstream
- Infrequent users are less satisfied with their PLM

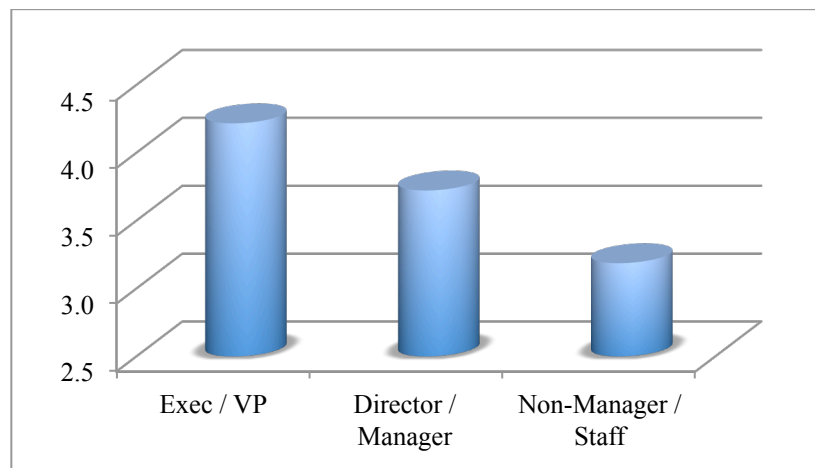


Figure 1: PLM Satisfaction by Organization Level (Scale 1-5)

Although users express satisfaction with the current state of PLM, they were quick to offer areas that need improvement.

The research shows that there is significant room for improvement in PLM. Today's PLM is a valuable business system that offers benefits to executives and downstream users but frequently burdens companies' direct contributors and challenges infrequent users due to complex user interfaces which result in long learning curves. Although users express satisfaction with the current state of PLM, they were quick to offer areas that



need improvement (Figure 7). The most frequently requested changes include improvements to:

- Ease of use / user interface
- Configurability / customizability
- Search
- System performance and stability
- Integration with design applications and other enterprise systems

These changes will be critical as PLM demands expand to support the growing complexity of global product development environments. They will also be more evident as companies push to design smarter, connected products and take advantage of new materials and technologies. Moving forward, the level of involvement and collaboration required in PLM across disciplines, between departments, and throughout the value chain has the potential to further amplify these challenges.

***We predict that satisfaction with the status quo will fade
as users begin to demand more intuitive, easy to use solutions.***

We predict that satisfaction with the status quo will fade as users begin to demand more intuitive, easy to use solutions that are more on par with the connected, social, mobile-enabled software applications they experience in their personal lives.

Overall PLM Satisfaction

Overall, users report they are generally satisfied with their PLM systems. In fact, just under a quarter say they love their PLM systems (Figure 2). But satisfaction is not universal, with about 15% reporting dissatisfaction and roughly another one-quarter feeling neutral. This ambivalence is supported by comments such as “*I see PLM/PDM as a necessity, not a convenience.*”

Overall, users report they are generally satisfied with their PLM systems.

There are a significant number of comments that express dissatisfaction. For example one participant explains that, “*There is no good reason this software should be such a burden on me, my co-workers, and the company's cost! It is overly complicated, overly impractical, and overly costly! I make these statements with 30 years of experience, of using CAD and CAD products.*” This comment, among others expressing dissatisfaction, indicate to us that companies are satisfied with PLM because the alternative of unmanaged information and complexity is unacceptable, making PLM more attractive than other options.

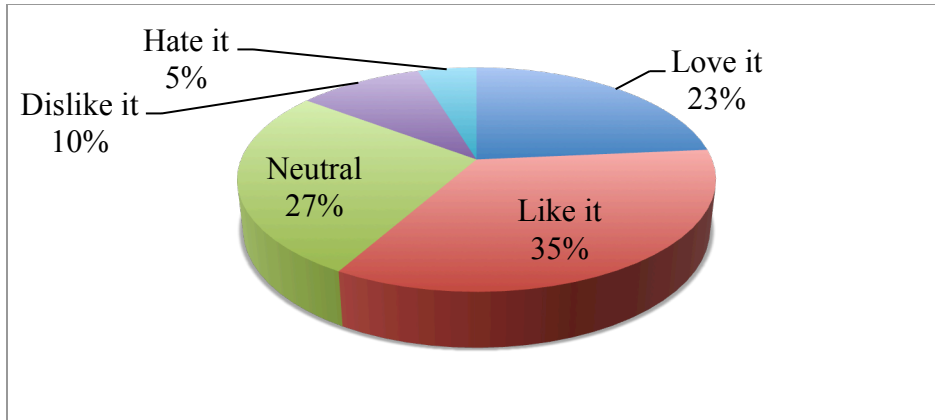


Figure 2: PLM/PDM User Satisfaction

Does PLM Help People with Their Jobs?

