TechnologyEvaluation.Com
The Impartial Software Evaluator

# Selecting PLM Software Solutions

*Featured Author* - Jim Brown & P.J. Jakovljevic - May 22, 2003

1. Executive Summary
2. Lessons Learned
3. Key Lessons That Apply To PLM

## Executive Summary

Past experience shows us that the vast majority of enterprise technology evaluations run over time and budget, and once selected, the majority of the implementations fail to meet functional, return on investment (ROI) and total cost of ownership (TCO) expectations. Many companies have consequently been stuck with under-performing software products and dejected users, and are still unable to gauge their system to determine how far they are from the ideal solution for their business requirements

Enterprise technology selections for ERP, CRM, SCM, and other enterprise applications provide valuable lessons that can be applied to selecting PLM (Product Lifecycle Management) software, but there are some key differences that need to be recognized. In PLM, there is no single vendor that can meet all of the requirements, and the market is still immature, so almost every product can be the right solution provided a certain set of requirements. The Catch 22 for both buyers and vendors is to pinpoint the right opportunity in this ongoing “dating game”.

Selecting a piece of enterprise application software has never been an exact science. Vendors’ hype, consultants’ potential conflict of interest and consequent bias, users’ doubts, tediously long selection processes, and unclear decisions rationale are some of the unfortunate watchwords for the selection practice so far.

It is daunting for corporate IT buyers to discern the true capabilities, strengths and weaknesses of a given enterprise application suite, given the propaganda that pervades vendors’ endeavors to differentiate themselves (see Beware of Vendors Bearing Solutions). When making strategic IT acquisitions, buyer’s project teams, inundated with an abundance of available products and technologies, have a difficult time translating the content of glitzy marketing slides and grandstanding presentations into the deliverable products. Given the relative immaturity of the PLM movement, this problem can be compounded by user’s lack of understanding of their business needs and documentation of the associated software requirements.

**This is Part One of a five-part tutorial, which addresses this situation from the viewpoint of the Buyers and Vendors.**

**Part One** – Lessons Learned from Previous Enterprise Software Selections

**Part Two** – Overview of the Problems in Selecting PLM Software

**Part Three** – Presents a Solution

**Part Four** – Presents examples of applying the Solution

**Part Five** – Makes User Recommendations

## Lessons Learned

Many companies have been through the software selection process before, whether it was for ERP, SCM, CRM, or other enterprise application suites. Many of the lessons learned from these selections still apply because PLM expands traditional engineering applications with business processes that stretch further into the enterprise and even further into the value chain. The multi-departmental, multi-company nature of PLM is changing the way that engineering-related systems are bought and sold, and has caught the attention of the CIO and Corporate IT who apply enterprise application evaluation criteria and processes to PLM selections.

## Key Lessons That Apply To PLM

Of the key lessons learned from past enterprise software selections, there are several that deserve specific mention.

- The first is that that successful selections focus on defining business requirements in advance. Business requirements that are defined in advance and then broken down into the associated software requirements help to focus the selection process on the appropriate strategic needs of the business.

- The second lesson learned is that industry specific requirements should be included in the evaluation process. Most PLM vendors focus on specific vertical industries, and their solutions have been developed to solve the specific needs of those industries. For more information on industry specific requirements, see "PLM Is An Industry Affair – Or Is It?" and "Find The Software's Fatal Flaws To Avoid Failure".

- The third lesson learned from past experience is that enterprise solutions should not be selected in a vacuum. The needs and requirements of multiple departments and even business partners must be represented in the documented requirements and also on the selection team.

## New Lessons

PLM selections have differences from other enterprise software selections as well. The relative immaturity of most company's PLM initiatives and the PLM software market provide some unique challenges. ERP solutions, for the most part, cover the same basic functionality "footprint". Some have gone so far as to call ERP software a commodity, although that ignores the fact that there are still key differences between many solutions.

The PLM market, on the other hand, covers a wide range of previously unrelated software applications and the suites offered from different vendors can vary dramatically. Applications include Product Portfolio Management, Project Management, and others in addition to traditional engineering applications like PDM and CAD. No vendor provides all of the required solutions for a full PLM initiative, so almost all solutions will involve best of breed components. See "The PLM Program, An Incremental Approach To The Strategic Value Of PLM", " for more information on the components of a complete PLM solution. ERP selections are typically run as a one-time selection process to find an integrated solution. In contrast, the PLM Program for any one company may include multiple selection projects. Each selection project might be targeted to find the tools that are right for any particular solution area or phase of the PLM Program. For example, separate selection processes may be needed to find best of breed solutions for PDM, Portfolio Management and Requirements Management until a single vendor emerges that meets the needs for all.

The PLM market is still expanding despite some recent consolidation in the market. Because PLM is a relatively new market, there are still many small, innovative vendors that should be considered depending on the required functionality. Finding and evaluating these small, specialty vendors can be a challenge but can provide big returns in terms of increased product functionality.
Finally, PLM solutions are oriented around product innovation processes as opposed to transactions. This difference means that requirements can not be as easily defined objectively, and more objective opinions from experienced users is likely to be required, particularly in the areas of design tools.

There are still more lessons, undoubtedly, to be learned about selecting PLM applications. We look forward to the comments and feedback on the experience our readers have on selecting and implementing PLM applications. While we are learning the new lessons and how they apply to PLM we should also be careful to use the best practices learned from our previous, collective experience in selecting enterprise software.

**This concludes Part One of a five-part tutorial.**
**Part Two will discuss typical problems found in enterprise application selections such as PLM.**

# Selecting PLM Software Solutions
# Part 2 - Problem Overview

*Featured Author* - Jim Brown & P.J. Jakovljevic - May 23, 2003

1. Executive Summary
2. Problem Overview
3. Vendors

## Executive Summary

Past experience shows us that the vast majority of enterprise technology evaluations run over time and budget, and once selected, the majority of the implementations fail to meet functional, return on investment (ROI) and total cost of ownership (TCO) expectations. Many companies have consequently been stuck with under-performing software products and dejected users, and are still unable to gauge their system to determine how far they are from the ideal solution for their business requirements

Enterprise technology selections for ERP, CRM, SCM, and other enterprise applications provide valuable lessons that can be applied to selecting PLM (Product Lifecycle Management) software, but there are some key differences that need to be recognized. In PLM, there is no single vendor that can meet all of the requirements, and the market is still immature, so almost every product can be the right solution provided a certain set of requirements. The Catch 22 for both buyers and vendors is to pinpoint the right opportunity in this ongoing “dating game”.

