



World Nuclear Association Annual Symposium  
5-7 September 2001 - London

## **Optimizing worldwide supplies of engineered replacement parts**

John C Kelly & Kurt Mitchell

The purpose of today's talk is to propose increased collaboration in the international nuclear utility community to optimise the collective supply of engineered replacement parts. That optimisation will reduce plant outage risks. It will reduce net investment in parts inventories. It will help solve urgent supply problems of obsolete parts and frequent shortages of critical items. It will improve market economics for the nuclear industry's suppliers by aggregating demands. And perhaps more important to you as utility managers, the resulting net reduction of operating risk will help you to sleep better at night.

Those of you in the audience who are involved in the engineering support and procurement of replacement parts for plants know that sourcing engineered parts has become more difficult rather than less difficult in recent years. Numerous vendors have exited the market due to perceived reduction of business opportunities in the nuclear industry. That has been further complicated by issues of plant aging, life extension, parts obsolescence, and maintaining of nuclear equipment qualification. These issues affect us all worldwide. They have no border. Because many plants were designed 30 years ago or more, one of our utility clients in the U.S. recently made an interesting comparison of their parts supply situation to the problem of maintaining a 1965 automobile in a world where the auto manufacturer insists on selling only current upgrades for the car instead of 1965 component parts. Imagine the expense of operating that car when you must buy a new engine whenever a fuel pump or starter fails.

That's one reason why North America's nuclear utilities have been collaborating in recent years to apply new systems and work practices to obtain instant information on parts supply alternatives and supply sources that heretofore have been hidden from view. Today I will tell you more about that and how international utilities can immediately apply those same collaborative systems and practices at modest cost and with only minor modification. I am also here to tell you that this has never been easier or more effective to implement, now with the advent of electronic market technologies.

### **Who are we to speak on such a subject?**

SCIENTECH has provided collaborative engineering and information management services to the nuclear utility industry for over 20 years (figure 1). Those services are based upon an information exchange model that collects, organizes and communicates data among all members. Examples of those services include the Equipment

Qualification Databank (EQDB) offered in cooperation with EPRI, the Licensing Information Service (LIS) used widely by U.S. nuclear utilities, and the *rapidpartsmart*<sup>™</sup> network, a collaborative commerce and distributed parts asset management system used by every nuclear utility in North America for optimising spare parts supply and investment while simultaneously reducing plant outage risks. The *rapidpartsmart* network will be a focal point of my discussion today.

### **What is “collaboration”?**

Well you may ask, “What do you mean exactly by collaboration?” We define it to be when two or more organizations work together to solve a common problem. The nuclear utility industry has been collaborating for years and has developed a culture that encourages the exchange of information in order to improve the safety and reliability of nuclear power. Utilities have all participated ad hoc in collaborative efforts over the years. Their continued support for the EQDB network is just one example.

Virtually all organizations within the nuclear utility industry participate in some form of collaborative effort. In fact, most of us participate in one or more special interest groups like the EPRI, INPO, WANO, FORATOM, IAEA, NUPIC, NMSG, NUOG, NMME, WNA and others. Thus collaboration on the urgent need to optimise worldwide supplies of engineered replacement parts should not be a foreign concept.

### **Are collaboration and utility competition mutually exclusive?**

Several years ago in the U.S. when utility deregulation was a new concept and before there was 100% utility participation in *rapidpartsmart*, we would get this question from nuclear utilities, “If my company will soon be competing with other utilities for new business, why should my company collaborate with those same utilities to solve nuclear parts supply problems?” That was a valid question then and we are again hearing it here in Europe as we now expand *rapidpartsmart*.

Our answer is as follows: a wise man once said, “An ounce of experience is worth a pound of theory.” Experience shows us that many highly competitive industries collaborate for mutually beneficial solutions. Collaboration has always been easier in industries that have public safety as part of their primary mission or that require large amounts of capital investment, or both. Certainly the nuclear utility industry meets those criteria. But others do too. The airline industry, for example, is such an industry. That industry now has become dependent to a large degree on collaboration as a means to business success, maybe even survival. The golden rule of collaboration is that it works best when participating companies achieve quantifiable benefits from the common solution and when those benefits out-weigh the costs, including opportunity costs. Let’s see how that applies to the airlines. Then we’ll see if it also applies to our own industry.

