



Key Strategies

FOR IT SUCCESS IN TODAY'S
DISTRIBUTION ENVIRONMENT

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Abstract:

The technology world around us is changing rapidly. Keeping up has become tougher for managers and supervisors. Today's economy has focused limited information technology resources on immediate results, not research or long term strategy. In this environment, an understanding of how to apply new technology for up-and-coming management is very worthwhile. This document provides high level definitions, opportunity identification, and future potentials for: Service Oriented Architecture (SOA), Software as a Service (SaaS), Enterprise Resource Planning (ERP) Anytime, Anywhere Availability, Mobile Devices, Web 2.0, and Report Cards or Balanced Scorecards as a Business Intelligence (BI) capability. It is a foundation for becoming more valuable to an organization by being able to generate a Return On Investment when applying the latest capabilities to the real world.

Key Strategies for Information Technology Success in Today's Environment

Background:

The economic expansion of the 90s and early 2000s has slowed. With reduced activity, cutbacks, and lower sales, companies have restricted time and resources available for long term strategy and research. Projects have been focused on what can be done now to improve the bottom line. The fact is that there are technologies that are not well understood that can have a significant impact on the industrial distributor if they can be utilized.

In the past, many IT departments, even in smaller companies, had the luxury of providing time and resources for managers and supervisors to stay on top of technology trends. In return, new methods were considered, tested and made available to the enterprise. Often, the returns were excellent and the proactive approach provided a path to upper management for the individuals who took a leadership role. With restricted budgets, it is more difficult to have new opportunities approved. That should not discourage IT professionals from staying on top of the technology and looking for ways to apply new concepts within their organizations.

In many cases, new technological advancements become associated with "Buzz Words" which by definition have no definition. It is important to start by clearing the inconsistencies and establishing a firm baseline to build from. Then it is possible to move forward and look to the future for opportunities.

The following six technologies are receiving a great deal of attention. For each, there is a high level definition, a description of how it might be used in an industrial application, and some thoughts for the strategic application of the concept.

Service Oriented Architecture – SOA

An early advancement in developing efficient computer code was called structured programming. The concept was that code elements could be reused by "calling" a subroutine, passing parameters, and receiving a response. SOA is very similar, just on a much larger scale. In an SOA environment, programs are developed in a way that they can easily talk to each other. For example, in a SOA implementation of an ERP system, the code for customer look up would be shared between the CRM, Order Entry, Billing, and Accounts Receivable applications. Not only is there a single database, but a consistent look and feel to the retrieval, without regard to which application an employee is using.

SOA is important for many reasons. First, it makes coding more efficient and effective. When any part of the environment is improved, every other application using the updated function shares in the new enhancements. This is very meaningful when developing code in house, but it is also important for application code purchased from third parties. A true SOA environment allows the firm to take advantage of "Best of Breed" applications whether created in house or out. This can be critical if the organization has a few requirements that provide competitive advantage, but need special programming to work.

There is a concept called Big SOA which is what happened when very large companies and very large programming firms got together to create very large projects. These are getting some bad reviews. They turn out to be expensive and rarely live up to their promise. On the other hand are the "service-orientation" people who use SOA to make applications easy for diverse users to "call" and to segregate application capabilities from the actual business process.

This technology should be considered when looking at application solutions. If one is able to “buy into” a true SOA environment, there should be many more opportunities to find specific “add ons” that may not be available anywhere else. SOA encourages development of specialty routines as the programmer can concentrate on the specifics of what needs to be done and not have to worry about creating all of the other building blocks.

For example, if the primary ERP system is based on a well structured SOA environment, then it would be possible (and easier) to integrate a specialized customer dispatch application for equipment repair. The programmers know to request and retrieve data from the customer and sales databases without having to build everything from scratch.

Even better, when any area of the system is enhanced, the dispatch code will not have to be rewritten or reintegrated. This allows the organization to take advantage of the latest developments in distribution processing while insuring that investments in custom or third party programs can be used, even as the ERP applications are updated. The nightmare associated with reprogramming custom applications or having to skip a new release goes away.

This becomes an important consideration when selecting new applications. The most critical decision comes when selecting a primary ERP application and operating environment. If it is not designed from the ground up as an SOA environment, some future capabilities or options may be restricted or eliminated completely. Software that will be widely used in any enterprise requires a detailed review. It is up to the IT Professionals to insure that all new capabilities are designed and built to work in the SOA environment of the primary ERP application.