The real question is whether PLM helps business performance. Prior Tech-Clarity research shows that PLM helps improve company profitability. And, in fact, the majority of respondents indicate that PLM makes their jobs easier (Figure 3). Like satisfaction, however, there is a spectrum of responses ranging from “much easier” to “a lot more difficult.” Further analysis shows that responses vary significantly by the role of the person and how often they use the system (see later sections) and satisfaction is conditional. For example, one respondent explains that, *“One source of truth helps me, but the navigation and ability to find information is difficult.”*

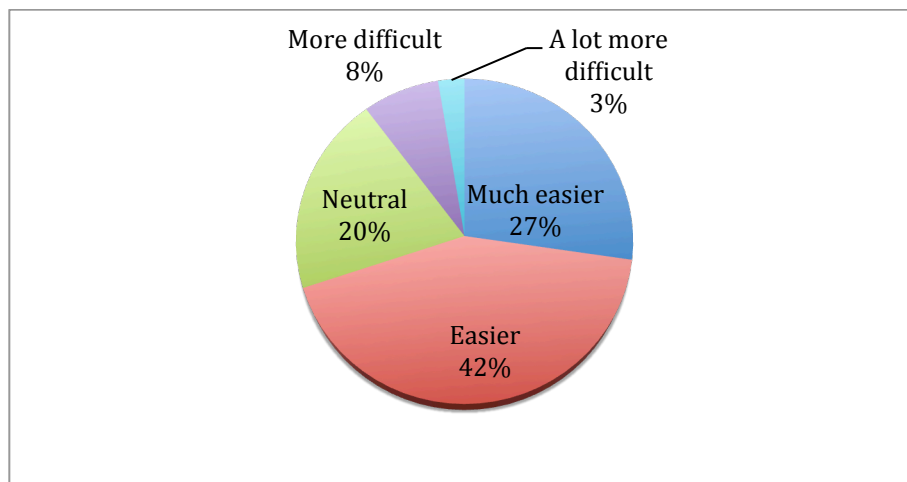


Figure 3: Does PLM Make Jobs Easier?

Again, there was strong variability shown in the comments. Some were very positive, such as *“PLM allows for instant access to the documents needed in my day to day tasks.”*

There can be a fundamental conflict between the value that PLM offers the business as a whole and the impact it has on the productivity of individuals that have to use it.

Quite a few participants reported positively about PLM and its potential but complained that it was poorly implemented at their company and that they weren't getting the value they could. Others were openly unhappy, as one participant said, "*It wastes at least one to two hours of my day every day! I have never benefited from that one hour.*" It appears this is because there can be a fundamental conflict between the value that PLM offers the business as a whole and the impact it has on the productivity of individuals that have to use it. A number of participants believe that PLM is required and is a "*necessary evil*," but that it should be easier to use.

Executives Like PLM

Survey results show that the level of satisfaction individuals have with PLM is highly correlated with their job function. It's very clear that the higher in the organization an individual sits, the more they are satisfied with PLM (Figure 4). Executives and vice-presidents are twice as likely to be satisfied with PLM as non-managers and staff. The results on the question about whether PLM makes a person's job easier are similar to those on satisfaction, with the exception that managers' responses are more favorable. Executives and managers report that PLM makes their jobs, on average, "much easier" while those below them reported less favorable results, although most still deem it useful.