Few industries are as competitive as the airlines, yet they collaborate on many fronts. For example, they may “code share” flights with one another. Later this month I am going to Kuala Lumpur for the Power Gen Asia 2001 Conference and my flight from London will be on Malaysian Airlines. But that flight is also sold as a flight by Virgin, KLM and Northwest airlines. Interestingly enough, as I discovered on the Internet, they all sell tickets on that flight at varying prices too. What a great example of collaboration! Instead of operating four flights where all four companies lose money, those four companies operate one flight jointly and, hopefully, make a profit.

Even better examples of airline collaboration exist in supply chain management. Here's one. Many airlines at the back end of their spare parts supply chain collaborate in the Air Transport Association's "AIRS" network (Airline Inventory Redistribution System, a part of the ATA Spec 2000 Marketplace) to liquidate their surplus spare parts. The collaborating airlines use AIRS to buy and sell one another's excess stock and thereby re-allocate precious capital away from non-working assets.

Another example exists at the front end of the airline spare parts supply chain. What you find there is that most major airlines and their thousands of worldwide vendors and service companies collaborate in the ILS (Inventory Locator Service, Inc.) network. It's a system where new and refurbished spare parts stocks are displayed in a searchable format for uniform access by sellers and buyers worldwide. The ILS aviation database now contains over 5 billion records. A similar system, but far smaller, is offered under the ATA's Spec 2000 Marketplace. For vendors, the potential for increased business volume by better access to the market in either the ILS or ATA network far outweighs any negatives for them, particularly when they can respond to lucrative urgent parts situations when airlines have jets sitting on the ground unable to fly due to lack of a replacement part. When an "aircraft on ground" (AOG) alert is heard, the supply chain responds immediately, even to the point of the airlines directly supporting one another on the scene by selling or temporarily borrowing critically needed parts. The ILS system and the smaller ATA system have brought about supply efficiency solutions to what would otherwise be an impossibly fragmented supply side for the commercial aviation industry.

These examples of collaboration show how the airlines and their vendors have learned to both profit and to serve the flying public better by competing on their real strengths rather than by a non-core competence such as the ability to keep a hoard of spare parts.

### **What about the nuclear utility industry?**

What does all that tell us about the nuclear utility industry? Will utilities collaborate with one another? Will suppliers collaborate with one another? Will utilities collaborate with their suppliers? The answer is YES – when the benefits out-weigh the costs as in the airlines example. Again, remember the golden rule of collaboration. It works best when participating companies achieve quantifiable benefits from the common solution and when those benefits out-weigh the costs, including opportunity costs.

The nature of the nuclear utility industry (high risk, high capital investment) makes collaboration between supply chain partners necessary. Many of the industry's collaborative organizations such as EPRI, INPO, WANO, FORATOM, NUPIC, NMSG, NUOG, NMME, and WNA already recognize the need for greater support of collaboration in the industry's spare parts supply chain. Historically, some of these organizations have been a closed club or tended to be homogeneous in their makeup, consisting of utility participants only. But recently some have become heterogeneous in their membership and suppliers have been brought into the mix as it is recognized that some problems, like equipment obsolescence, plant life extension and continued supply of parts, require collaboration within the entire supply chain to reach economic on-going solutions. It's what is now being described as "collaborative commerce". In keeping with the collaborative tradition of our nuclear industry, that concept began on a people-to-people basis as peers got together at industry conferences such as the rapidpartsmart

annual conference and at periodic meetings of the Nuclear Utility Obsolescence Group (NUOG) to identify specific and pressing problems needing joint action.

That collaboration, in North America at least, is now being substantially accelerated by electronic market technology that enables us to go beyond mere people-to-people collaboration to actually enable company's respective information systems to talk to or "collaborate" with one another.

If there is any doubt as to whether this phenomenon of collaborative commerce will be accelerated by increased use of electronic market technologies, let's look at four factors that build the business case for collaborative commerce in the worldwide nuclear industry. First, there is the nature of the nuclear utility industry, as I've already stated (high risk, high capital investment). Second, there are large cost savings possible if you remove in-efficiencies from the supply chain. Third, there are the large investments already made in the technologies needed to support system collaboration. And finally, there is a mass exodus of the knowledge base looming just over the horizon.