Selecting a piece of enterprise application software has never been an exact science. Vendors’ hype, consultants’ potential conflict of interest and consequent bias, users’ doubts, tediously long selection processes, and unclear decisions rationale are some of the unfortunate watchwords for the selection practice so far.

It is daunting for corporate IT buyers to discern the true capabilities, strengths and weaknesses of a given enterprise application suite, given the propaganda that pervades vendors' endeavors to differentiate themselves (see Beware of Vendors Bearing Solutions). When making strategic IT acquisitions, buyer's project teams, inundated with an abundance of available products and technologies, have a difficult time translating the content of glitzy marketing slides and grandstanding presentations into the deliverable products. Given the relative immaturity of the PLM movement, this problem can be compounded by user's lack of understanding of their business needs and documentation of the associated software requirements.

In Part One of this article, we discussed the lessons learned from previous enterprise software selections and how they apply to PLM.

**This is Part Two of a five-part tutorial, which addresses this situation from the viewpoint of the Buyers and Vendors.**

## Problem Overview

Prospective customers typically struggle with the following issues when selecting enterprise technologies:

- Their selection project teams have no effective way to define their business requirements and thereby identify the critical vendor and product questions (criteria) necessary to successfully initiate the evaluation process. This time consuming problem rears its ugly head at a very early stage of the project, resulting in a rapid loss of the initial staff's enthusiasm to implement new technologies. One possible option is to hire an outside consultant that will lead you through a number of interviews, meetings, workshops, etc. to determine your requirements. When you count the number of man-hours your team had to forsake to do this plus a hefty invoice for consultants' valuable hours, you may want an alternate approach. In a somewhat better case scenario, you might be paying a less exorbitant amount of money for a slightly tweaked request for information/proposal (RFI/RFP) document that has already been used many times before for different companies.

- When these criteria have eventually been pinpointed and submitted to (hopefully) the most appropriate vendors, project teams often have no ability to effectively prioritize the different criteria relative to one another. As a result, final priorities are often more the result of internal political agendas than true needs and requirements. Without having a valid statistical tool to keep these priorities in check and to conduct simulations of results after changing priorities, it is likely that some department's needs (e.g., engineering) have, at the end of the day, been the unreasonably high contributor (e.g., well over 50%) of the total decision.

- Also, project teams have no ability to obtain objective, validated, updated data on the available vendor alternatives. Unfortunately, most project teams have no true ability to separate fact from hype, especially because its strategic technology selections are often either the first of its kind or the first in an extended period within a specific organization.

As a result, the vast majority of enterprise technology evaluations run over time and budget, and once selected, majority of the implementations fail to meet functional, return on investment (ROI) and total cost of ownership (TCO) expectations. At the same time, the number of companies, which are able to substantiate (quantify) the rationale of the decisions to go with some product in the past, is sadly negligible. A much higher number of decision makers rely solely on frivolous justifications like their gut-feel, executive mandate, or tiresome spreadsheet compilations without ability to discern the best solution (other than to arithmetically count the number of pluses and minuses, without taking into considerations their true importance).

Many companies have consequently been stuck with under-performing software products and dejected users, and are still unable to gauge their system to determine how far they are from the ideal solution for their business requirements. In other words, even after all the pain, many are unable to benchmark whether to maintain the status quo or try their luck in selecting the right product this time. The enterprise applications users' predicament has been duly covered at the TEC web site in the past, and many companies are repeating the same mistakes when selecting a PLM solution.

## Vendors

Vendors, their value added resellers (VARs) and system integrators (SIs) are not in an easier situation either, despite their tendency to often oversell their products. On the vendor side, the challenge of educating the potential client of their offerings results in painfully long and costly sales cycles, painstaking and numerous RFI responses time and again, and the potential for pursuing a mismatch opportunity, resulting in projects that can go terribly awry. These failed projects do not bode well for the vendor, since the sales cycle costs can only rise even more, and their reputation can suffer. The consequences can be much more severe for the client where it can, in extreme cases, lead to business failure.

For implementers, the issue is similar: having inadequate fit-gap information for the implementation phase means an inability to properly plan and execute the implementation, or for a consultant to assist the end client in making proper technology decisions. Implementers (which can be internal IT departments as well as outside consultants) can also find that decision-maker indecision leads to lengthened sales cycles, missed opportunities, and risk of competitive intrusion.

Often the users don't know why a particular product was selected in the first place, and the vendors and VARs are not sure why they have won/lost some opportunities. Even winning serendipitously is not good, as it does not grant recurrence. Did we win because we had the best product, because we demonstrated it best, or maybe because Vendor X and Vendor Y were not invited to bid?

Many vendors turn to industry analysts and IT research firms to provide them with a view of the future and/or to assist them in their product marketing strategy. The firms can often provide very valuable visionary and strategic level research to vendors to help them determine their future direction (e.g., buying market forecasts, whether to embrace Web Services, etc.). While this insight can help vendors decide on high-level strategy, this by no means answers all the questions vendors often need to answer. For example:

- What and how many product functional and/or technological features do we have to achieve to be the absolute frontrunner in the market segment or to beat the Vendor X in a particular face off? Does the newly released module or the latest product upgrade make us significantly more eligible to compete in the market segment?

- Why are we one of the leaders in a certain industry, for merely a number of installations? How many of these have come from, e.g., our collaboration or technology solution only as opposed to from our sharp industry solution per se? Were we perhaps the first one to tackle the market segment; if so, is our solution still stronger than a newcomer's one, with fewer customers but with a formidable offering we don't know much about yet?

- Should we compete (and commit to the non-refundable hefty expenses and resources involved) in a selection against a large vendor that certainly has more functionality, but is less flexible than we are? What other tradeoffs should we present to the customer knowing our strengths/weaknesses, and will it fly? Do we have any more concrete documentation to back up our claims other than an Analyst A's fluffy report that arbitrarily praises our product (the opponent will likely have a similar report from Analyst B)? What about competing against a dark horse vendor we've never seen before, but the market seems to be raving about its product?

The actionable, quantifiably substantiated, and in no uncertain terms answers to the above questions, while arguably obtainable from traditional analyst houses, would likely be exorbitantly expensive, given the annual subscription fees for much less granular information and service these firms traditionally charge.
Therefore, despite apparent adversarial relationships, all parties have meanwhile realized the need for thought and research to build data and process information in a meaningful context, which takes time and costs money for all parties going through the selection process. But without spending time, thought, research, and money there is increased business risk to all, unless there is an existing inexpensive solution to provide a structured, repeatable process for evaluating technology solutions and the vendors that provide them.

