

CYBER-QUALITY™: CUSTOMER-SUPPLIER RELATIONSHIPS

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SUMMARY:

The cyber-sprawling™ of Internet business-to-business (B2B) web sites is creating both new opportunities and challenges for customers {Original Equipment Manufacturers (OEMs)} and suppliers. Traditional customer and supplier relationships are taking on new meanings and dimensions. Those customers seeking price advantages, offered by trade exchanges at B2B web sites, are abandoning prior relationships with suppliers. Though web technologies set the trading exchange forum, a sound process is still required for sourcing and qualifying suppliers. Trade-offs facing customers and suppliers are presented. Quality tools involving certification, assessments, audits, statistical methods and fast track system tools™ are cyber-shaped™ for B2B dealings. Methods are presented that enable both customer and supplier to make intelligent choices regarding what web site offerings and relationship arrangements will best satisfy their needs. Conclusions and recommendations are based on two years of involvement with cyber-quality™ and cyber-relationships™.

KEY WORDS:

Business-To-Business, customer-supplier relationships, cyber-quality™, cyber-relationships™, quality tools.

INTRODUCTION:

The Internet buzz that “e-business represents the future posture for business dealings” resounds daily in the media (e.g., newspapers, magazines, television, trade-journals). Web sites are being created and operated in preparation to transact billions of dollars in procurement. The giant automotive exchange being built by General Motors Corporation, Ford Motor Company, and Daimler Chrysler represents prime evidence. Already, GM and Ford have purchased millions of dollars worth of direct materials via on-line markets. When combined and fully operational, the Big Three will use their mega-exchange to purchase hundreds of billions of dollars worth of goods per year. This will occur at the COVISINT web site (www.covisint.com). COVISINT translates to mean collaboration, vision and integrity.

According to Jac Nassar, Ford's CEO, "the business-to-business electronic network will link not only the \$80 billion Ford supply chain but the automotive supply chain around the world. There will be faster decision, less inventory, lower costs, and better production for Ford and its suppliers." (Akasie, 2000).

Jack Welch, General Electric's CEO believes that "General Electric has a tremendous advantage in the new economy of e-business since all the buying, making and selling processes have been digitized. Further, GE possesses the hard part, namely the hundreds of factories and warehouses, world-leading products and technology, and a century-old brand identity and a reputation known and admired around the globe, all attributes that new e-business entrants are desperate to get. Also, GE has one enormous advantage - Six Sigma Quality - the greatest fulfillment engine ever devised. Six Sigma fits like a glove with e-Business since it allows GE to produce and deliver just what customers need when they want it. "Six Sigma Quality defines the ultimate in customer fulfillment and satisfaction, just what e-business requires." (Welch, 2000).

With all this excitement about the Internet and e-business, the issues of cyber-quality™ and the impact on customer-supplier relationships cannot be ignored. Unless these issues are resolved, e-business embarks on a course of failure.

Competing online is a challenging business. Companies conducting Internet business find that even though they must pursue the same objectives they have always pursued, namely, getting innovation and value to market quickly and driving sales. Now they must also tackle a whole new set of business challenges that are contributing to an absence of profits.

With this in mind, operating an online portal requires answers to a number of questions such as those presented in Table 1.

- How will 5,000 suppliers be connected?
- How will 25 warehouses be connected?
- How will 15 transportation companies be connected?
- How will 10 customer support programs be connected?
- How will the cost of each transaction be determined?
- How will the physical fulfillment be managed?
- How is getting locked up in certain front-end and back-office technologies avoided?
- What metrics are needed?
- How are products and services expanded without continually rebuilding the back-office?
- How is a proper relationship maintained between customer and supplier?

Table 1. B2B Operational Questions

Areas to formulate additional questions are listed in Table 2.