Cost savings... Much of the in-efficiency that our businesses suffer is a result of imperfect information, lack of information, and un-timely information. We lack all the information needed to make optimum decisions. In some ways, the benefits of system collaboration are similar to those provided when we installed networks and ERP systems within our companies. With ERP systems, information can easily flow across boundaries within an organization (at least in theory) thereby reducing the costs to the enterprise of sharing information and revealing rewards not easily seen when the information was locked away in one of its segments. The same logic applies across enterprise (company) boundaries. Resolve those problems and all members of the supply chain will benefit. Not everybody will agree, as some companies will fear losing the competitive advantage of being an intermediary in the market. But the large savings made possible by timely and complete information will continue to pull us in this direction. It won't happen overnight, but it will happen. Just look at the commercial aviation industry as a precedent-setter.

Next, large investments have already been made by utilities in technology needed for collaboration between systems by virtue of investments made in infrastructure to support e-commerce. Most of us thought we would reap major rewards from e-commerce already but recently there has been recognition that e-commerce and collaborative commerce require the build-out of a large infrastructure before much reward can be reaped (similar to railroads in the U.S. during the 19<sup>th</sup> century). Yet technology investments and new sensibility will continue to push us down the road toward system collaboration.

Finally, the nuclear and fossil work force is aging. Some estimates predict that most of experienced supply chain professionals and their engineering support staffs will retire in the next five to ten years. Most companies rightly fear the loss of their knowledge base. One approach is to mitigate the effects of this loss by providing systems that allow both people and systems to collaborate, capture, share and even expand that knowledge base. These systems can capture and store the collective knowledge base of the industry so that new participants have access to the knowledge of the 'salty dogs' who have long since retired. We owe that to ourselves and we must do it. To not do it is to lose the opportunity of making the nuclear industry cost-competitive with other energy technologies.

## **What is e-marketplace technology?**

The e-marketplace is not one or two specific companies that offer an e-marketplace technology as one of their services. There is no such thing as “an” e-marketplace. Instead, there is only “the” ubiquitous e-marketplace that is forming as a result of all of numerous suppliers and buyers disseminating information via the Internet and connecting their systems to one another directly or indirectly using the Internet (figure 2). Companies like GE, Westinghouse, Freemarkets, SCIENTECH, Enporion, Pantellos, Enron, and so on have developed or are developing supply chain solutions that they deliver using the Internet. They are connecting their systems and databases to their customer’s systems and databases using the Internet. Each day the e-marketplace becomes more robust and more deeply integrated. This isn’t happening overnight because the process is long. It will take years. But the good news is that while under development, it provides immediate benefits along the way.

Collaboration between nuclear utilities will increase within this e-marketplace environment. Collaboration will be used to solve more problems, and faster, and it will involve more heterogeneous parties. Emerging technologies and standards now allow us to share problems and solutions easily, to exchange information with one another quickly and cost-effectively, to integrate our systems so that routine problems can be detected and resolved without our intervention, and to see and analyse larger data sets so that we can optimise our supply chain decision-making beyond that which was possible just a year ago.

Further, collaboration will increase as telecommunication technologies improve (figure 3). In the beginning, collaboration was difficult because it was difficult to communicate. It was done by mail, then phone, then fax, and then e-mail and now by web-conferencing. In all cases the new technology of the day has made it cheaper and easier to collaborate because the costs of immediate and rich communication decreased. And the new technologies have changed the types of problems that collaboration can help to solve. Collaborative commerce represents a technological breakthrough by its basis in system-to-system integration, or “system collaboration”.

Before the e-marketplace, two or more utility organizations collaborated on a people-to-people basis for sharing ideas and for combining resources to solve common problems. The collaboration usually occurred at pre-defined times, was typically out-of-process, or only occurred during a crisis such as an unexpected plant outage. With the development of the e-marketplace, however, heterogeneous members of the supply chain can now integrate their systems, allowing them to share information and coordinate work processes. This exchange of information is immediate, allowing collaboration to occur more frequently and on problems that were too small to warrant the costs involved in the past. Furthermore, the collaboration occurs in process, so its effects are incremental and immediate. In addition, system collaboration reveals information that was too difficult to collect in the past. Information that spans organizational boundaries allows a better understanding of the supply chain. This information holds the promise of a more efficient supply chain that benefits all types of participants. Strategies such as aggregating the demand data of multiple utilities in an easily searchable and accessible format, if communicated to the vendor side of the supply chain, will enable action by vendors on the joint needs of utilities to allocate setup costs in an equitable way to ensure material supply while also ensuring profitable and forecastable business for the vendor. Such are the utility-vendor supply chain partnership benefits made possible by e-

marketplace technology – all without excessive investment in inventories at either the end user utilities or collaborating vendor.