Most business managers, whether within vendors, prospective clients or implementers/resellers, have long yearned for an enabling system to minimize project risk for all sides of technology utilization. For instance, by narrowing products down to a shortlist based on functional and technical features, vendors/VARs benefit from not pursuing unfruitful clients, and clients benefit because the short list is usually reduced to a manageable size, while everybody benefits because this tedious phase that can be streamlined.

There is certainly room to ask the fundamental question of whether the traditional practice of RFI/RFP processes has been adequate to the task of selecting complex systems. The record indicates there is much room for improvement. In essence, for complex selections like the case of PLM software, the human-machine combination has to work together to drive the solution. Both sides have to be understood and complement each other in the process. It is easy for the human to be overwhelmed, or simply run out of time, and the machine interface and engine to be inadequate to the task. However, the results must benefit the process if human and machine can function effectively together to process information and avoid the pitfalls of past selection processes.

**This concludes Part Two of a five-part tutorial. Part Three will discuss an RFI/RFP process that can effectively address the problem**.

# Selecting PLM Software Solutions Vendors
# Part 3 - A Timesaving Solution

*Featured Author* - Jim Brown & P.J. Jakovljevic - May 24, 2003

1. **Executive Summary**
2. **From Words To Action**
3. **Meet The TEC Solution**

## Executive Summary

Past experience shows us that the vast majority of enterprise technology evaluations run over time and budget, and once selected, the majority of the implementations fail to meet functional, return on investment (ROI) and total cost of ownership (TCO) expectations. Many companies have consequently been stuck with under-performing software products and dejected users, and are still unable to gauge their system to determine how far they are from the ideal solution for their business requirements

Enterprise technology selections for ERP, CRM, SCM, and other enterprise applications provide valuable lessons that can be applied to selecting PLM (Product Lifecycle Management) software, but there are some key differences that need to be recognized. In PLM, there is no single vendor that can meet all of the requirements, and the market is still immature, so almost every product can be the right solution provided a certain set of requirements. The Catch 22 for both buyers and vendors is to pinpoint the right opportunity in this ongoing “dating game”.

Selecting a piece of enterprise application software has never been an exact science. Vendors’ hype, consultants’ potential conflict of interest and consequent bias, users’ doubts, tediously long selection processes, and unclear decisions rationale are some of the unfortunate watchwords for the selection practice so far.

It is daunting for corporate IT buyers to discern the true capabilities, strengths and weaknesses of a given enterprise application suite, given the propaganda that pervades vendors' endeavors to differentiate themselves (see Beware of Vendors Bearing Solutions). When making strategic IT acquisitions, buyer's project teams, inundated with an abundance of available products and technologies, have a difficult time translating the content of glitzy marketing slides and grandstanding presentations into the deliverable products. Given the relative immaturity of the PLM movement, this problem can be compounded by user's lack of understanding of their business needs and documentation of the associated software requirements.

In Part One of this article, we discussed the lessons learned from previous enterprise software selections and how they apply to PLM.

In Part Two of this article, we reviewed the problems in selecting PLM software from the viewpoint of the Buyers and Vendors.

**This is Part Three of a five-part tutorial, that presents an effective RFI/RFP process that can streamline the selection process and avoid the pitfalls of past selection processes.**

## From Words To Action

Given that a figure is worth thousands of words and that numbers are more irrefutable than postulates, it is time to illustrate the discussion in Part Two with a concrete example. Depending of which hat you wish to wear (or are already wearing), you may put yourself in a perspective of a prospective customer, vendor, or consultant.

**Thetis, pdmWARE, and IDe** were chosen for this particular exercise because they were the first three PLM vendors to become a part of TEC's PLM Knowledge Base, available on the PLM Evaluation Center . These three vendors make a good vendor sample because they all have unique capabilities that might be overlooked if only the biggest vendors were reviewed. TEC has compared the features and functionality of each of these vendors using **E-BestMatch™**, TEC's patented decision support tool, which uses the Multi-Attribute Utility theory (MAU), Analytic Hierarchy Process (AHP) and TEC's patented decision science to compare vendors and products relative to one another in a statistically valid model. The tool will perform the role of the machine in the above-mentioned human-machine combination so that we can find out how these vendors compare in the various functional and technical requirements areas.

## Meet The TEC Solution

TEC recently released its PLM Knowledge Base (KB), which includes 14 vendors rated on approximately 1,500 functional and technical criteria. The criteria have been isolated as meaningful to best differentiate PLM packages, based on TEC's past selection experiences. As the functionality scope covers both process and discrete industries, a broad range of application areas (from Product Portfolio Management to Technology Transfer), and as the technological questions attempt to cover many technical aspects (e.g., general architecture, degree of integration among modules, interconnectivity, data protection and restoration, security features, tools, etc.), a lesser number would likely fail to provide an accurate picture, while a greater number would involve mundane details (e.g., the maximum length of the 'description' field, or the capability of the system to print on 8" x 11" paper size).

The KB is powered by E-BestMatch and is accessible at http://www.PLMevaluation.com/. Among the vendors that currently reside in the knowledge base are Thetis Technologies, PDMware Corporation and IDe. These vendors have submitted a Request For Information (RFI) document to TEC either through a particular selection project or voluntarily. The number of participating vendors is likely to increase in the near future, as many vendors are still in the process of submitting their RFI documents. If you believe that your product deserves exposure through the TEC RFI Center, please do not hesitate to contact TEC about your possible participation.

Figure 1 below lists the vendors and their corresponding application suites that are chosen for this example.

**Figure 1**

| Vendor | Application Suite |
|---|---|
| Thetis | ThetisPro |
| PDMware | Webtrinsix |
| IDe | IDWeb |

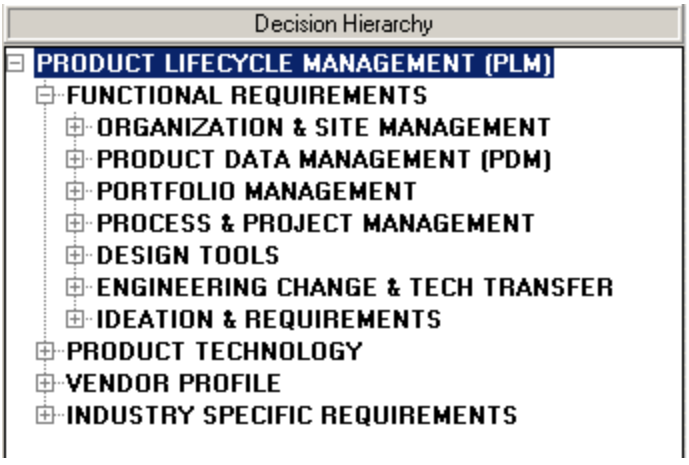
## Approach

TEC uses E-BestMatch to rank each vendor's ability to meet the functional and technical requirements outlined in the RFI. The first step in ranking the vendors is to organize the 1,500 RFI items into a hierarchical tree known as a Decision Hierarchy. Figure 2 illustrates the high-level criteria in the Decision Hierarchy for the PLM Knowledge Base.