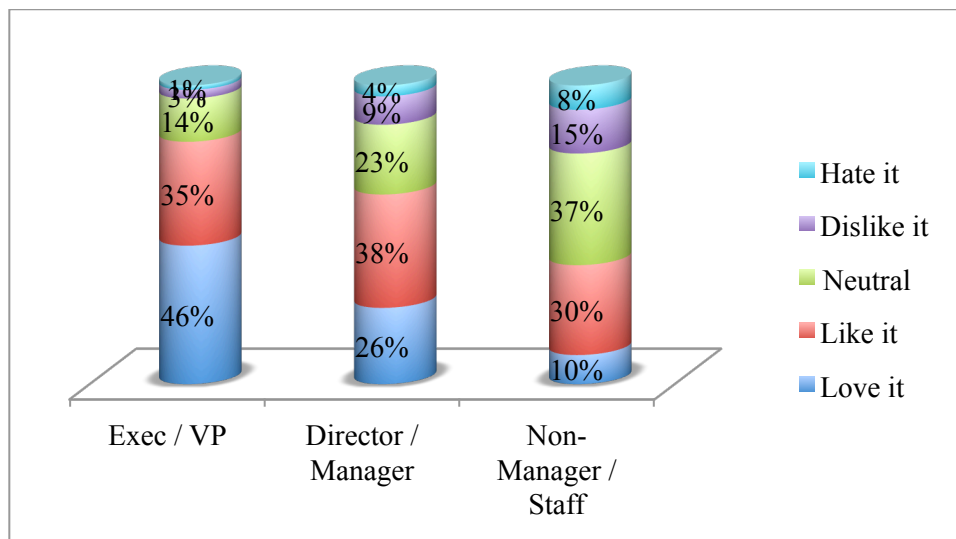


Figure 4: PLM Satisfaction by Organization Level

From the executive perspective, PLM provides business value and helps enterprises better manage information, processes, and projects. But not everyone is happy using it. As one respondent explains the value is not for the individual but for the enterprise, “*PLM is not designed to make any one job easier. It's designed to be the electronic backbone for managing all aspects of engineering/design/manufacturing process.*”

***The higher in the organization an individual sits,
the more they are satisfied with PLM***

While our research backs up the enterprise value, this is a missed opportunity because individual contributors may not see the big picture and only understand the extra work they must put in. This can lead to low user adoption or workarounds using uncontrolled tools like spreadsheets, shared drives, or email. It appears that those that reap the benefits of PLM (and often the ones that made the PLM decision) are more satisfied with PLM than those that contribute the information to it and participate in processes.

Design Engineers are Less Happy

PLM satisfaction was also correlated with departmental function. About one-half of the survey participants were design engineers. There is a marked difference between both PLM satisfaction and whether PLM makes jobs easier between design engineers and downstream departments including Manufacturing, Quality, Service/Support, and others (Figure 5). Design engineers that are responsible for populating PLM and keeping it up to date with the right product information view it less favorably than those that benefit from the information.

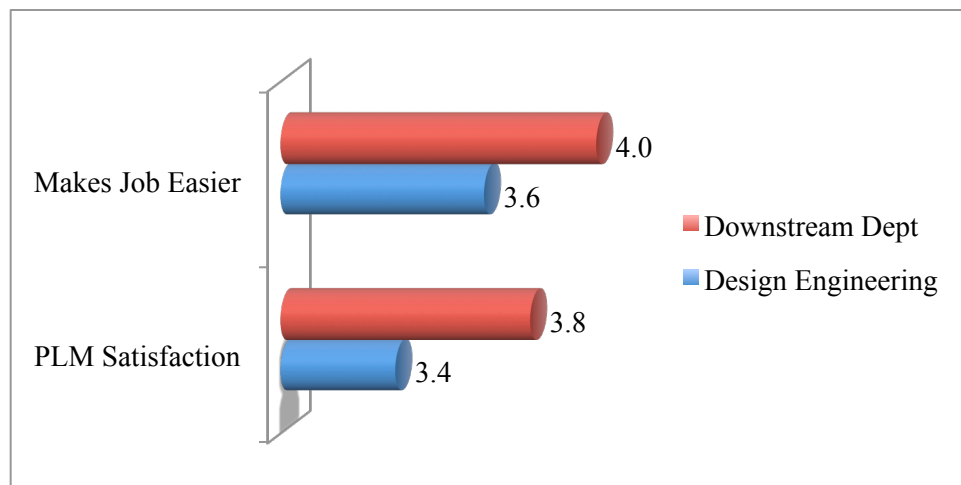


Figure 5: PLM Satisfaction by Function

Designer Engineers were candid about their opinions. Users commented that PLM is “*too complex for our purposes*,” “*too bloated*”, and “*needs a total redesign for ergonomics*.” If designers are not happy with PLM usability it can limit adoption and significantly reduce the value it provides to people across the enterprise. It can also lead to designers waiting to check work in or waiting until the end to submit designs. This creates poor visibility and prevents others, including non-mechanical design functions like software engineers and electronics designers, downstream departments and people in the supply chain, from working concurrently.