There are some especially bright spots of collaborative commerce solutions available. SAP provides a collaborative commerce suite that allows the sharing of data and designs between partners in the supply chain. This reduces the time and cost for specifying and delivering products and services. Enporion and its partner New York Nuclear Corporation are currently working to utilize collaborative commerce technology in several areas of the nuclear supply chain. They are currently targeting quality parts, components and services, and the document security aspects and NRC regulatory requirements needed to implement web-based solutions designed to address needs of the nuclear Q procurement process worldwide. In addition, we are beginning to see the formation of Private Exchanges that allow existing supply chain partners to share information over the Internet that they currently share using other means. Many of these technologies hold the promise of significant improvements in the supply chain's ability to better service the enterprise.

We believe collaborative commerce and system collaboration will be adopted worldwide sooner rather than later. That is especially true if we in the nuclear industry make it so by driving the process forward for our mutual benefit (remember the airline case) and reward those vendors who support it by participating in the heterogeneous supply chain by taking initial steps to integrate their systems with utility systems, at least to the extent of sharing their supply capabilities data. Those vendors will find that such information sharing will build business and improve their customer service among their valued utility customers. Vendors, however, who do not collaborate with utilities at least to that degree, will discover in the long run that it is fruitless to guard such information. To hope of obtaining a compelling and sustainable competitive advantage by restricting access to supply capabilities and refusing to participate in opportunities for open client interfaces with reciprocal access to utilities' aggregated demand data is a losing game in the e-marketplace environment.

### **How can international nuclear utilities participate?**

The best way we know for utilities to participate in collaborative practices and systems for optimising the supply of engineered replacement parts assets is to become an active participant in the growing rapidpartsmart network.

Rapidpartsmart is an on-line system for locating, buying, selling, and managing engineered parts in the power industry. Its mission is to provide the content, community and tools needed to bring buyers and sellers together in order to improve supply chain efficiency and create value for all participants. Its foundation is a ten-year track of success in helping 80 major utilities in North America and their power generating facilities to collaborate for better supply chain management.

The rapidpartsmart system achieves that in many ways. One way is by provision of an industry parts supply database of over 5 million items. The success of the system is such that all North American nuclear power plants now use it to display their active parts inventories and their surplus sale inventories for collaborative access by utilities and vendor firms. Search and retrieval of that data is made possible by a powerful web-based search engine enabling any one of those millions of items to be located by any descriptive term or part number. The network also supports the needs of vendors and member

utilities by providing any buyer in the world a free account for search access to listed sale catalogues of vendors and the listed surplus inventories of utilities. Those “guest” buyers may even transact business with vendors and utilities on rapidpartsmart by email tools to request sales quotations and to execute purchases. In 1999 rapidpartsmart also undertook an initiative to promote the sharing of solutions to nuclear utilities’ obsolete item replacement problems. That system continues to evolve technologically in response to the specified needs of the special interest group known as NUOG, the Nuclear Utilities Obsolescence Group.

By participating in rapidpartsmart, utilities uncover ‘hidden’ supplemental supply channels, reduce part sourcing costs, expand their parts sourcing options, reduce their outage durations, reduce inventory levels and carrying costs, mitigate risks without increasing inventory, reduce parts re-engineering cost, and liquidate surplus faster with higher returns. Typical applications of rapidpartsmart by utilities include (figure 4):

- Filling urgent parts needs immediately and with confidence
- Better purchase decisions by ‘hidden’ supply channel data
- Avoiding purchases by “Reserving” stocks for contingent needs
- Surveying industry supply status to re-set parts stock levels
- Finding obsolete item solutions, reducing replacement efforts
- Creating a backup inventory management system
- Communicating and managing internal multi-site inventories
- Liquidating surplus parts assets by sales worldwide
- Technical collaboration with peers on-line and by conference
- Automatically matching utility supply demands to industry supplies, and
- Connecting ERP/EAM systems to utilities’ preferred e-markets.