**Figure 2**

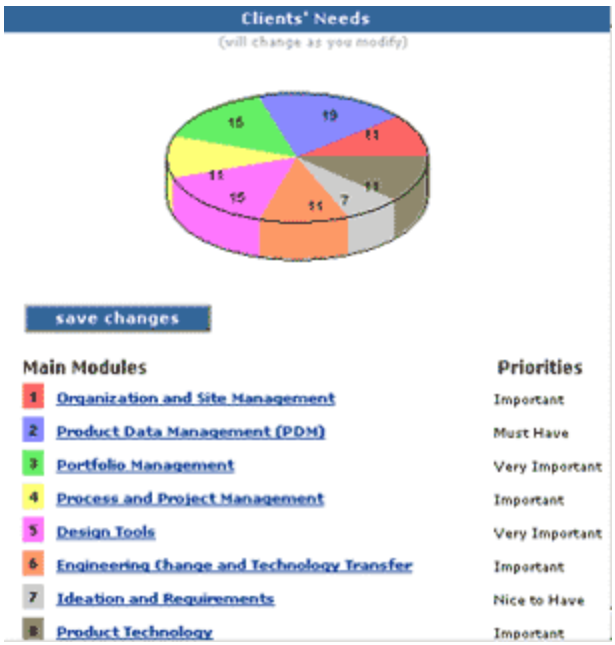

Within each of these high level groups (i.e. Product Data Management, Portfolio Management, etc.) are subgroups of smaller sets of functional and technical criteria. For example, Figure 3 indicates the subcategories under Product Data Management.

**Figure 3**



The next step in ranking the vendors is to prioritize the Decision Hierarchy. This involves indicating the importance of each criterion to a technology selection decision. The percentage on the pie graph indicates the priority percentage, or how much of the total decision is allotted to the criteria, based on the priorities set by module. For example, 19% appears for Product Data Management. This indicates that the sum of the criteria under Product Data Management is responsible for 19% of the total decision. In Figure 4, you can see the sample priorities set by module and the associated percentages of each module towards the total decision.

**Figure 4**




Each vendor in the Knowledge Base has a set of ratings (or scores) that correspond to the end level criteria in the Decision Hierarchy. The possible ratings appear in Figure 5.

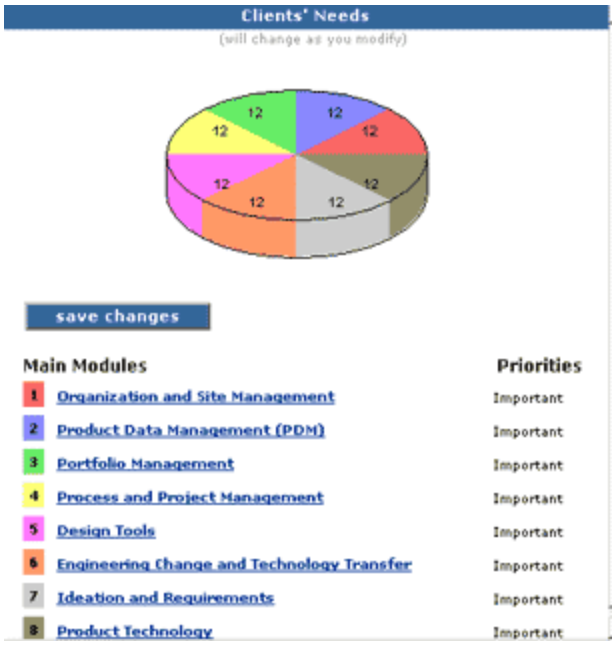
**Figure 5**

| Responses | Explanation |
|---|---|
| Supported | Supported out of the box |
| Modification | Requires modification (non source code change) |
| 3rd Party Support | Supported via a 3rd Party solution |
| Customization | Requires Customization (source code change) |
| Future Release | Supported in a Future Release |
| Not Supported | Not supported whatsoever |

E-BestMatch converts the ratings into numerical equivalents and uses the equivalents in conjunction with the priorities to determine a weighted average. The calculation is as follows: Weighted Average = Sum of ([Priority] * [Rating]) for the entire set of end level criteria.

For the baseline scenario all priorities are set equal, thus the priorities amongst siblings are the same at every level in the Decision Hierarchy. The Figure 6 illustrates the priorities in the baseline scenario.

**Figure 6**




## Results

If the vendors identified for analysis were ranked using this baseline weighting, the rank and weighted average of the vendors given these priorities is as follows:

**Figure 7**

| Rank | Vendor | Weighted average |
|---|---|---|
| 1 | IDe | 52.41 |
| 2 | PDMware | 50.87 |
| 3 | Thetis | 48.45 |

These results indicate that when all priorities are set equal, IDe has the highest weighted average. IDe's score is marginally higher than PDMware and about 4 points higher than Thetis. The results are not surprising given the equal weighting given to both Process & Project Management and Portfolio Management as compared to Product Data Management.