Design engineers view PLM less favorably than those that benefit from the information.

Familiarity Expands Satisfaction

Satisfaction is also correlated to how frequently an individual uses PLM (Figure 6). Those that use it frequently are more likely to “love it” and indicate that it helps them with their job. For example, three-quarters of respondents that use PLM multiple times per day say it makes their jobs easier. Less frequent users are not as positive. We believe this is due to the learning curve created by user interfaces that are described as “*complex*” and “*not intuitive*.” Users appear to view PLM more favorably once they have overcome the learning curve.

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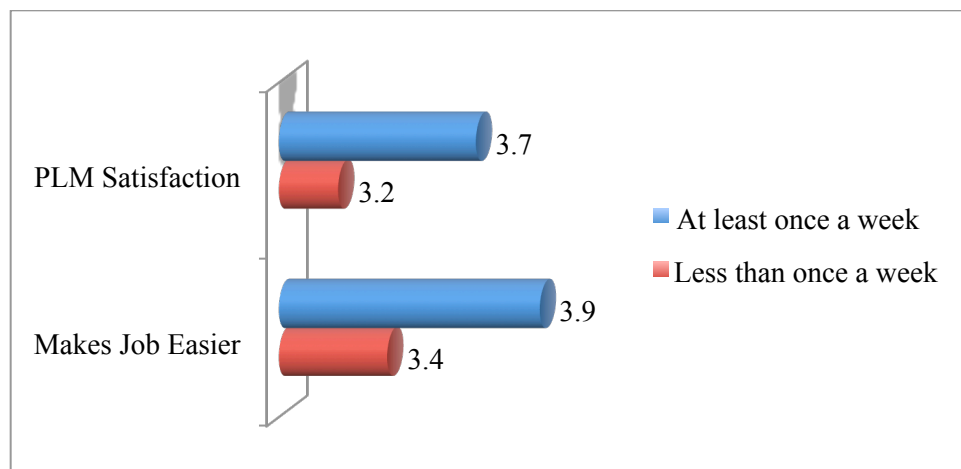


Figure 6: PLM Sat by Frequency of Use, Easier by Frequency of Use

Given the relatively mature level of experience of our sample set, many users have likely learned to use PLM systems over the years. Usability will likely cause more issues as

engineers and others get more used to the types of intuitive systems they use in their personal lives and as newer engineers are introduced to PLM as the aging workforce retires.

What Would Users Change?

The survey asked participants to share what they would change about their PLM software. Users were not shy in responding, with some very emphatic suggestions. A few responded “*nothing*” and indicated that their system is “*perfect*.” Others had some important suggestions including some common themes including “*new interface*,” “*simplification*,” and making the system “*more intuitive*” to use (Figure 7). There were numerous requests for a better user interface and requiring fewer clicks to perform functions, along with quite a few suggesting better search. There were also suggestions for better online training and documentation.

There were numerous requests for a better user interface.



Figure 7: What Users Would Change in PLM/PDM

There was another common theme of requests for better performance and stability with comments including “*improve system speed and reliability*,” “*speed it up*,” and requests to improve “*performance / speed*.”

Multiple people suggested better workflow capabilities with requests such as “*improve the workflow manager*” and “*easier to use workflows*.” Quite a few mentioned the need for better ability to customize workflows and greater configurability to user needs overall. PLM systems that are not flexible or are complicated to customize can lead to compromises and sub-optimal business process flows.



Another common theme was a desire for better integration with other systems. The requests included improvements to the way PLM works with mechanical CAD, particularly when working with multiple MCAD systems (multi-CAD). In addition, users requested better integration with other forms of design software including electrical CAD (ECAD) and simulation / FEA tools. Others asked for expanded integration with other enterprise systems including ERP.

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Conclusion

Our conclusion from the data is that PLM satisfaction is relative strong but varies widely. Based on the data, respondents' comments, and our experience we believe this correlates with their familiarity with PLM and how they use it based on their role. PLM users are satisfied with their PLM systems because they appear to have modest expectations or they have used PLM systems for a long time and have grown accustomed to how they work. Many recognize that the system they use is on par with what they expect in the industry, saying for example *"It is good enough, I don't want to change anything now."* It appears that users are as satisfied with PLM as they are with the general state of enterprise software and perhaps don't feel there are better alternatives.