The value that a utility derives from rapidpartsmart membership results from making routine use of the system’s available content, tools and collaborative facilities by integrating it all into daily work processes (figure 5). Integration includes maintaining the currency of the company’s content on rapidpartsmart. Therefore all rapidpartsmart members are urged to allow installation of ‘gateway’ software to maintain highly accurate contributed data in near real-time by overnight uploading of all supply item changes. It is equally important that the company’s staff be disciplined in routinely accessing all the available rapidpartsmart supply data. Therefore rapidpartsmart urges (but does not require) utility members to integrate rapidpartsmart data into their ERP/EAM systems by installation of special customized rapidpartsmart ‘plug-in’ software. Also, rapidpartsmart makes available optionally to member utilities a customized “connector” to their preferred e-market technology provider so that their transactions on rapidpartsmart can be handled electronically along the procurement cycle from initial request for quotation (RFQ) through the final shipment from the vendor or collaborating supply utility.

Worth special mention is an optional new feature that offers the ultimate in rapidpartsmart search simplicity to assurance utility management that its procurement staff has seen all possible matches between their current material demands and available supplies in rapidpartsmart. It is called “EZ Search” and it operates overnight to automatically search rapidpartsmart’ supplies and identify matches against current material requisitions. The result is a next-morning report of all utility demands that can be filled from rapidpartsmart supplies. EZ Search has great value, but its significance

long term is as an immediate example of the capabilities in rapidpartsmart for large scale matching of industry demands and industry supplies. In the future such capabilities will offer tools for authorized users to compare current and past aggregated demands against industry supplies. Thus will be created for the first time in the nuclear industry a practical tool capable of supporting joint utility procurement and material planning by matching industry supplies and demands as a function of time. Such capability for aggregation of the nuclear industry's supplies and demands for engineered replacement parts can, for example, offer utility buyers and their vendors new opportunities for planning procurement and production so that setup and production costs are better controlled.

Other essential features of rapidpartsmart are its four types of *content*, and the numerous *tools* it offers members for retrieval of that content, and the many *collaborative facilities* available on-line via rapidpartsmart for building joint action "communities".

Content... The content of rapidpartsmart consists of four continually updated databases: the member utilities' pooled active inventory, the utilities surplus inventory catalogues, the member supplier's catalogues, and the obsolete item replacement database of utility and vendor problem parts needs and available supply solutions. The current content of rapidpartsmart exceeds 5 million items of all types. Worth special note, however, is the obsolete items replacement database. Since its inception over a year ago at the urging of the Nuclear Utility Obsolescence Group (NUOG), this database had grown to contain several thousand records of items that utilities either list as problem parts for which there is no known source, or listed parts which were previously scarce but which have now been researched for new sources, the records of which may include valuable technical equivalency data or full reports. This obsolete items replacement database is receiving strong support from both rapidpartsmart utilities and vendor firms. For utilities it is a tool to announce problems needing joint action or contributions of solution data from other utilities and from vendors. For vendors, it is an excellent tool to communicate solutions to utilities regarding problem parts. It is also a rich mine of information on problems in need of a solution for vendors to consider when developing new products or updating existing products.

Tools... The various tools available to rapidpartsmart members include:

- The aforementioned search engines,
- The built-in RFQ and RFR (Request for Reservation) routines,
- The shopping "carts" for interfacing with the electronic processes of e-marketplace technology providers,
- The various e-commerce interfaces and XML communication tools created for interfacing with the major e-market technology providers,
- The provision of "private labelled" cataloguing web sites (optional) for those members who wish to mirror that rapidpartsmart supply data at a uniquely branded e-commerce location on the Internet but who also wish to outsource the design and maintenance of that site to rapidpartsmart, and
- Benchmarking tools for utilities to survey the supply status of the power industry by search and downloading to Excel spreadsheets of that data for later manipulation and study.

Collaborative facilities... The collaborative facilities provided by rapidpartsmart include project centres, web conferences, membership email broadcasts, special interest group e-mails, physical conferences, periodic training seminars, and members' optional participation in industry issue groups for solution of targeted technical or management problems. These collaborative facilities are a key factor in rapidpartsmart's value to the nuclear industry. For example, the use of rapidpartsmart project centres on the Internet is a powerful means for industry issue groups to quickly share documents for consensus building and problem resolution.

Rapidpartsmart's ability to host web conferences on behalf of member groups or individual member firms is a way for those participants to meet on-line for PowerPoint presentations and video capability as a substitute for expensive travel. More important than the travel costs savings, however, is the freedom that rapidpartsmart web conferencing promotes for more frequent and more in-depth member discussion of important topics that otherwise would require weeks, months or even years to resolve.

When quick communication is preferred by members over pre-arrangement of a web conference, rapidpartsmart members also always have the powerful rapidpartsmart email facility available to them to communicate within their own circle of contacts and peers or to communicate within permanent interest group categories (e.g. broadcast of urgent needs to all nuclear plant participants).