- Setting up the Web Site
- Sourcing and Qualifying Suppliers
- Applying Quality Tools (certifications, assessments, audits, statistical methods, fast track system tools)
- Security-Cryptography
- Server Power
- Forecasting (Demand)
- Integrated Logistics
- Data, Information and Knowledge
- Measures, Metrics and Measurements
- Strategic and Operational Plans

Table 2. Areas to Formulate Questions

CYBER-QUALITY™

E-Business is not about incremental improvements to the business. It is about the fundamental redesign of the business. From a quality standpoint, a diagram that positions traditional and cyber-quality™ is shown in Figure 1.

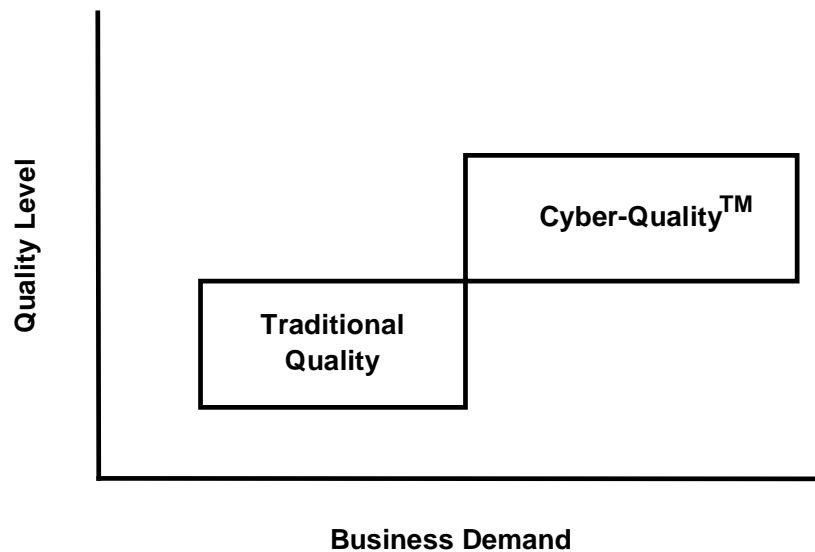


Figure 1. Quality: Traditional and Cyber

A comparison of traditional quality and cyber-quality™ factors are listed in Table 3.

Traditional Quality	Cyber-Quality™
<ul style="list-style-type: none"> ➤ Target to achieve 6 Sigma ➤ Strive to meet customer requirements ➤ ISO/QS certification ➤ Process integrity ➤ Pseudo prevention ➤ Weak transactional ➤ Slower rate for decisions ➤ Incremental improvements ➤ Somewhat reliable ➤ Weaker supplier relations ➤ Fragmented logistics ➤ Cost of Quality 	<ul style="list-style-type: none"> ➤ 6 Sigma as normal manner for business ➤ Absolute to meet customer requirements ➤ Continuous assessment and audit ➤ System integrity ➤ Reality prevention ➤ Heavily transactional ➤ Fast track decisions ➤ Full enterprise improvements ➤ Absolutely reliable and consistent ➤ Very strong supplier relations ➤ Focused integrated logistics ➤ Cost of Poor Quality focus

Table 3. Quality Comparison

Cyber-quality™ dictates the cyber-parameters™ for customer-supplier relationships. These cyber-parameters™ are listed in Table 4.

<ul style="list-style-type: none"> ➤ Collaboration ➤ Rapid placement of contracts (electronic signature) ➤ Protection of data and information with encryption ➤ Adequate computer capacity and compatibility (standards) ➤ Business experience of the two parties ➤ Full use of cost effective integrated logistics ➤ Employee computer competency ➤ Demand forecasting system ➤ Fast track system tools ➤ Meaningful metrics ➤ Sourcing and qualifying suppliers ➤ Elimination of cyber-walls
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Table 4. Cyber-Parameters™ for Customer-Supplier Relationships

E-SOURCING

Sourcing in the world of B2B involves the use of a web site portal that is setup to automatically perform required transactions. Let's look at a steel raw material acquisition example, Figure 2. (www.fsn.com).