Once the environment is selected, then IT must define the SOA requirements of all new code that is to interface with the ERP applications. This should include standards for selecting additional applications that are created by third parties. SOA works best if every system follows the same standards and therefore allows all of the advantages that are desired by implementing SOA.

Software as a Service – SaaS

Like SOA, Software as a Service (SaaS) has its foundations in functionality that became generally accepted in an earlier time, with a different name. The precedent was called “time sharing” and it involved providing access to applications on shared equipment that resided in a geographically remote location.

There were many advantages. The software was maintained by experts, the hardware was of sufficient power to be able to “crunch” large amounts of data, and someone else worried about backup, recovery, and support. Access may have been a bit more difficult pre internet, but the concept worked. Most such services were eliminated by the ever dropping cost of hardware. It just became too cheap to have your own, under your control.

Today, the availability of cloud computing, secure Virtual Private Networks (VPN), and higher levels of security, there are many new options and opportunities. As with many new ways of using technology, there are some misunderstandings as to what encompasses SaaS.

Some people mistakenly include various options for reducing the management of computing facilities. For example, it is possible to outsource a complete data center. A third party will provide all of the hardware, space, operations support, and connectivity that a company may need. In this case, the end user company actually has their own datacenter; it is just managed and operated by someone else.

One early implementation of this type of service was called a “Server Farm” where sophisticated companies could (and still can) co-locate their hardware in a secure environment. There is a 24 hour staff that is shared by a number of operations, allowing each to have access and support for a lower cost than doing it in-house. Each company has their own hardware and software. Their equipment and applications are separate and secure from everyone else.

A second form of service is referred to as a hosted application. In this situation, the applications share hardware, but are each separate implementation of the programs. Even if a dozen

companies share the same application code, each one is loaded with its own database and available only to the individuals approved by the licensee. Any special modifications for an individual company are their property and cannot be accessed by any other user of the hosting service. This is very close to the original time sharing applications.

In a true SaaS implementation, there is only one copy of the application that everyone uses. It is usually referenced as a “multi-tenant” environment. The individual data is segregated and protected from misuse or improper access, but the one copy of the code is shared by all users. This makes sure the operation is exactly the same for every user and reduces the cost of support as there is only one version to maintain.

The benefits are easy to ascertain. To begin with, there is no hardware to purchase or support (other than a local network with access to the internet). A top of the line SaaS provider will establish an environment that uses the latest, most powerful and most reliable equipment available.

Since the SaaS vendor takes responsibility for the operation, they will spend more time, money, and resources to make sure the environment is secure, operational, and backed up. Larger operations maintain multiple datacenters so that a disaster in one part of the country will not affect operations with any of their users. They also invest in technology (such as Raid Array storage) so that the failure of a single component is not capable of interrupting operations.

Potential users are often concerned with issues of security and privacy. The American Institute of Certified Public Accountants (AICPA) has established a form of certification called a SAS 70. SAS (or Statement on Auditing Standards) number 70 is a complete, very detailed review of the internal controls and procedures of a service provider to assure that they are capable of protecting a customer’s data and maintaining the integrity of their information. A SAS 70 also meets the requirements of Section 404 of the Sarbanes Oxley act for processing financial data and eliminates the need of any customer having to audit the SaaS provider themselves. All SaaS users should request a current copy of the SAS 70 “Type II” report covering the services they are purchasing.

The SaaS vendor also makes sure all software is up-to-date and operational. They are on the latest version of the application

consistent with good testing and validation procedures. In many cases, the environment is one of the software vendor’s lines of business and therefore is well supported.

Cost is always a concern in data processing applications. There are break points by size and time to be considered. The fact is that SaaS allows small or startup companies to afford large company applications at a very low cost. This can make sophisticated tools available to assist the new company in gaining a competitive advantage well before they might otherwise be able to afford such advanced tools.

A new distributor would only purchase user licenses for their key employees. As the company grows, there is an incremental cost to add new users. Under most existing models, the cost becomes prohibitive as the number of users increases. This results in a breakeven point where it is advantageous to bring an operation in-house.

Over time, many analysts believe this price disparity will be changed by competition and experience of the providing vendors. There will be ways for growing companies to continue to use SaaS without an excessive penalty.

