

Role of Technology in Demand Management



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There's an interesting phenomenon in information technology. Companies invest millions of dollars in computer hardware and applications software. Technology users, however, eschew these powerful tools for the spreadsheet—technology in one of its simplest and least expensive forms. Executives are disappointed when the anticipated performance improvements and financial benefits from their technology investments are not achieved.

Here's one cause of the phenomenon: Executives, all too often, are looking for the Holy Grail—a one-step solution to their companies' performance problems. They look to technology more than people and processes for the solutions. Once the technology is implemented, executives expect people and processes to fall in place.

In reality, it doesn't work that way. Technology users are looking for software that is easy to use and supports how they currently get their work done. If it doesn't, they find ways to work around the technology. The end result? Disappointment all around.

The situation described above is not limited to companies of a specific size or industry. It is widespread throughout business today. A study by AMR Research on implementations of customer relationship management (CRM) technology showed that 47 percent of the projects were in jeopardy of failing. Why? The needs of end users (employees, partners, and customers) were not considered in defining the technology requirements.¹

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Technology fails for other reasons as well. Some prime examples: After spending \$120 million on planning technology, software incompatibility problems caused candymaker Hershey Foods to

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miss or delay shipments during the Halloween season. The company lost an estimated \$120 million in sales. Nike invested \$400 million in technology that allowed retailers to order directly from the shoe and apparel maker, only for software glitches to cause overstocks for some shoes and shortages for other shoes. The problems contributed to eroding profits.²

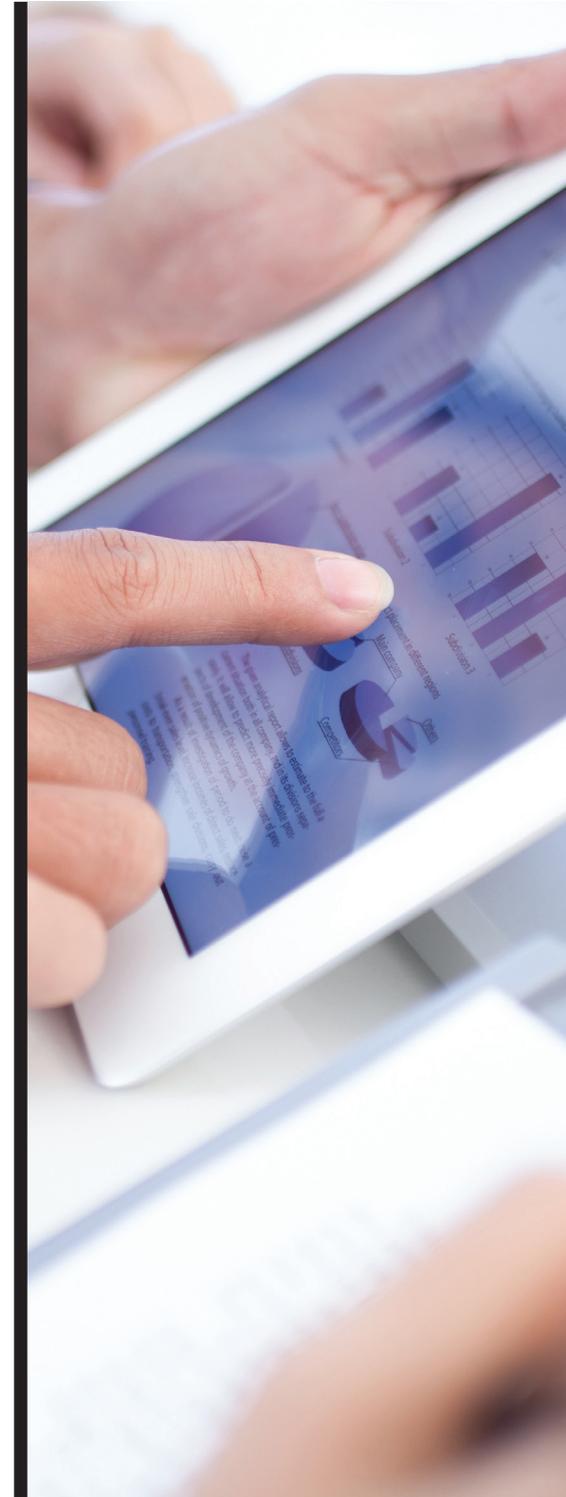
Does this mean that companies should avoid implementing information technology? Would corporate life and profits be better without it? The answer is no. Information technology, deployed well, enables better decision making and improved execution. The trick is to select, implement, and deploy technology correctly.