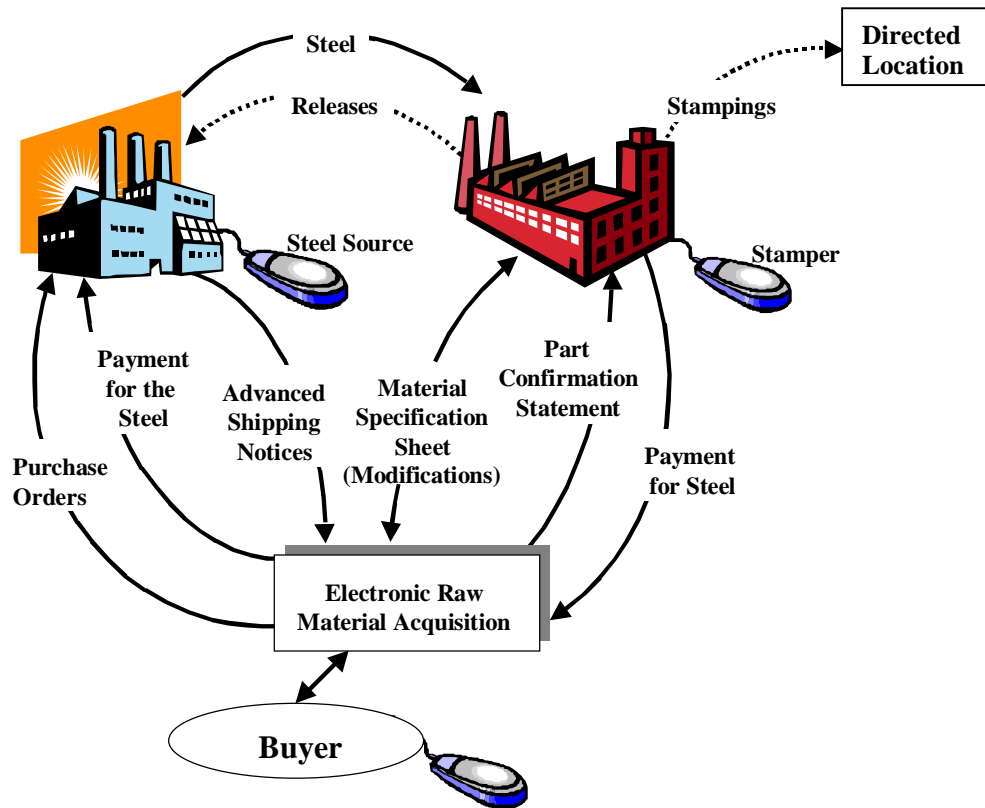


Figure 2. Electronic-Raw Material Acquisition (e-RMA)

Electronic Raw Material Acquisition (e-RMA) is structured to establish a single, integrated, hosted system to enable a customer to engage in a global raw material program that includes: 1. Standards, 2. Protocols and 3. Processes. E-RMA eliminates the inefficiencies of paper processes involving, for example: 1. Purchase Orders, 2. Claims, 3. Material Specifications, 4. Advanced Shipping Notices, 5. Accounting Information, and 6. Reports (e.g., trends, audits). Shared benefits of e-RMA would involve:

- No cost for participating suppliers
- Faster material and accounting flows
- Significantly reduced transactional cost across the supply chain
- No Information Technology investment – an Internet connection and browser are all that are needed
- Secure, easy to use, round-the-clock access, real-time information

Obviously, for the e-RMA to work successfully with both the front and back office operations, the relationship between the customer and supplier must be one of mutual support and the commitment to establish the necessary systems and processes to enable a seamless operation. From the Figure 2 illustration, it is obvious that all process components must work in absolute harmony each and every time, without exceptions. The main reason is centered on the customer's end user and the promises/commitments that the customer makes to the end user. As the Internet becomes the absolute primary channel for doing business, then end user brand loyalty will become a function of the basic quality tenets of delivering the right product or service at the right time, each and every time. Certainly, reliance of the integrated logistics system will become paramount. Cyber-quality™ of the customer-supplier relationship must be grounded solidly on what is expected and accountability to always meet commitments with no exceptions. A portal serving the supplier community to enhance relationships of customers and suppliers is found at www.supplierpower.com.