A final advantage for the smaller or newer user is there is often little or no effort required in setting up hardware or test environments. Because many such companies used very small packages just to open the doors, conversions from the more simplistic applications take significantly less effort. It is probable that an end user will become operational on the new applications in 30% to 60% of the time normally associated with a conversion and startup. The distributor is then able to focus on the requirements of the business, not the technology.

Anytime, Anywhere Availability – A³

Business today occurs at the speed of thought. The ability to access information at anytime from anywhere in the world has competitive implications for end users and operations of every type. The promise of building a framework that provides anytime, anywhere availability means that any user can gain access to a consistent set of accurate, up-to-date information in their native language from applications and servers spread around the world.

The keys are very important. Consistent data, look and feel relates back to the SOA environment. By keeping everything in sync, it is easier for end users to use. It is that simple. The benefits are much broader than just being able to write efficient code.

Accurate means that the information that is captured is properly edited and examined for errors. Again, in a true SOA environment, the editing tasks can be reused throughout the system. This way all data is held to the same standards. New processing capabilities should not introduce less rigorously examined and approved raw data into the applications.

“Up-to-date” means that all data is current or real time. There are very few situations where “batch” processing should be used today. As soon as it is validated and accepted, data should be processed and then made available to other users in every function.

“In their native language” is critical as the globe continues to shrink. Not everyone wants to work (or is capable of working) in English. Translation capabilities must be used so that information is easy to use and process. Multinational organizations should not be operating multiple databases or sets of application code in every different country. They also do not need to restrict their employment pool to those who know English. Instead, everyone should be able to deal with the data in the way that is easiest for them. Even when people travel, their passwords should be recognized and information presented in the form and language they want.

“From applications and servers spread around the world” allows every user to share data from servers and applications that are connected and integrated. Data captured in one geography is available to users anywhere. SOA allows the “User Interface” to handle the language aspects while preserving the integrity of the application code.

While we will discuss Mobile Devices later, there is a very close connection to A³. In a true A³ implementation, one should not have to rewrite code just because there is a remote or mobile device using that code. Where possible, rules based applications should be “User Interface” (UI) independent. Companies do not want to be required to rewrite code every time there is a new device that someone wants to use from remote or mobile locations to access any part of the ERP application.

In a multiuser environment this capability coupled with other technology such as SOA (described earlier) provides a modern model of application support across an enterprise without regard to who, what, where or when. The output is exactly the same from user to user encouraging collaboration across boundaries — which used to be barriers.

There are a number of additional considerations when implementing this type of environment. Access and security are at the top of most lists. Providing availability means more points of entry that must be guarded. “Single Sign On” (SSO is a method of allowing persons to have access to multiple, independent software applications with a single name and password) and “Role Based Access Control” (RBAC is a method that allows system administrators to automatically assign access rights based on the individual’s role in the organization) are two critical technologies that can increase the security of A³.

In reality, an A³ environment may actually improve security. Many organizations have not worried about external security when all of the workers are local. Opening up a system to remote users forces an examination of the whole security environment. In today’s connected society, this can be very advantageous.

Many people focus on mobile users when discussing an A³ environment. With the availability of the internet and greater portability of computing equipment, do not forget the remote desktop or laptop user. Future leaders should be asking: “how can Anytime, Anywhere Availability change the competitive landscape and improve our position?”

There is also a question of who do you want to access the system? Is it just employees or can it be extended to trading partners? What are the possibilities? How can opening up the system be used to expand markets, improve buying, add to the bottom line or reduce costs? Imagination is usually the limiting factor. Ask yourself, what can we do differently that will give us competitive advantage?

In an industrial distributor for example, A³ can be used to tie a customer into any distributor. Consider the ability to allow a customer to access the order entry application through their own purchasing application (a combination of SOA and A³). All of the

sudden, the electronically enabled distributor is the easiest partner to deal with. Ease of use is worth points on the bottom line for both trading partners.

Even better, the distributor is setting up barriers to keep competitors out. Now, they not only need to have reduced costs, better service, and perks, but the new competitor has to convince the customer to change their computer links. Unless the competitor has the same level of capability and will pay to make it happen, most customers will not risk it. An integrated customer is a customer for life unless the distributor really does something very wrong.

Mobile Devices

Continuing a theme of providing accessibility anywhere, anytime, Mobile Devices, (laptop computers, handhelds, tablets, signature pads and new devices currently on the test bench), expand our ability to connect and interact. The design of enterprise applications must consider the mobile user at all levels. Topics that must be reviewed include dealing with different speeds of transmission, size of the interface (screen and keyboard — or lack of either), limited computing power, security (in many environments), and risk management.