This may present a skewed view in this baseline scenario because of the unequal number of requirements in different modules, which could be corrected by using an alternative ranking methodology that takes into account the number of criteria in each module to compensate for the different size of the modules. Using the BestMatch Factor instead of the weighted average, the rank and rating of the vendors given the same priorities is as follows:

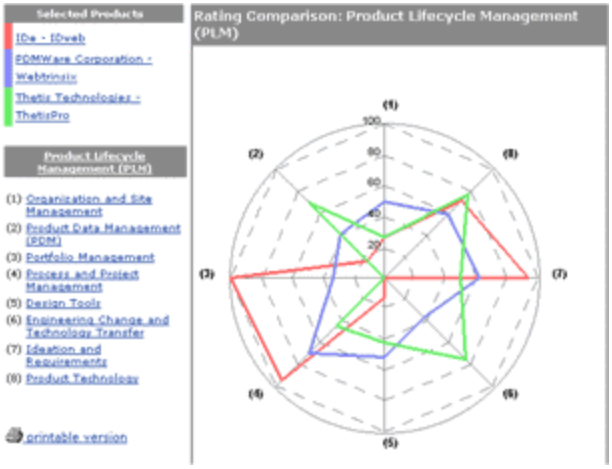
**Figure 8**

| Rank | Vendor | BestMatch Factor |
|---|---|---|
| 1 | PDMware | 34.63 |
| 2 | IDe | 28.23 |
| 3 | Thetis | 24.03 |

This rating methodology shows more differentiation, and reverses the positions of IDe and PDMware, reflecting PDMware's breadth. This analysis by itself, however, does not provide enough information to make an informed decision on a PLM product. A more detailed look at the results will reveal the strengths and weaknesses of each vendor.

The graph in Figure 9 below indicates the contribution to the weighted average for each vendor across the high level categories in the Knowledge Base, given the baseline priorities. The scale is weighted average. The sum of each node equals the weighted average in Figure 7 for each vendor.

**Figure 9**




The Contribution Analysis graph (Figure 9) indicates that there is very clear separation between the strengths and weaknesses of each of these vendors. Thetis, who ranked third in the summary analysis, shows their strengths by leading in Product Data Management and Engineering Change and Technology Transfer. IDe shows their strengths in Ideation, Portfolio Management and Process & Project Management. From this graph, it is clear that the best technology selection is highly dependant on the needs of the business.

## Determining An Appropriate Client

The results in figures 7, 8 and 9 were generated using the baseline priorities. From these strengths and weaknesses it is possible to build a profile of an appropriate client for each of these vendors. The profile consists of a set of priorities that match the vendors' strengths and weaknesses. Note that E-BestMatch users can build unique profiles of their own organization to determine how any of the 14 vendors in the Knowledgebase rank, given their profile (business requirements and the accompanying priorities).

**This concludes Part Three of a five-part tutorial on how to effectively streamline the PLM selection process.**

**Part Four will present examples of applying the solution to a PLM evaluation.**

# Selecting PLM Software Solutions
# Part 4 - Comparing 3 Vendors

*Featured Author* - Jim Brown & P.J. Jakovljevic - May 26, 2003

1. **Executive Summary**
2. **Thetis**
3. **IDe**

## Executive Summary

Past experience shows us that the vast majority of enterprise technology evaluations run over time and budget, and once selected, the majority of the implementations fail to meet functional, return on investment (ROI) and total cost of ownership (TCO) expectations. Many companies have consequently been stuck with under-performing software products and dejected users, and are still unable to gauge their system to determine how far they are from the ideal solution for their business requirements

Enterprise technology selections for ERP, CRM, SCM, and other enterprise applications provide valuable lessons that can be applied to selecting PLM (Product Lifecycle Management) software, but there are some key differences that need to be recognized. In PLM, there is no single vendor that can meet all of the requirements, and the market is still immature, so almost every product can be the right solution provided a certain set of requirements. The Catch 22 for both buyers and vendors is to pinpoint the right opportunity in this ongoing “dating game”.

Selecting a piece of enterprise application software has never been an exact science. Vendors’ hype, consultants’ potential conflict of interest and consequent bias, users’ doubts, tediously long selection processes, and unclear decisions rationale are some of the unfortunate watchwords for the selection practice so far.

It is daunting for corporate IT buyers to discern the true capabilities, strengths and weaknesses of a given enterprise application suite, given the propaganda that pervades vendors' endeavors to differentiate themselves (see Beware of Vendors Bearing Solutions). When making strategic IT acquisitions, buyer's project teams, inundated with an abundance of available products and technologies, have a difficult time translating the content of glitzy marketing slides and grandstanding presentations into the deliverable products. Given the relative immaturity of the PLM movement, this problem can be compounded by user's lack of understanding of their business needs and documentation of the associated software requirements.

In Part One of this article, we discussed the lessons learned from previous enterprise software selections and how they apply to PLM.

In Part Two of this article, we reviewed the problems in selecting PLM software from the viewpoint of the Buyers and Vendors.

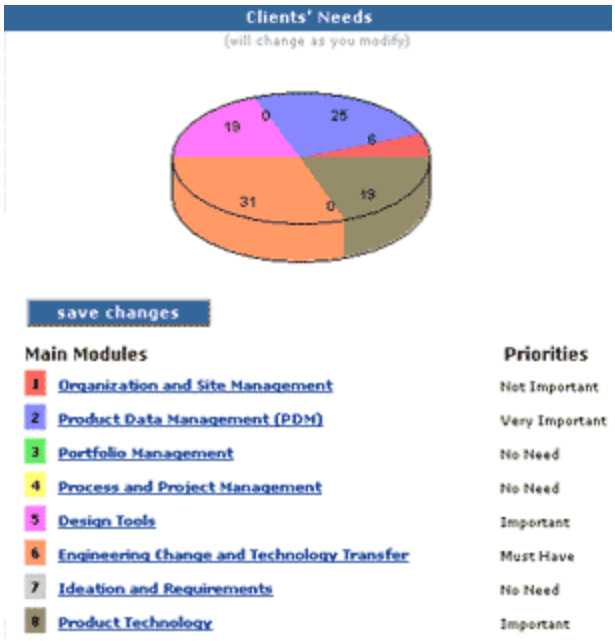
In Part Three of this article, we reviewed an effective RFI/RFP process that streamlines the selection process and avoids the pitfalls of past selection processes.

**This is Part Four of a five-part tutorial, where we will apply the solution to a PLM evaluation analyzing 3 vendors who offer products to the PLM market.**

## Thetis

An appropriate client for Thetis would have the following priorities:

**Figure 10**




The rank and weighted average of the vendors given these priorities is as follows:

**Figure 11**

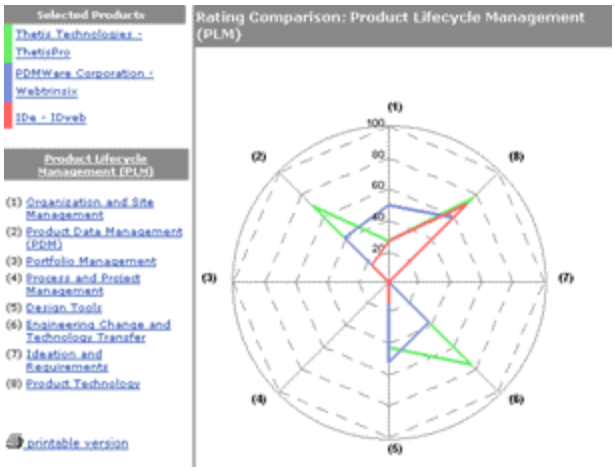
| Rank | Vendor | Weighted average |
|---|---|---|
| 1 | Thetis | 65.20 |
| 2 | PDMware | 45.98 |
| 3 | IDe | 22.18 |

Note the differences the priorities between Figures 5 and 10 and the impact that has on the results in Figures 6 and 11. . Thetis' weighted average increases as Engineering Change and Product Data Management become more important, and Process & Project Management and Portfolio Management become less important.