SECURED TRANSACTIONS

Internet sites are a major target for hackers. With the rapid growth of e-commerce and B2B Internet sites, the opportunities for hacker intrusions are substantially increased. The need for adequate firewall protection at both the customer and suppliers sites becomes a critical part of safe guarding the intellectual assets of the parties. The matter of data and information protection becomes very important to avoid issues with industrial espionage. The use of encryption becomes necessary at the same level as used by financial institutions. When transmission of sensitive data and information is exchanged over the Internet, encryption represents an indispensable tool.

Secured sites use "secured socket layers (SSL)" encryption technology. A symbol of a closed-lock or broken key icon indicates the status of SSL. Also, in the web address, a change from "http" to "https" will be evident. As an example, the Ford Motor Company web site at <http://www.fsn.com> illustrates the icon and https transformation depending on whether or not the visitor to the site is registered as a Ford supplier.

"Businesses also desire strong encryption for another reason. Corporations store a vast amount of information on computer databases, including product descriptions, customer details and business accounts. Naturally, corporations want to protect this information from hackers who might infiltrate the computer and steal the information. This protection can be achieved by encrypting stored information, so that it is only accessible to authorized persons at the customer and suppliers who have the decryption key." (Singh, 1999).

E-CONTRACTS

E-Contracts represent a unique challenge for the legal system. Buyers and sellers of goods and services can make contracts in a variety of ways. The essential ingredient is the discovery of an agreement that the parties intend to be legally binding. One party makes an offer and the other party accepts the offer in an exchange of value, typically the exchange of goods and services for money. Over the last decade, many parties began using computers to manifest that intention. What are the challenges of making contracts online? (Murray, 2000)

Electronic Data Exchange (EDI) has been used by businesses for a number of years to make contracts for the purchase and sale of goods through their computers without human intervention through standard protocols, often under what is called a master trading partner agreement. This highly effective method of contracting eliminates the need to process purchase orders, acknowledgement forms and billing information. While EDI continues to be used successfully, the Internet has opened electronic contracting for anyone who may choose to make contracts instantaneously anywhere in the world at an incredibly low cost.

Computers can be programmed by each of the parties to make contracts without human intervention when inventory of a certain product is low and a computer is programmed to order additional inventory through what amounts to an electronic purchase order. The seller's computer responds by confirming the order and directing shipment to be made, thereby serving the purpose of assuring "just-in-time" inventory required by the purchaser.

On June 30, 2000, President Clinton signed into law the "Electronic Signatures in Global and National Commerce Act, the result of ever increasing electronic commerce (business-to-business and business-to-consumer) usage by both small and large companies. Also, known as the "E-Sign Act," it allows digital executions, e-signatures, contracts and records in most commercial and consumer transactions to be accepted as legally binding. The "E-Sign Act," which took effect on October 1, 2000, promotes harmony throughout the United States. Previously, states passed their own laws, creating diverse legislation and confusion. In July 1999, the National Conference of Commissioners on Uniform State Laws streamlined e-commerce by governing the use of electronic signatures through the Uniform Electronic Transactions Act (UETA). UETA was enacted by 25 states. However, several states attached so many changes that the intent for nationwide uniformity seemed doomed. The federal "E-Sign Act" resolves this problem by preempting state laws and establishing a national standard.

A number of security issues must be confronted. When can the electronic message be attributed to a particular party? There are cases of impostors, fraud and misrepresentation. What about rights of privacy? The encrypted signature may be essential in many transactions. The global marketplace requires reliable electronic contracting methodologies that can be used by parties throughout the world. Still other

questions arise as to the use of trademarks and conflicts in the use of domain names that we know as e-mail addresses.