Everyone wishes that connectivity would be easy and inexpensive. The reality is there are numerous risks, especially associated with not doing it the right way. The best IT teams utilize capabilities such as those discussed above (SSO and RBAC) to control risk while not restricting the ability to do good business.

From a strategic view point, the first question to ask is what do you want to accomplish by empowering a mobile user? Is it to provide mobile processing capability for staff outside of the main office? Are the requirements focused on sales and sales entry? Or is it much broader?

What can you do differently? For example, many industrial distributors now offer field service (from tool and equipment repair to installation, troubleshooting, and training). What are the requirements for field service? Some of the items may include: time reporting, part usage, problem tracking (build a sharable knowledgebase), and expense reports.

In a repair environment (anything from tools to heavy equipment), could less expensive field support personnel carry a portable web enabled camera? Then, one centrally located engineer might be able to direct six to ten field people. Leveraging the time of a high level engineer could improve service levels while reducing costs.

Continuing the example, the system could record the amount of time spent by the engineer and the field tech so that timesheets were no longer necessary. In the office, more accurate information would allow the company to establish service contracts based on actual field experience. These should be more profitable than the “just guessing” pricing that is too often used.

Web 2.0

This is one of the more difficult terms to define accurately. Basically it suggests a change from the first generation of web based applications to a second, more robust generation. Web 1.0 might be best described as a test environment where everyone experimented with the ability to communicate easily, quickly, and across great distances without barriers, rules or regulations. It was the wild west of communications.

The second generation has moved the use of the web from the “bleeding edge” of early adopters and experimenters to mainstream business and social applications. The web is no longer the private domain of kids and scientists, but is becoming a tool for improving customer service, decreasing the time to market, and accelerating every kind of interaction. Combined with the tools discussed above, it provides the infrastructure necessary to move information and therefore the foundation of new collaboration capabilities. Companies can work in teams, even if they are spread around the world. Better yet, the same information is available at the same time to everyone, everywhere.

One Web 2.0 enhancement is better search capabilities that allow users to locate and retrieve data (under appropriate security control) quickly and without a great deal of technical training. Imagine being able to find raw data, calculate metrics and publish the results without having to dig through mountains of technical specifications. How much more effective will the IT team become?

The big questions are how can businesses take greater advantage of the web? Many of the early answers had to do with sales, marketing and customer support. New possibilities are being proposed every day.

We must be careful to not lose sight of more traditional e-commerce activities. These are still important to the distributor and their customers. There are many situations where online purchasing makes sense — and can create competitive relationships. So even with the move to Web 2.0, do not forget some of the basics that were learned and proved in web 1.0.

Sophisticated distributors and their IT departments are integrating the use of Social Networking into marketing and Brand support. Interactive capabilities like Tweeting on Twitter are being tested to see how well they can support getting messages out to the buying public.

A number of companies have made their customer support personnel available on Twitter. Stories have been posted reporting issue resolutions in minutes instead of days. The anecdotal evidence is almost overwhelming. But it does not happen without the leadership of IT combined with the endorsement of top management.

Social networking (LinkedIn, Facebook, Plaxo, and many others) are providing ways in which persons around the world can connect and do business. The industrial distributor needs to coordinate activities. IT and Marketing need to work together to make sure the messages being sent to the marketplace are consistent, accurate, and timely.

There is a generation gap that is evident when examining Web 2.0 results. Younger people are much more likely to participate. That will require a careful analysis of the demographics of the audience for each specific function. It is also a wonderful way for younger IT professionals to make a mark in the distribution environment.

Collaboration is another area where Web 2.0 may have a larger impact. Electronic Data Interchange (EDI) is a 1970s technology that is still being implemented to allow computer to computer sharing of business documents (purchase orders, acknowledgements, advanced ship notices, invoicing, and electronic payments).

One can consider a model like Amazon uses for accumulating customer reviews of books. What if the same capability was used for product reviews? Would that attract more potential customers to a given site? The answer is probably yes. Care must be taken so it does not become a complaint site, but with some limited editing of content, it can be a valuable addition to any organization's value added service to their market.

There are many new opportunities. Mashups (a term used to describe a process of rapidly integrating data from independent applications to produce new information not designed into any of the "mashed" code) for example can vastly reduce the time to implement new productivity tools. One example may be the earlier description of integrating a purchasing application form one company into the sales order entry of another.