Perhaps the most popular means of collaboration in rapidpartsmart has been its annual member conference held in May or June of each year. Each member organization in rapidpartsmart is invited to send two representatives to the meeting lasting 3-1/2 days for topical discussions requested by the member steering group under meeting facilitation and management of the rapidpartsmart staff. The 10<sup>th</sup> annual rapidpartsmart conference was held in Clearwater, Florida June 24-27, 2001 was the largest and most successful conference ever by its focus on e-marketplace technologies and the impacts they are now having on our industry.

The diagram here called the 'Service Delivery Model' (figure 6) offers a simple yet complete picture of rapidpartsmart's current services and interfaces with an end user utility's (or vendor's) asset management system (EAM or ERP) on the left side and with an e-marketplace service provider on the right side. By interposing rapidpartsmart functionality between the end user and the e-marketplace service provider, rapidpartsmart becomes an extremely beneficial element of the e-marketplace. By that positioning, rapidpartsmart reduces utilities' procurement costs, reduces inventory levels, and mitigates risks. It uncovers 'hidden supply channels' not accessible elsewhere. It creates value by promoting use of all available supply data routinely, rather than in emergency searches for material only. It serves to assure utility management that all market sources are reviewed prior to purchasing, including internal utility stocks that are frequently overlooked due to the complexity of many current inventory management systems. In doing all that, rapidpartsmart becomes a valuable tool for optimising utility inventory investment while reducing operational risks.

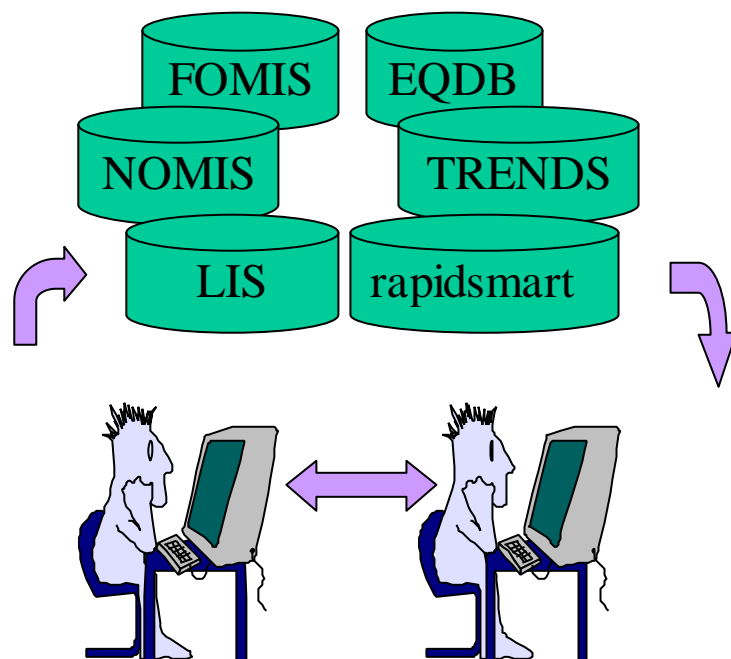
There is much more to discuss regarding rapidpartsmart applications, but time is limited here. All that must be left for a time when we have the opportunity to meet personally for a rapidpartsmart demonstration. Presently the rapidpartsmart staff is visiting with utilities throughout Europe and soon too in Asia. We would be delighted to include you in our travel.

## Summary

Collaboration has been a valuable tool in the utility industry for many years. The emerging e-marketplace will increase collaboration and make it more heterogeneous. We are now evolving from just people collaborating to having both systems and people collaborating. Competition between nuclear utilities will not dampen this movement. The concerns for public safety, high capital investment requirements, and the potential savings will ensure that it happens. The very survival of the nuclear industry will depend upon it happening, but it will not happen overnight. Technological innovations have always taken years to get traction. The infrastructure needed is immense but it is being built now. We recommend utilities participate in that constructive process as rapidpartsmart members to become a part of the supply chain solution so urgently needed by the worldwide nuclear industry.