BUSINESS-TO-BUSINESS ARRANGEMENTS

There are three B2B arrangements, Figure 3. (Oppel, 2000). This paper applies to the three B2B arrangements. These arrangements are described as follows:

- **Concentrated buyers.** One or a few main companies that buy from a host of suppliers. Examples – Big three automakers (www.covisint.com), Sears and Carrefour.
- **Concentrated sellers.** One or a few major suppliers that sell to a host of customers. Sellers are likely to dominate with B2B companies in lesser roles as technology suppliers. Examples – Metalsite (steel), e-Steel, ChemConnect and CheMatch (chemicals)
- **Fragmented.** Many buyers and sellers trading, collaborating and competing. Opportunities for B2B companies to dominate as intermediaries. Examples – National Transportation Exchange, Bidcom.com (construction).

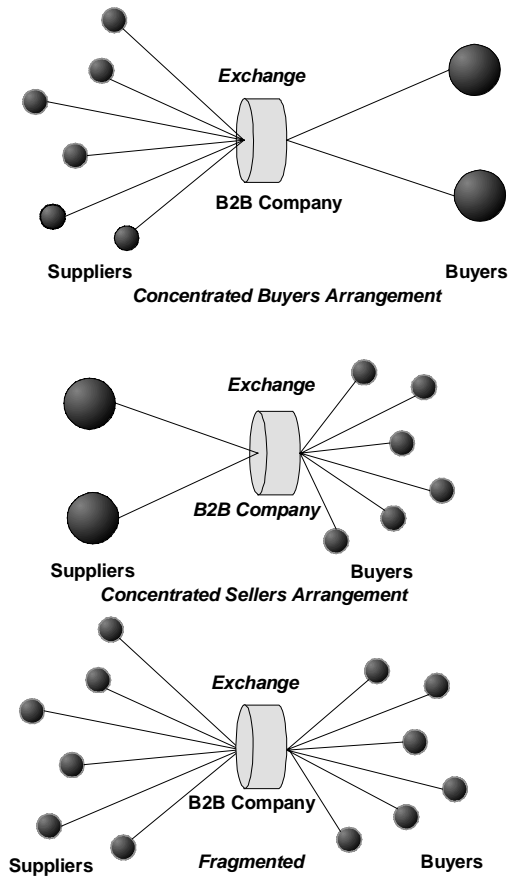


Figure 3. Business-To-Business Arrangements

CUSTOMER-SUPPLIER RELATIONSHIP

Collaborate or Die! This slogan is being advocated within the B2B community as an absolute posturing arrangement for customers (OEMs) and suppliers that is necessary for Internet competitiveness. Though there is great temptation to "just deal" with suppliers that appear on an Internet listing, it remains prudent to follow a sound practice to verify suppliers' operations, financial solvency and quality of the products and services.

In many cases, e-commerce business start-ups involve founders, staff and operational people versed in computer technology but not necessarily experienced business backgrounds. The Internet creates an immediate veil of competency as measured by the uniqueness of the web site and the services and products offered rather than the reality of meeting customer requirements.

What is meant by cyber-quality™? The use of the Internet and these B2B connections, sets in motion the requirement to apply sound business practices based on traditional quality processes and practices thereof. Cyber-quality™ must create a trust bond between customer and supplier in that the right material is delivered to the right place at the right time and meets all product/service requirements. From a cyber-quality™ standpoint, suppliers must be aggressively pro-active to ensure their processes are "defect free" and function as intended. The Table 3, Comparison of Traditional Quality and Cyber-Quality™, illustrate the increased emphasis of cyber-quality™. Operation in a cyber-environment™ requires that the supplier always meets or exceeds customer requirements. In a cyber-environment™, "perfect" execution of all processes is expected each and every time. Failure to meet this situation simply means the customer will use another supplier. And in a global situation, there are many qualified suppliers waiting to take the place of the rejected supplier.