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Long learning curves and poor usability, however, will hinder user adoption as PLM demands increase with the rising complexity of products and product development environments. We also believe that the expectations for PLM to come close to the ease of use and simplicity of consumer-based applications like Dropbox, Google Drive, and others will grow. As users get used to these systems in their everyday lives their desire for comparable usability will increase in the workspace.

Today's status quo products must evolve to take advantage of concepts from newer software solutions including the social, mobile, and connected applications that are becoming commonplace in personal use.

There is opportunity for improvement to place less burden on engineers while still adding value at the enterprise level and downstream. The PLM industry needs to address usability and configurability along with improved system performance and stability. Today's status quo products must evolve to take advantage of concepts from newer software solutions including the social, mobile, and connected applications that are

becoming commonplace in personal use. As one survey respondent commented “*We need a future PLM. The current PLM is not ready to solve future challenges.*”

Recommendations

Based on industry experience and research for this report, Tech-Clarity offers the following recommendations:

- Leverage PLM to add value across the enterprise and the value chain
- Look for more intuitive systems to help less frequent users
- Choose systems with better ease of use and fewer clicks in order to place less burden on users, especially design engineers
- Make system performance, stability, and reliability a criteria
- Place importance on the ability to customize the PLM system to support specific roles and specialized processes to ensure productivity and value
- Pay special attention to common improvement areas such as user friendliness, user interface, search, mobile access, Multi-CAD integration including ECAD, and ERP integration when evaluating systems
- Start thinking ahead now. Begin planning for the future state of PLM to address user needs for tomorrow’s more complex products and product development environments, higher user expectations, and fast-moving markets

About the Author

Jim Brown is the President of Tech-Clarity, an independent research and consulting firm that specializes in analyzing the business value of software technology and services. Jim has over 20 years of experience in software for the manufacturing industries. He has a broad background including roles in industry, management consulting, the software industry, and research. His experience spans enterprise applications including PLM, ERP, quality management, service lifecycle management, manufacturing, supply chain management, and more. Jim is passionate about improving product innovation, product development, and engineering performance through the use of software technology.

Jim is an experienced researcher, author, and public speaker and enjoys the opportunity to speak at conferences or anywhere he can engage with people with a passion to improve business performance through software technology.

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About the Research

Tech-Clarity collected and analyzed over 500 responses to a web-based survey on PLM satisfaction. Survey responses were gathered by direct e-mail, social media, and online postings from Tech-Clarity, Aras, MCAD Cafe, and the Change Management Institute.

The respondents represented a large number of experienced PLM users. Almost one-half of the respondents had used PLM for more than five years and 32% had used PLM for over 10. Only 5% had used PLM for less than a year, with the rest falling between one and five years of use. In addition, only 22% had used only one PLM system and 26% has used four or more PLM systems.

The respondents were comprised of a variety of organizational levels. 21% of respondents were executive or vice-president level, 41% were manager or director level, and the remaining 38% were non-managers, staff, or individual contributors.

The respondents represented a mix of company sizes. Just over one-quarter (26%) were from companies with revenues of \$50 million or under (measured in US dollars or equivalent). Almost another quarter (22%) were from companies between \$50 million and \$250 million in revenue. 15% were from companies between \$250 million and \$1 billion, 21% between \$1 billion and \$5 billion, and 16% reported their companies had revenues greater than \$5 billion.

The responding companies were a good representation of the manufacturing industries. Because many companies serve multiple industries, the survey allowed respondents to indicate all industries in which they earn 10% or more of their revenue. With this approach, percentages total more than 100%. Just over one-quarter (28%) serve the industrial equipment / machinery industry, 21% serve each aerospace & defense and automotive industries. An additional 18% serve the energy / utilities industry, 14% serve electronics / high tech, 13% serve the life sciences / medical devices industry, and 11% serve the consumer products industry. Other industries representing 10% or less of the respondents include federal government, financial services, chemicals, consumer packaged goods, marine, and “other” including a number serving the oil and gas industry.

Respondents were also asked to identify which geographies they receive 10% or more of their revenue from. The geographical breakdown is 73% North America, 38% Western Europe, 31% Asia-Pacific, 17% Eastern Europe (including Russia), and 15% Latin America. 3% report receiving 10% or more of their revenue from “other” geographies

Respondents included manufacturers as well as service providers and software companies, however only responses from those determined to be direct PLM users were included in the analysis of user satisfaction.