I began this talk by stating the need for increased collaboration in the international nuclear utility community to optimise the collective supply of engineered replacement parts. I said that optimisation would reduce plant outage risks. I said it would reduce net investment in parts inventories. I said it would help solve urgent supply problems of obsolete parts and frequent shortages of critical items. And I said it would improve market economics for the nuclear industry's suppliers by aggregating demands. It is clear that collaborative supply chain solutions are proven to work to the benefit of the nuclear industry in North America. By that experience I hope it is clear that current systems and practices for collaborative supply chain management are now ready to be applied for the betterment of the nuclear industry worldwide.

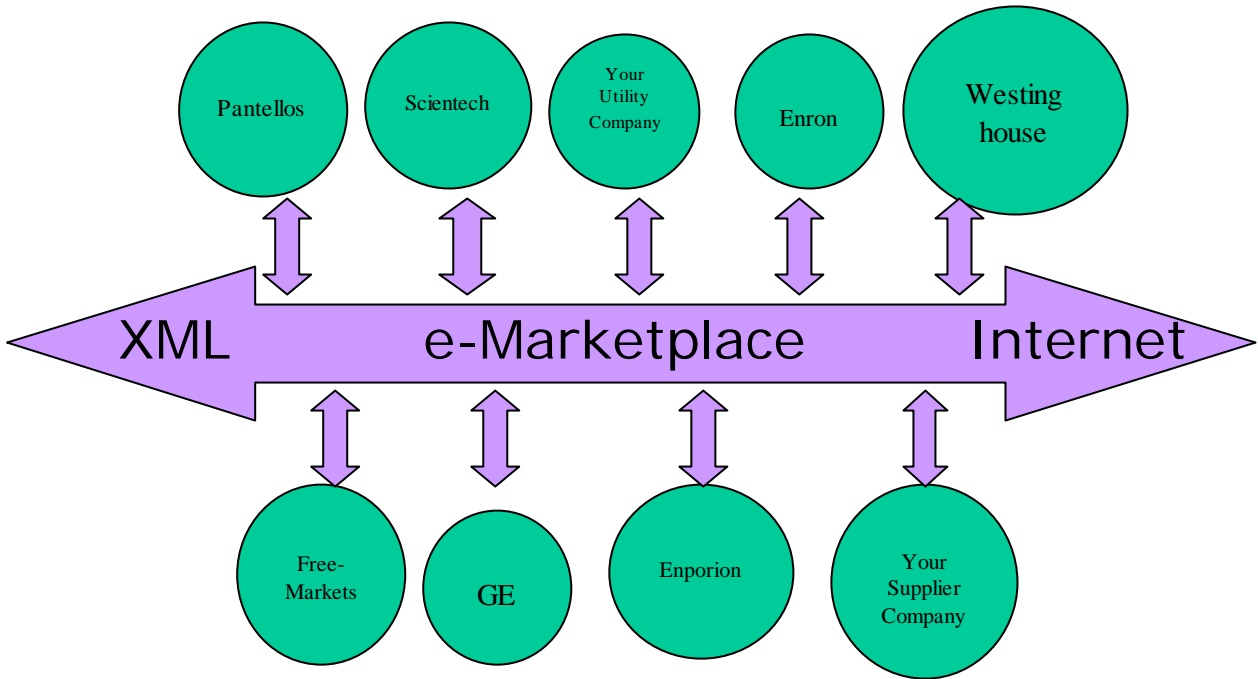
**Figure 1:**



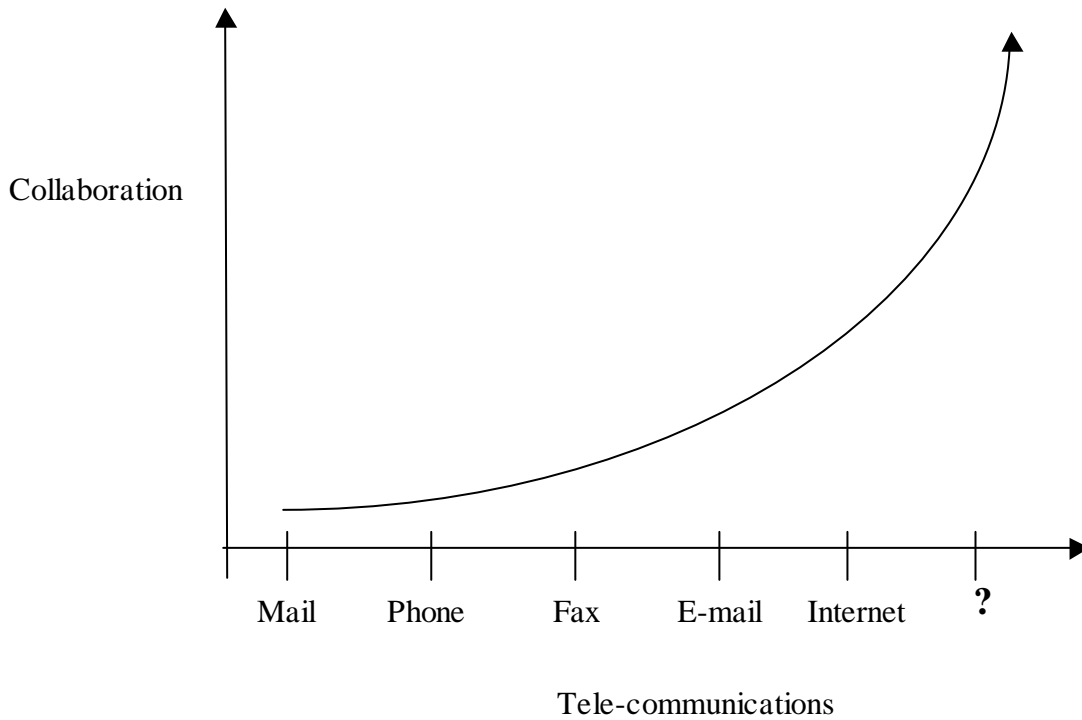
SCIENTECH, Inc. Collaboration Services  
Based on Exchange Model for over 20 Years