This indicates that those clients whose businesses rely heavily on frequently changing product designs and integration of those changes into the company's manufacturing, purchasing, sales and support plans, but don't require strong portfolio management and project management tools to manage new product introduction processes, will want to be sure to include Thetis in their technology selection.

The graph below indicates the contribution to the weighted average for each vendor across the high level categories with Thetis' priorities.

**Figure 12**

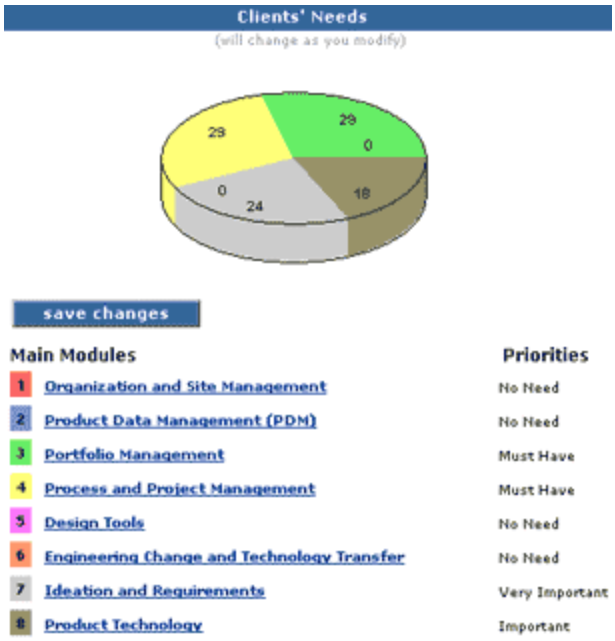



The Contribution Analysis graph indicates that given the priorities for an appropriate Thetis client, PDM, Engineering Change & Technology Transfer and Technology contribute the most to Thetis' weighted average. Note that the gap between the vendors' contributions to weighted average will change as a result of changing the priorities.

### IDe

An appropriate client for IDe would have the following priorities:

**Figure 13**




The rank and weighted average of the vendors given these priorities is as follows:

**Figure 14**

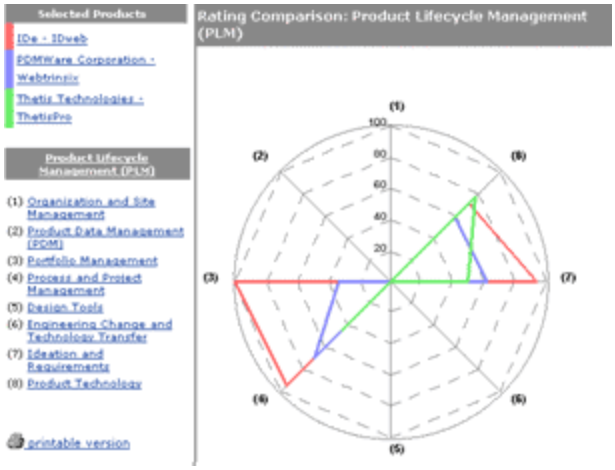
| Rank | Vendor | Weighted average |
|---|---|---|
| 1 | Thetis | 92.03 |
| 2 | PDMware | 55.81 |
| 3 | IDe | 38.74 |

Note the differences the priorities between Figures 5 and 13 and the impact that has on the results in Figures 6 and 14. . IDe's weighted average increases as Process & Project Management, Portfolio Management and Ideation & Requirements become more important, and design related functions such as PDM and design tools become less important.

This indicates that those clients whose businesses rely heavily on managing the new product development and commercialization processes, but don't require strong engineering and PDM tools, will want to be sure to include IDe in their technology selection.

The graph below indicates the contribution to the weighted average for each vendor across the high level categories with IDe's priorities.

**Figure 15**

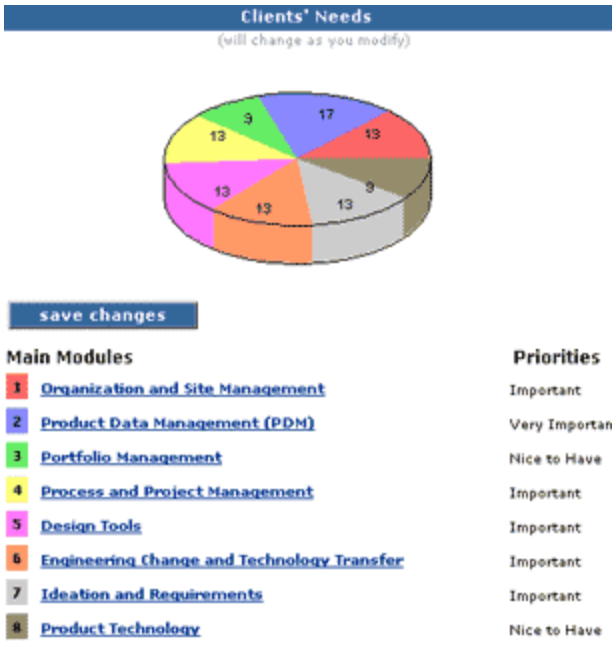



The Contribution Analysis graph indicates that given the priorities for an appropriate IDe client, Process & Project Management, Portfolio Management and Ideation contribute the most to IDe's weighted average. Note that the gap between the vendors' contributions to weighted average will change as a result of changing the priorities. The gap between IDe's contribution and the other's is reasonable in those areas that have been prioritized highly given IDe's focus on product development.