As distributors find more ways to integrate their operations with customers and suppliers, the industry will move away from traditional supply chain (linear) processes. In their place will appear "Supply Team" functionality that is not linear, but rather matrix oriented so that the necessary team members are linked where and where necessary.

Supply teams hold great promise for the future. They will reduce costs, time, and errors. Working together, each team will become more effective at everything they do together.

Report Cards / Balanced Scorecards

Not every process runs smoothly. Not every action taken creates positive results for the enterprise. Being able to make course corrections can be difficult because many teams do not have a good way to measure or recognize success. Using Business Intelligence or the ability to obtain and report non financial measurements from within automation systems provide a capability to accurately track and expose what has happened, how fast, and in what directions. It is a tool for managing complex situations that affect many different departments and activities.

The best implementations do not require extensive knowledge of Business Intelligence (BI) tools and concepts. They do require the support and knowledge of the IT professional. Do not worry about advertisements that make it sound like "anyone can do it."

This may be true, but just like COBOL programming in the 60s, it will not be the end of the programmer. IT will still have to support the applications, but should be able to do this successfully with fewer resources and greater end user involvement.

For the IT professional in general and specifically in wholesale/distribution, BI applications are a special opportunity to become more familiar with business processes and their requirements for factual information that will accurately measure actual results. One reason frequently given for limiting the advancement of IT professionals into general management is often their lack of understanding of business processes. These are opportunities that will provide potential advancement. They also provide an opportunity to show top management what is possible by integrating the knowledge of technology with business acumen.

New environments will make it easier to interface or integrate data from multiple sources in a seamless way to provide the metrics needed. As an IT leader, it will be necessary to find the right balance between use of limited resources and service to the user community. With simpler tools, much of the work can be done in a consulting mode which should allow greater levels of responsiveness without a negative impact on resource availability.

Determining what to measure and how to calculate the measure are two difficult issues that must be resolved. Then it is imperative to utilize the tools of the application environment to extract the appropriate data to develop actionable information. This provides the basis for successful execution and a well structured means to sell an idea to top management.

Measurements, as pointed out earlier, do not have to be financial. Too many companies assume that only financial information is available from their ERP systems. IT professionals can provide the education to top management to show them what is possible.

It is a well accepted management concept that one can only manage what can be measured. Therefore, the first step in any improvement process is asking what should be measured.

One simple example is a company wanting to reduce shipping errors. What should be measured? Two potentially simple ways to get a handle on returns are through credit transactions (systems are capable of knowing the difference between a refund of a forgiven finance charge and the refund for a returned or

nonfunctioning product) and Return Material Authorizations. With very little work, it is possible to collect "reason" codes so that the data can be most meaningful.

It is then a fairly easy matter to establish baseline measurements of activity over some period of time. These might include returns by day of the week of the original shipment (looking for a pattern that might lead to solutions) or returns by supplier (possibly finding quality problems, not shipping errors).

Given a baseline, it is possible to set goals for improvement. These should be over time and allow for corrective action to take place. If a current error total is 25 per day, zero is the preferred answer. However, it is unrealistic (in most cases), so a goal might be set to reduce shipping errors to no more than 10 within 90 days and maintain a maximum of 5 errors per day after six months.

It would also be reasonable to set the goals as a percentage of the shipping volume. An error rate of under 0.1% based on line items may be an achievable goal. That means that the company would accept one shipping error per 1,000 line items shipped. From a total quality perspective, it is not very good, but if the organization is starting at a 1% or greater error rate, the savings will be very impressive.

A special type of score card is the report card. Sophisticated companies are creating report cards for customers, vendors, and employees. It provides an easy to use capability to compare any individual in any group to the rest.

For a customer report card, the system will take the total revenue generated by the customer and present it in any number of ways (total by product type, or by time period, or by specific products) and compare that to the cost of maintaining the customer. This would include gross contribution (revenue less total cost of goods sold), costs for special handling, correction of errors (caused by the customer), days outstanding on receivables, no charge services, etc. It gives a total picture of the value of a customer to the enterprise which is more useful than just sorting by total revenue generated.

Suppliers can be measured by: on time deliveries, correct invoices, quality, and special discounts. Employees can be measured by: sick days, productivity, revenue (for salespeople) and time worked.

