

Wednesday, August 22, 2007

A Kick-Ass Direct PLM Sourcing Solution for Manufacturers: Part I

In this post I'm going to lay the foundation required to introduce you to a new direct sourcing solution if you're a manufacturer - regardless of industry - who manufactures, or outsources the manufacturing of, complex parts and assemblies. (In other words, if you're in aerospace, automotive, defense, heavy machinery, high-tech, medical device, or diversified manufacturing, you may want to read these posts carefully.) This isn't to say that it's not useful for the sourcing of simple parts or assemblies, or that it can't be used for indirect materials (with some caveats), just that the true power of this solution is not recognized unless you're sourcing (at least moderately) complex parts and assemblies.

This is a distinct solution from the standard sourcing suites that is offered by the likes of [Emptoris](#), [Iasta](#), and [Procuri](#); the on-line marketplace solutions like [Alibaba](#) or the manufacturing focused [MFG.com](#); and even the PLM focused solutions of [Agentrics](#) and [UGS](#). Not to say that these are not great solutions, the first set are great solutions for indirect materials and simple direct materials; the middle set are often perfect at identifying potential suppliers and, especially in the latter case, for sourcing simple parts or assemblies; and the latter set are really good for PLM management within your company, but in one way or another, all fall short when it comes to complicated manufacturing and the sourcing of complex parts and assemblies, especially when you're global.

The reason that this is the case is that sourcing an assembly is not like sourcing a straight-forward commodity, raw-material, or service. It's not just a matter of performing your market intelligence to come up with a should cost model, executing spend analysis to identify the potential savings opportunity, posting an RFI to identify potential suppliers, creating an RFP to qualify suppliers, sending out an RFQ to get initial bids, (potentially) running an auction to determine final bids and the suppliers eligible for an award, and using decision optimization to determine the final award, which is then contracted. Sourcing a complex part or an assembly is much more involved.

When you're sourcing a complex assembly or part, both you and your suppliers have a lot of complexity to deal with. First of all, you need to know how many basic parts exist in the sub-assemblies and sub-parts, how many instances of those basic parts exist, and what raw materials and manufacturing processes are required to make those parts. Then you need to identify and find all of the specifications and drawings and make those available, in a secure and controlled way, to your potential suppliers in formats that they can understand and work with. Then you need to enable collaboration between your sourcing professionals, design engineers, the potential suppliers' production engineers, and the potential suppliers' sales professionals. The potential suppliers' production engineers will invariably have questions on the design, process, and materials and require clarifications to determine what will be involved to make the part. Then the potential suppliers' sales professionals will no doubt have questions regarding the precise specifications and quality requirements of the raw materials so that they can provide accurate quotes based upon the feedback they get from their engineering team. (Does the bolt have to be hardness 5, or will hardness 4 suffice?)

Then something will invariably cost more than you expect, or can afford to pay based upon what marketing thinks sales will be able to sell the product for, and your combined sourcing and engineering team will have to collaborate with the combined sourcing and engineering team of the (potential) supplier(s) likely to get the award to come up with a new design or manufacturing process that will meet costs. During this process, a plethora of new documents and versions will be created and need to be tracked in a manner that is instantly accessible by all parties as soon as they are available. Then you'll actually have to collect the quotes at the basic part level and be able to automatically roll them up into quotes for the sub-assembly and assembly and be able to compare, at each level, across suppliers to determine which supplier gets the assembly, which suppliers get the sub-assemblies, and which suppliers get the basic parts. And if you are sourcing a complex assembly with hundreds, or thousands of parts, this is no easy feat.

Furthermore, this is not something you can easily do with a standard sourcing suite, even if its on-demand and even if it is augmented with an on-demand Product Information Management (PIM) solution such as that offered by [Arena](#) (even though this is a great solution for PIM - and works great even for complex parts during a joint design phase), marketplace, or traditional PLM solution.

This is because standard sourcing suites are not designed for the management of design drawings, CAD/CAM models, and PLM and also since very few handle complex bill-of-materials with hundreds or thousands of parts (as they are

designed to handle events with small to moderate sized bundles well), marketplaces are not designed for complex sourcing, and traditional PLM is not designed to be collaborative on-demand over the web.

(You might point out the UGS solution, which I wrote about [in this post](#) back in March, and it's a good solution, but when you get down to it, it's a relatively weak integration between separate suites of products built at different times for different purposes with different toolsets on different platforms compared to a solution built from the ground up to tackle the direct PLM-based sourcing of complex assemblies head on. Considering the number of mergers and integrations the UGS solutions have gone through, it's impressive that they took the solution as far as they have. Whereas the UGS solution model is good for those companies who already have one or more of the tools that have been integrated and need an easy stepping stone to get to the next level, the from-the-ground-up model is probably a better way to go for those innovative companies that do not have any of the solution sets or are willing to change the way they look at PLM and Sourcing and take a new, integrated, approach.)