## PDMware

An appropriate client for PDMware would have the following priorities:

**Figure 16**




The rank and weighted average of the vendors given these priorities is as follows:

**Figure 17**

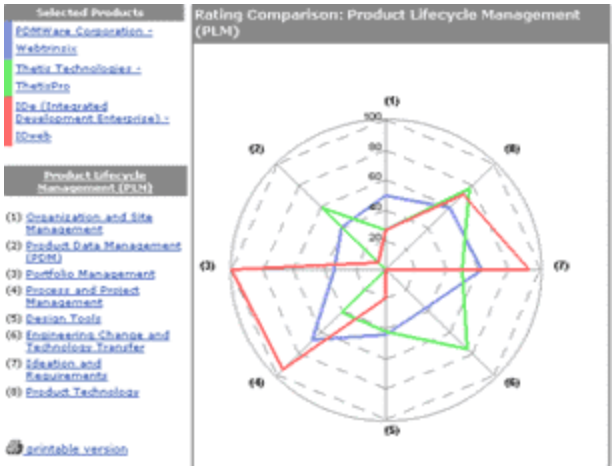
| Rank | Vendor | Weighted average |
|---|---|---|
| 1 | PDMware | 49.6 |
| 2 | IDe | 47.8 |
| 3 | Thetis | 47 |

Note the differences the priorities between Figures 5 and 16 and the impact that has on the results in Figures 6 and 17.

PDMware's weighted average increases as the balance of the needs become well balanced and focused slightly more on traditional engineering requirements. This indicates that those clients whose business requirements cover the breadth of PLM and are looking to implement a PDM solution with extensions into PLM will want to be sure to include PDMware in their technology selection.

The graph below indicates the contribution to the weighted average for each vendor across the high level categories with PDMware's priorities.

**Figure 18**




The Contribution Analysis graph indicates that given the priorities for an appropriate PDMware client there are well balanced needs. Note that the gap between the vendors' contributions to weighted average will change as a result of changing the priorities. The gap between PDMware's contribution and those of IDe and Thetis show that while PDMware may not be the best solution in all areas when taken individually, it is the best solution when there is a need for PDM and well-balanced requirements are given significant weighting

**This concludes Part Four of a five-part tutorial on how to effectively streamline the PLM selection process. Part Five will present recommendations for users and vendors.**

# Selecting PLM Software Solutions
# Part 5 - User Recommendations

Jim Brown & P.J. Jakovljevic - May 27, 2003

1. Executive Summary
2. User Recommendations
3. TEC's PLM Knowledge Base

## Executive Summary

Past experience shows us that the vast majority of enterprise technology evaluations run over time and budget, and once selected, the majority of the implementations fail to meet functional, return on investment (ROI) and total cost of ownership (TCO) expectations. Many companies have consequently been stuck with under-performing software products and dejected users, and are still unable to gauge their system to determine how far they are from the ideal solution for their business requirements

Enterprise technology selections for ERP, CRM, SCM, and other enterprise applications provide valuable lessons that can be applied to selecting PLM (Product Lifecycle Management) software, but there are some key differences that need to be recognized. In PLM, there is no single vendor that can meet all of the requirements, and the market is still immature, so almost every product can be the right solution provided a certain set of requirements. The Catch 22 for both buyers and vendors is to pinpoint the right opportunity in this ongoing "dating game".

Selecting a piece of enterprise application software has never been an exact science. Vendors' hype, consultants' potential conflict of interest and consequent bias, users' doubts, tediously long selection processes, and unclear decisions rationale are some of the unfortunate watchwords for the selection practice so far.

It is daunting for corporate IT buyers to discern the true capabilities, strengths and weaknesses of a given enterprise application suite, given the propaganda that pervades vendors' endeavors to differentiate themselves (see Beware of Vendors Bearing Solutions). When making strategic IT acquisitions, buyer's project teams, inundated with an abundance of available products and technologies, have a difficult time translating the content of glitzy marketing slides and grandstanding presentations into the deliverable products. Given the relative immaturity of the PLM movement, this problem can be compounded by user's lack of understanding of their business needs and documentation of the associated software requirements.

In Part One of this article, we discussed the lessons learned from previous enterprise software selections and how they apply to PLM.

In Part Two of this article, we reviewed the problems in selecting PLM software from the viewpoint of the Buyers and Vendors.

In Part Three of this article, we reviewed an effective RFI/RFP process that streamlines the selection process and avoids the pitfalls of past selection processes.

In Part Four of this article, we applied the solution to a PLM evaluation analyzing 3 vendors who offer products to the PLM market and discussed the results.

**This is Part Five of a five-part tutorial. In this last part of the article, we will make recommendations to users and vendors on improving the process of selecting PLM solutions.**

## User Recommendations

Perhaps the most important take away from this analysis is the significance of buyers researching technology vendors before determining the short list, while vendors should research the viability of the opportunity beforehand. Issuing a comprehensive Request For Information (RFI) to a number of vendors is an important first step in the selection process. Once the RFIs have been returned, analyze each RFI to determine the strengths and weaknesses of each vendor as well as the relative importance of each item on the RFI. This, proverbially harrowing exercise need not be that dreadful, as shown in Parts Three and Four of this article.

Experience has shown that more than the majority of functional and technical requirements show up time and time again. These have been captured for the PLM field within the **PLM Evaluation Center**. The remaining requirements may be peculiar to your business and industry (e.g., specific integrations to your existing applications), which need to be defined from scratch and prioritized appropriately. But, these should only be a small fraction of the entire immense RFI effort. Likewise, vendors' effort in filling the new RFIs should only be limited to filling in the additional criteria in the "delta" document.

Given the large variations in the PLM suites of both major and less-known vendors, users might be better off by skipping the painstaking process of RFP preparation, staring confusedly at vendors' responses, and trying to figure out who has the most pluses regardless of the individual importance of the functionality criteria. It is better for organizations to focus on the handful of business objectives they need to achieve and the ways to measure their success. They may benefit from turning to an objective third party expert with a tool that has an ability of translating these strategic business objectives into tactical functional and technological requirements, and, in almost no time at all, recommend the two or three most suitable candidates that should proceed straight to a software demonstration phase.

### TEC's PLM Knowledge Base

TEC's **E-BestMatch™ PLM Knowledge Base** (http://www.plmevaluation.com/) includes a comprehensive set of 14 RFI responses combined with a decision support tool to reduce the time and expense of examining vendors and determining the short list, while vendors can check out how they stack up against the competition and what the best course of action in every particular situation should be.

As a summary, the following are some of the main mutual benefits that all the parties would benefit from being on 'the same page':

- Upfront identification of issues and negotiation perspectives, enabling more efficient and productive negotiations
- Enabling the solution implementers to be better aware of the challenges
- Enabling vendors to be aware of product gaps with client needs
- Manage expectations of the implementation results to be realistic
- Enable better implementation planning
- Enable future project discussions between the vendor and client to be processed more effectively, since past data is intact and in a form that is reusable and can be updated easily.