In all cases, the score card or report card can be displayed graphically rather than just as a printed report. Many companies use this output to create “dashboards” that are used to give management the ability to quickly look at a single screen and gain a feel for how the day (week, month, quarter, or year) is going (or has gone).

IT can take the lead by showing what can be measured and then providing the data in an easy to use format. The improvements will go straight to the bottom line.

Wrap Up

There is an old engineering saying: “in theory, there is no difference between theory and reality; in reality ... there is.” The theory presented above is only useful if IT managers and supervisors can positively impact their organizations through the thoughtful application of the concepts provided.

It is important to find new ways to provide real time information to decision makers whether they are top managers or line personnel serving customers. Everyone is becoming an information worker and they need constant connection to do their job right.

Following are seven steps that will allow YOU to make a high value contribution to your company. While the focus is Distribution, the following steps will work in most organizations. Use these ideas to be seen as part of the future and the solutions, not the problems.

1. Analyze the current situation.

Find opportunities to improve operations, profits, or just supply better information for decision making. Do this with the assistance of key players from departments outside of IT who can help find the potential that is always available. Get help from the sales and purchasing departments to contact key customers and suppliers. Ask about how you can become a better partner. This may be outside of your comfort zone, but it can pay huge dividends in relationships inside and outside of the organization.

2. Find easy to fix situations with high payback and little or no risk (to start).

The opportunities can be sequenced to allow the easiest to be identified and attacked first. Success breeds success. Getting a few wins will allow you, as an IT professional to take greater risks down the road and continue to achieve outsized returns.

Initial items may be as simple as gathering data from different sources together (Business Intelligence) so that better decisions can be made. There may be simple interfaces that can be built with trading partners. While building a reputation of success, keep things simple. Large, multi-month projects tend to have more risk and attract more attention up front.

Finally, do not be afraid to call your ERP supplier. They have a great deal of experience. Once you can describe a situation, they may be able to provide a tested solution that reduces risk and cost to a minimum.

3. Determine what to measure and how.

As discussed in the section on balanced score cards and report cards, determining what to measure and how may be the most daunting task. This step is very important as it defines success. Once it is measurable, it is easy to prove what benefits were derived from any set of actions. Each added success makes it easier to get permission to try the next one.

Top management appreciates leaders who provide the evidence that a risk is worth taking. It is even better when, after taking the risk, it is possible to objectively show the positive results that have been delivered.

4. Identify the current value of the measure.

Knowing what to measure is not enough. There must be a solid baseline against which progress can be measured. This may require some work to collect current information so it is clear where you are today. Test your assumptions with the people who will be affected. They can help you understand where they are and where they can go.

5. Establish a goal for the measure and a time frame.

Successful projects have a measurable goal and a time frame in which to meet it. Having the ability to track progress allows not only reporting of success, but will highlight any problems quickly — when they are easiest to fix or resolve.

During execution, make the numbers public (at least to the group you are working with). Post them regularly. Teams love to see how they are doing and watch progress being made. This is also how you will gain extra input from the line people. It is amazing how intuitive they are given the chance to participate.

Make sure everyone involved has a chance to comment on the time frame. Never set anyone up for failure. If the people who will be responsible for execution do not believe in the solution or the time frame, the project will fail. Make sure the staff is behind the goals and you may be surprised what can be accomplished.

6. Sell the idea / solution to management.

By doing the homework above, it becomes possible to sell an idea up the line. It is much easier for a top manager to say yes when they know the problem has been thought out; when they know metrics are in place to validate the assumptions made; when they know that goals and target dates are set and have been documented.

7. Execute.

This is where the action takes place. Plans that are not followed are not worth very much. Future success of any supervisor or manager should be based on results. If the preparation was good, the measurements accurate, and the goals realistic, establishing a reputation for success and improved return to the operation will go a long way toward building a great future.

About The Author

Steve Epner is the founder of the Brown Smith Wallace Consulting Group. Steve is the Innovator in Residence at Saint Louis University and a member of the faculty in the graduate school of business, at the University of Industrial Distribution, and at Arizona State University for the Certified Professional Manufacturers Representative program. Steve has a Bachelor of Science in Computer Science (1970) and a Master of Science (2005) from Purdue University.

About Brown Smith Wallace Consulting

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BSW Consulting

10151 Corporate Square Drive
Suite 100
St. Louis, MO 63132

314-983-1200
www.bswwllc.com
www.software4distributor.com