What are the cyber-walls™ in the customer-supplier relationship? There are four primary walls: 1. Unwillingness to collaborate, 2. Unaligned objectives, 3. Absence of validation facts, and 4. Absence of regular meetings with face-to-face discussions.

How are the pit-falls of cyber-walls™ avoided in the Internet? Both the customers and suppliers must be aware of the walls and take action to eliminate and prevent these walls. This is accomplished as follows:

1. Open collaboration. Sharing of strategic and operational plans. Communication at all levels in both organizations.
2. Discussions to ensure that goals and objectives are aligned.
3. Suppliers voluntarily obtain facts to establish compliance with customer requirements. This is done on a pro-active basis on the part of the supplier. The customer doesn't have to prod the supplier for validation. However, the customer must obtain an independent assessment of the facts in order to avoid any surprises. The customer cannot become complacent about the relationship.
4. Not relying on the Internet as the only source of communication. Participating in regularly held face-to-face meetings. This will contribute

to keeping the reality of the people in proper perspective rather than the obscurity created by only an Internet relationship. In other words this can be looked at as a "time out"... let's meet. This will help to eliminate the sterile aspect of using the Internet with the human component.

QUALITY TOOLS

It is interesting to observe that the movement to using the Internet for business-to-business dealings some how in the mind of the parties creates an entirely new set of rules. And, of course, these rules appear to ignore the tried and true traditional business methods. In many cases, this is attributable to the naivete of those parties engaged in the Internet business venture. This naivete exists because of the lack of business experience on the part of the participants. Granted in many cases, these individuals may have academic credentials but no operational experience in a business environment.

Table 5 shows the various quality tools that should be used for B2B. As can be seen, these tools are used in traditional business dealings and are adopted to the requirements of B2B.

- Certifications. Very process centered with heavy weight on results that meet requirements.
- Assessments. Provides a continuous stream of data and information. Offers an early warning of potential problems so preventive actions can be taken.
- Audits. A rigorous effort to determine compliance levels relative to pre-established criteria.
- Statistical Methods. Data from critical processes are collected, analyzed and corrective action taken. These data are available in near real time. Both parties have access to the data by means of a collaborative server.
- Fast Track System Tools™. Enables decision makers to use a template that identifies the state of readiness for making fast track decisions relative to supplier relationships. (Norausky, 1999).

Table 5. Quality Tools for B2B

In the cyber-world™ of business, cyber-quality must exist in order to meet customer requirements.

Is cyber-quality™ better? To a large extent, cyber-quality™ can operate in real time. Cyber-quality™ is only as good as the processes and the dedication of people to apply the tools and take necessary corrective action. The demand on cyber-quality™ will be greater because the expectations of the customer will be greater. The tolerance for errors will be minimal simply because of the reliance on cyber-systems™ to deliver required products in a compressed time frame compared to tradition. For example, order an

automobile over the Internet with the expectation of a delivery in ten days. Obviously, all processes must function perfectly to deliver the automobile in ten days without any difficulties. Truly seamless processes. Error tolerance on the part of the consumer will be zero. This in turn means the customer (OEM) will have zero tolerance regarding supplier problems.

STANDARDS

Beneath all the fan-fare publicity swirling around B2B e-commerce is a critical and difficult struggle to develop and gain wide acceptance for various sets of coding, technical, and process specifications that will make reality of that big vision for e-procurement by providing interoperability among e-marketplaces. With the momentum behind e-procurement, the fast proliferation of so-called e-solutions, and the speed at which some supply management organizations are implementing them -- the current lack of standards presents a significant problem for communication between customer and supplier and their relationship. There are various groups working feverishly to develop "technical standards" that allow any sending company's unique system to populate a document with the correct information and any receiving company's unique system to strip information out and direct it to the appropriate applications. (Porter, 2000).

There is concern that the current lack of specifications leaves open the very real possibility that Web based e-procurement will suffer the same fate as Electronic Data Interchange (EDI). EDI is expensive and not truly automated or networked.