**Figure 2:**

The **e-Marketplace** is the collection of suppliers and buyers that are disseminating information via the Internet and connecting their systems to one another using the Internet.



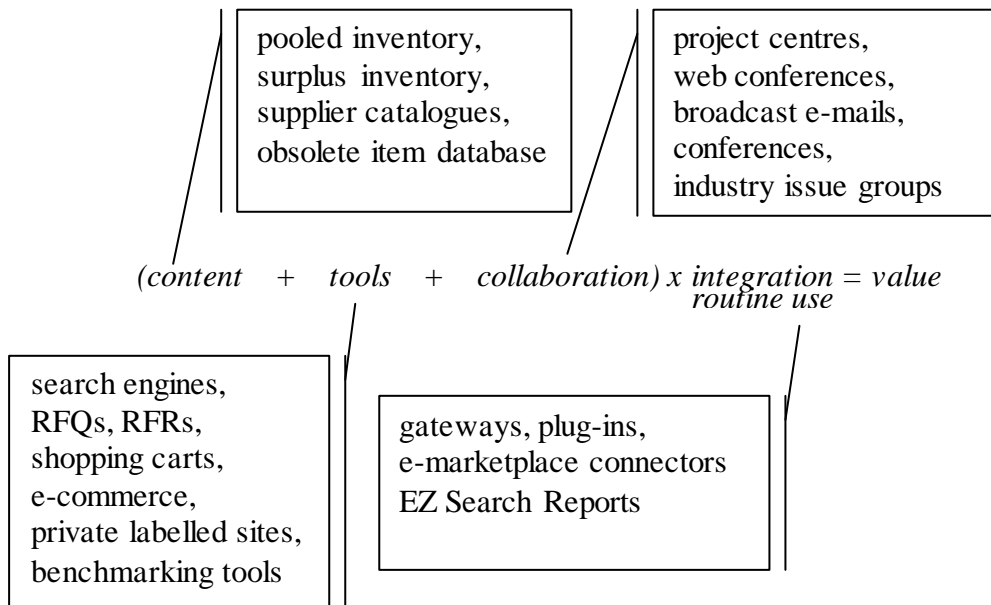
**Figure 3:** Collaboration in the Competitive e-Marketplace



**Figure 4:** Typical Applications for rapidpartsmart™

- Fill urgent parts needs confidently
- Better purchase decisions by ‘hidden’ supply channel data
- Avoid purchases by “Reserving” stocks for contingent needs
- Survey industry supplies to re-set parts stock levels
- Find obsolete item solutions, reduce replacement efforts
- Create a backup inventory management system
- Communicate and manage internal multi-site inventories
- Liquidate surplus parts assets by sales worldwide
- Collaboration with peers on-line and by conferences
- Automatically match utility demands to industry supplies
- Connect ERP/EAM systems to utilities’ preferred e-markets.

**Figure 5:** rapidpartsmart™  
Value Formula



**Figure 6:** Service Delivery Model  
rapidpartsmart<sup>tm</sup>