Furthermore, when you are dealing with the sourcing of complex assemblies, it's usually not the raw material costs you're concerned about, since these are fairly constant around the globe, but the production costs - which usually boils down to the labor. Auctions have little value beyond the most basic components (such as screws, nuts, and bolts) since the only wiggle room the supplier will generally have is their margin. There are not a lot of (complex) constraints, as you don't have a lot of leeway, so complex decision optimization is usually not required - it's really just looking for the lowest landed cost, which is easily computed, while making sure any diversity or dual sourcing constraints are met. So, beyond RFX and (at most) simple optimization, for the most part, you don't need complex sourcing functionality. And where you are concerned about raw material costs, you'll do a spend analysis project outside of the individual assembly sourcing events to benchmark your expected costs, which will then be fed into each sourcing event. As for contract management, the contract is fairly simple - provide the required assembly in the designated quantity at the designated time - since all the details are in the appendices which consist of the design documents and CAD/CAM models. So, tracking the design documents, the award, and a single attachment that represents the standard terms generally accomplishes the required level of contract management. And the project management that is required is not really sourcing project management but PLM project management - sourcing project management is just a subset that consists of the quoting phase and final award selection.

Thus, if you are a manufacturer - be it aerospace, automotive, defense, heavy machinery, high-tech, medical device, or diversified - there is a good chance that your current solution for sourcing, if you have one, is likely not meeting all of your needs. Furthermore, to meet your more complex needs, you likely need a new type of direct sourcing solution that was designed to manage your PLM needs from day one. In part II, I will introduce this solution to you. Stay tuned.

(P.S. In order to prevent anyone from ruining the surprise, and to insure all related discussion is centralized in one place - in the forthcoming post II, I've disabled comments for this post. Thank you for your patience.)

Thursday, August 23, 2007

A Kick-Ass Direct Sourcing Solution for Manufacturers: Part II

In yesterday's post, I indicated that I would introduce you to a solution for direct sourcing that was distinct from your standard sourcing suite and which was designed to manage your PLM-based sourcing needs from day one - and that is what I am going to do.

Believe it or not, the solution I'm referring to is the new solution being offered by [Co-exprise](#), a company that has been around since 1995, managed over 175B in customer spend since their inception, and which is probably still best known for its [Co-exprise MarketPlace](#).

For the past few years, Co-exprise has been working hard to create what they hope will be an entirely new type of PLM-based direct sourcing solution for complex manufacturers - be they aerospace, automotive, defense, heavy machinery, high-tech, medical device, or diversified manufacturing - that directly attacks the trials and tribulations faced daily by the sourcing team who have to source assemblies of ever-increasing complexity while being crunched by continually decreasing product life-cycles. And the solution they have devised is un-like any I have ever seen.

In the situation where you have a lot of complexity to deal with, where you are sourcing complex assemblies of thousands of parts, where you have hundreds (or thousands) of design specification documents in dozens (or hundreds) of formats to deal with, and where you need to collaborate in real time with your engineering team and your supplier's engineering team, it's the best solution I've seen for the type of direct-sourcing problem they are solving.

The solution, which integrates RFx, auctions, project management, collaboration, PIM, PLM integration, dashboards, and tree-based navigation, also includes enhanced security, contextual-awareness, supplier qualification, and enhanced meta-data capabilities. The application understands over 1500 disparate file formats produced by CAD, CAM, and PLM software solutions and can automatically extract relevant meta-data and apply custom compression techniques (based on wavelet theory and fast fourier transforms) that achieve 50% to 99% compression ratios and allow for faster document transmission, which is very secure as the files are encrypted using 512 bit AE2 compression and access can be restricted at a very fine grained level - and to a specific individual or IP if needed.

The solution is project-based, and everything in the system is an object. This might not sound important, but this allows everything to be cloned, which means that any project, or portion thereof, can be copied and used as a template for a future project. Furthermore, collaboration works on any object in the system - a context can be created on any file, item, sub-assembly, assembly, or project - and a focussed discussion, logged and accessible at any time, can take place. These discussions are then integrated with the task management functionality and can be tracked accordingly. The RFx solution is more than adequate, the auction capability allows for real-time bidding at a latency of only 50 ms, and basic contract management capability is being built as you read this.

It doesn't have spend analysis yet (though they have stated that they are working on a new type of spend analysis solution more appropriate to direct sourcing than your standard spend analysis solution, which intrigues me even though they are not yet ready to release details - especially since I want to know how they plan to one-up [BIO](#), there's no optimization, and no (third-party) e-procurement integration, but as discussed in yesterday's post, spend analysis is usually a separate project in these types of direct sourcing projects, complex decision optimization is usually not required (or viable where you usually need a strategic relationship), and since everything in the system can be exported, it wouldn't be hard to do a batch-based XML or CVS linkage to your current e-Procurement or e-Payment system, so it's weaknesses are not significant for the problem it is addressing.

As I noted yesterday, there are other solutions out there, like the [UGS](#) solution, and you should look at any solution that appears to be relevant before making your selection, but, even though you probably haven't heard of it, if you're a manufacturer sourcing complex assemblies, I would not leave the new co-exprise solution off of the short-list when doing your evaluations.

I will be continuing discussions with the co-exprise leadership team (who have 200 years of combined experience in manufacturing and supply chain) and should have more to say in the future, but would like to note that they do plan to update their web-site and materials in the near future and this will help to shed some light on the uniqueness of their product. But in the meantime, if you're a manufacturer in the market for a direct sourcing solution, give them a call or drop them an e-mail and they'll be more than happy to give you a demo.