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About Product Lifecycle Management

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Product Lifecycle Management(PLM) is the very next wave of computer technology. It will help transform your business, making it ever more productive. It is the next quantum leap - comparable to the advantage that solid modeling gave to those who adopted *it* early on. The advantages afforded by PLM fall into three main categories, those that get you to market faster, those that help make the product cheaper and those that ensure better quality. The main advantages are outlined thus:

- **Communication--**Your enterprise will be better and faster when working within groups. You will experience fewer communication errors, superior organization, and better control of the work. A typical example of what can happen, and what PLM will help you avoid, is illustrated by the following true story; a team of engineers at an aerospace firm worked on a large titanium assembly for a jet fighter. There were thousands of hours put into the definition and many iterations of the file. When it was time to do the actual manufacture, the machinists were accidentally given a down rev version of the file. A pocket was machined out of the actual large titanium component that threatened to render it useless. It was potentially a multimillion dollar mistake. This mistake, and others like it, will not happen with good PLM.

- **Legacy Data--**With PLM, you will make far better use of legacy data. A multitude of hours are put into creating fully accurate 3-D geometry these days. Much of it is only used once, or else goes wasted, due to the fact that when it's created, it's usually not placed in a well-organized central database. Even if there is a central server for one particular enterprise or another, it is difficult and time consuming to find components that were made by someone else, so engineers tend to recreate everything. Engineers also feel that if they create everything, they will be less likely to suffer the mistakes made in the past. PLM solves this problem in a number of ways. First, PLM allows you an amazing search capability that is phenomenal. Each and every component that is created or imported has tags on it that allow a user to recall it by name, number, originator, part type, date, purpose or myriad other attributes. This means you can never lose a file. You also get the entire history of each file, all of its versions and the record of all the people who worked on it and when.

- **Experience Data**--You will be able to put far more design intelligence into a design earlier, avoiding costly mistakes, rework, etc. With PLM, there is

instantaneous access to the design files as they are being created. All functional groups can be given permission to view the files from their initial state of development to their final release. Comments and suggestions can be made by all throughout the process. For example, it is very common for design engineers to design components that aren't quite manufacturable. Even some of the best engineers make costly mistakes now and again. When the manufacturing group can see what is being designed early and often, they can ensure that the design suits the specific capabilities of their tool set.

- **Workflows**--It is of great importance that the right people sign off on the right design files at the right time. Using PLM, there is a way of coding a design process into what's called a workflow. A workflow can be an FDA approval process, or it can be an engineering change procedure, or myriad similar design procedures. For example, if a set of files has to be signed off by the compliance auditor or a quality review person, that person or organization has access to the files at any time. Even if they don't know how to run the native CAD software, they can see images of what is being done. Their sign-offs are thus made easier and with better information.

- **File Linking**--PLM gives you the ability to link and control various types of files together. This can be very important because, in many cases, there are spec sheets, procedural documents, analysis results, quote documents and many other files that should be categorized relative to others. With the file linking ability, you can ensure that all these materials stay together and are set relative to each other.

- **Management Review and Audit--**As the design process continues, it is a great benefit for management to review the work being done. Normally, there are scheduled design reviews in which the interested parties are able to find out what direction the design is taking. PLM provides the capability to review the work at any time virtually from any place in the world. You do not have to be a CAD operator to view the latest geometry created and/or any other product definition data. If the design procedure is to be audited, it is a great benefit to be able to audit the entire design history from a single point of contact.

- **Global Collaboration**--In the most perfect design situation, you would have every member of a design team sitting a few feet away from each other speaking the same language at the same time for 24 hours per day until the design is done. PLM moves you as close to that situation as possible. PLM allows people from the U.S. to use the same files as people from other places around the globe and stop files from being written over or disorganized. For example, as soon as a designer in Beijing opens a certain file, he or she takes ownership. Anyone else who tries to use that file gets a warning that they can use it but make no changes until it is released by the original person. In addition, any other file that is linked to the file they are working on is auditable and shows up in a single report function.

- **Follow the sun--**Once you set up your design center in geographies that are roughly 8-hour time zones away, you now have the ability to move a design along on a continuous basis. Theoretically, when designers in the U.S. are done with a

design they can send it to an office in a place like Bangalore and the design is continued. The potential is a design gets attention 24 hours per day.

- **PSE--**Product structure editing is the ability to manipulate the bill of materials for reasons beyond engineering. For example, a design engineer creates an assembly with parts that are purchased and parts that are fabricated. A value engineer may realize that there is a component that is available that contains the originally purchased part and the fabricated part, too. That value engineer can then use the PLM system to change the assembly without having to open the CAD files.

- **Concurrent engineering--**For many years now, the associative nature of CAD has given enterprises the ability to perform concurrent engineering, yet few companies have taken full advantage. An example of what can be done is this, the designers begin creating design files, the analysis people take those unfinished design files and place them into an assembly where they can then begin creating FEM break-ups, while simultaneously the drafting group can begin creating detailed drawings. As the design files evolve, the work that is done by the other groups is not wasted. The associativity between files enables them to all update properly. PLM takes this principle and puts it in high gear. PLM means that every member of every group can see and use all other files as the lifecycle of the product progresses. Manufacturing can begin making tooling, even marketing can find out critical information, all earlier than with conventional design methods.

The result of using PLM is higher profits. You will experience a faster time to market with a better well thought out and analyzed product. The cost of your PLM system will be paid for by the first big mistake you avoid, the first month of being on the market sooner than your competition, or the first FDA audit that you make it through with flying colors. You will be able to reduce your labor cost by spending less time on each new design. PLM will be the move that takes your company to the next higher level.