Make no mistake – TEC does not expect anybody to acquire a crucial and costly piece of technology based only on online research, however thorough it may be. Users are therefore advised to conduct a thorough analysis of vendor strengths and weaknesses in the following major areas: product functionality, product technology, product TCO, corporate strategy, corporate viability, and corporate service & support.

The preceding analysis constitutes a high level evaluation on certain parts of product functionality and technology that should be replicated and expanded upon for the remaining key criteria areas. Only by a diligent process of evaluation that includes a number of other factors influencing the decision such as scripted scenario demonstrations, site reference visits/calls outcomes (see Client References - Still A Valuable Part of Vendor Selection?), product flexibility (e.g., customizability, interconnectivity, data conversion, etc.) can users hope to select an enterprise business system that will serve their organizations and deliver expected benefits. These are, however, more of a 'soft', subjective nature, and require an actual encounter with the software; this is where the human side will get the right of way over machine in the above-mentioned human-machine combination. For more information, see An Overview of the Knowledge Based Selection Process.

## Research is a Start

However, one has to start from somewhere, and there is no better place to start researching enterprise software than from their functional and technical capabilities. Despite the allegations that these capabilities have been converging across the range of products, and that their importance in selecting enterprise software has been diminishing by the day, that is not exactly the case, as shown in the examples with three vendors in Parts Three and Four.

Even in a hypothetical case of two vendors differing by only a few percentage points of required functionality, it is very likely that these the differences will carry a significant weight and could signal a requirement for an extensive modification effort and expense. Do you really need a sexy piece of technology that has missing functionality and will not cater to your business needs without significant modifications and system tweaking? The ramifications of this kind of selection are well known (see Should You Modify an Application Product?).

On the other hand, basing a decision only on product functionality may result in buying a system that will soon become obsolete. Advanced technology bolsters product flexibility, and often can provide tools that can circumvent the need for expensive modification (see Great Product: Too Bad The Architecture Doesn't Fit).

## The Next Step After Research

At the end of the day, there is some similarity between the intricacies of sourcing enterprise software and seeking a personal partner. While no one sane (or emancipated) enough will get married based on questionnaires' outcomes and/or friends/family recommendations sight unseen, there is however, the better chance that two people with similar interests and compatibilities will connect personally and emotionally as well.

On the other hand, these initial promising signs will easily fizzle out in a personal interaction if, e.g., someone is too rigid, rough mannered, there is cultural or language barrier, or if, e.g., someone's picture posted on the web site has turned out to be several years old and several dozen pounds lighter than today (the same holds for the truthfulness of the questionnaire answers). Sometimes, the person is nice and beyond reproach, but he/she simply does not do much for you (similar to someone's users being indifferent towards the software that seemingly does what is wanted from it). Nonetheless, it is very unlikely that, an avid opera-lover and artistic person will be a good fit with a couch-potato hooked on incessantly guzzling beer and watching sitcoms or the WWF. If a personal relationship is to work, there needs to be a chemistry that cannot be captured by a questionnaire, but the questionnaire does narrow the field.

To that end, the scripted scenario demonstration phase of a PLM selection process is the perfect opportunity to put candidate packages through their paces, and TEC urges users to exercise this 'blind date' prerogative. However, instead of letting vendors take charge of the demo and show you their 'dog and pony' shows, insist on vendors unequivocally showing you how their system will help you achieve the desired objectives (see Demonstration Post-Mortem: Why Vendors Lose Deals).

### Accessing TEC's ERP Knowledge Base

The list of vendors currently present in TEC's PLM Knowledge Base can be found in Figure 19. More responses are being received every week; please check http://www.plmevaluation.com/ for the most current status.

**Figure 19**

| Vendor | Application Suite | Status |
|---|---|---|
| CoCreate | OneSpace Designer, OneSpace Collaboration | Complete |
| Custom Programming Unlimited | SimplePDM | Complete |
| Formation | Optiva | Complete |
| FullScope | WisePLM | Complete |
| Ide | Idweb | Complete |
| IFS | IFS Applications | Complete |
| Inteplan | CAMeLEAN | Complete |
| OSI Soft | processPoint PLM | Complete |
| PDMWare | Webtrinsix | Complete |
| QSA | ProductVine | Complete |
| SAP | mySAP PLM | Complete |
| Selerant | WinCHEM, DevEx | Complete |
| Siemens | Simatic IT Interspec | Complete |
| Thetis | ThetisPro | Complete |
| IBM/Dassault | IBM PLM Portfolio | Coming soon |
| Aras | Innovator | Coming soon |
| Arena Solutions | Arena PLM | Coming soon |
| Baan PLM | iBaan for PLM | Coming soon |
| BetaSphere | RevMax Suite | Coming soon |
| Eigner Solutions | Eigner PLM | Coming soon |
| Oculus Technologies | CO | Coming soon |
| Prodika | Prodika NPD Suite | Coming soon |
| Proficiency, Inc | Collaboration Gateway | Coming soon |

**This concludes the fifth and final part of a five-part tutorial on how to effectively streamline the PLM selection process. For more information on using the PLM Knowledge Base please visit the PLM Evaluation Center for a free trial.**

For questions on the PLM RFI, please contact the TEC PLM Specialist, **Jim Brown**, at jim.brown@tech-clarity.com.

## About the Authors

**Jim Brown** has over 15 years of experience in management consulting and application software focused on the manufacturing industries. Jim is a recognized expert in software solutions for manufacturing and has broad knowledge of applying Product Lifecycle Management, Supply Chain Planning, ERP, Supply Chain Execution, and e-business applications to improve business performance. Jim served as an executive for software companies specializing in manufacturing solutions before starting his consulting firm, Tech-Clarity Associates. He holds a bachelor's degree in mechanical engineering from the University of Maryland, College Park.

Jim can be reached at jim.brown@tech-clarity.com.

**Predrag Jakovljevic** is a research director with TechnologyEvaluation.com (TEC), with a focus on the enterprise applications market. He has over 15 years of manufacturing industry experience, including several years as a power user of IT/ERP, as well as being a consultant/implementer and market analyst. He holds a bachelor's degree in mechanical engineering from the University of Belgrade, Yugoslavia, and he has also been certified in production and inventory management (CPIM) and in integrated resources management (CIRM) by APICS.