Some standards advocates believe that Extensible Mark-Up Language (XML) is the innovation that's suppose to revolutionize procurement by giving even the smallest suppliers an inexpensive way to move from "rip-and-read" transactions to real electronic integration with their customers. To accomplish this goal, however, it's necessary for XML messages to arrive with rules describing how they were assembled. This would allow standard XML parsers (www.ebxml.org, www.xcbl.org), rather than expensive proprietary programs, to dismantle messages and direct data to the correct back office systems.

Beyond the work to create XML specifications, there are other implementation-focused bodies, such as RosettaNet (www.rosettanet.org), focusing on creating standard process definitions, rules of protocol, that will allow machines to talk to machines.

From a procurement perspective, there are two good reasons to encourage suppliers to code their on-line catalogs according to widely accepted schemes for classifying goods and services (e.g., UNSPSC code, www.unspsc.org). First, the code will allow for the types of spend analysis that help sourcing organizations to rationalize their supply bases, negotiate better prices and terms with suppliers, standardize their buys across far flung operations, and compare and contrast the performance of suppliers providing similar products and services. Second, common coding systems will make it easy for buyers to look beyond their local electronic trade exchanges, easily identifying suppliers of similar goods and services from all over the world.

And, of course, W3C (www.w3c.org.) created in 1994 to lead the World Wide Web to its full potential by developing common protocols that promote its evolution and ensure interoperability. W3C's long term goals for the Web are: universal access, semantic web, and web of trust. It contributes to efforts to standardize web technologies by producing specifications that describe the building blocks of the web.

CONCLUSIONS

Customer-supplier relationships are more critical for a cyber-business because of the speed of transactions and the expectations of the end user/consumer that requirements are met without exception. Systems and processes must not only be understood but also transacted in a seamless fashion. This places operational pressure on both the customer and supplier.

Cyber-quality™ factors, as listed in Table 3, identify a significant and positive shift for the role of quality in the cyber-business world and the subsequent dependence on achieving the customer-supplier cyber-parameters™ listed in Table 4.

E-Sourcing will bring significant value to the material acquisition process provided the customer-supplier relationship is dependable.

Transactions over the internet involving all forms of data and information will require responsible use of cryptography. E-Contracts will require electronic signatures and electronic methodologies to avoid cases of fraud and misrepresentation.

The establishment of world wide standards that will enable any company to send its document to any other company and the receiving company will be able to strip needed data and direct it to appropriate applications.

Quality tools are focused to ensure a prevention mode and continuous improvement.

Without a doubt the customer-supplier relationship places greater demands on cyber-quality since consumers have many choices for products and services. One error can result in a permanent consumer loss.

RECOMMENDATIONS

Aggressive education and training of customer and supplier in the new demands created by e-business on their cyber-quality™ relationship.

Use a cyber-quality™ system to ensure proper customer-supplier relationships exist.

Full use of cryptography to protect confidential and proprietary data and information.

A standard for source coding that enables both parties to translate data and information regardless of the uniqueness of each others' systems.

Quality tools that enable customer and supplier to validate their relationship in real time.

ACKNOWLEDGEMENT

The following GLOMAXX, LLC trademarks are used in this paper:

- Cyber-Environment™ (April 20, 2000 release)
- Cyber-Exchange™ (April 20, 2000 release)
- Cyber-Parameters™ (April 20, 2000 release)
- Cyber-Quality™ (April 20, 2000 release)
- Cyber-Relationships™ (April 20, 2000 release)
- Cyber-Shaped™ (April 20, 2000 release)
- Cyber-Sprawling™ (April 20, 2000 release)
- Cyber-Systems™ (April 20, 2000 release)
- Cyber-Walls™ (April 20, 2000 release)
- Fast Track Customer-Supplier Relationship™ (April 20, 2000 release)
- Fast Track System Tool™ (April 20, 2000 release)
- www.supplierpower™.com (December 8, 1999 release)

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