THE UPSIDE AND DOWNSIDE OF TECHNOLOGY

Without information technology, it would not be possible to plan demand for hundreds and thousands of product items and communicate the demand plan to the supply organization—let alone collaborate with customers on a demand plan. Thirty years ago, few companies performed demand management. It was simply too time-consuming to gather information on customers' buying intentions, integrate this information with marketing and sales plans, and perform statistical forecasting. Most of this work had to be performed manually—without even the aid of spreadsheets.

Computer technology, in the words of cultural anthropologists James Burke and Robert Ornstein, has “the power to change the world with unexpected speed and in unprecedented detail.”³ Speed and detailed information are just what is needed for demand management. Today, software applications can statistically forecast hundreds of items in minutes. Sales orders and demand schedules can be communicated via electronic data interchange (EDI) and the Internet in real time. Retail companies can share point-of-sale information with their trading partners—daily, if desired. Salespeople can sit in their customers' offices and look up product availability, specifications, and pricing on their companies' information systems, using hand-held devices known as personal data acquisition (PDA) tools.

This is the upside of technology. The downside of technology is that it will not make poor business processes perform better. It will not make decisions for decision makers. If processes are not in place to act upon demand information, the communication of point-of-sale data, demand schedules, sales and marketing plans, and statistical forecasts is futile. If processes are not in place to reach consensus on a demand plan, synchronize demand and supply, and make tactical decisions when demand is uncertain, no software application will enable fulfilling sales orders on time.



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This lesson is driven home every Christmas holiday season in the U.S. when companies, selling their goods on the Internet, have difficulty fulfilling orders. According to a study by Jupiter Media Metrics, 53 percent of holiday shoppers in 1999 did not receive their orders when promised. Less than one third of these shoppers were notified that their orders would be late. The result? Disappointed customers and tarnished company reputations.

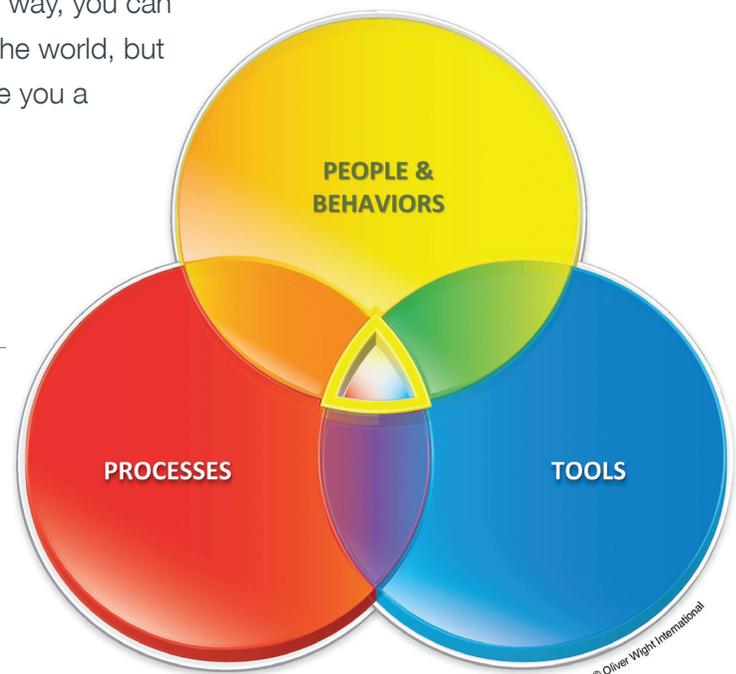
Industry experts observed that, despite the disappointing performance, few companies had taken the required action to better serve customers in the future. According to one report, fulfillment and customer service execution was critical. But many companies still lack processes and integrated systems to avoid disappointing numerous consumers.⁴

CHARACTERISTICS OF MOST SUCCESSFUL COMPANIES

The most successful companies in deploying technology, in the authors’ observation, recognize the interdependence of people, processes, and tools (Figure 1).

Technology is a tool; it is not a substitute for processes and people. Success in deploying technology is predicated on how well people, processes, and tools are integrated. Stated another way, you can have the best hammer in the world, but it doesn’t necessarily make you a good carpenter.

Fig 1.

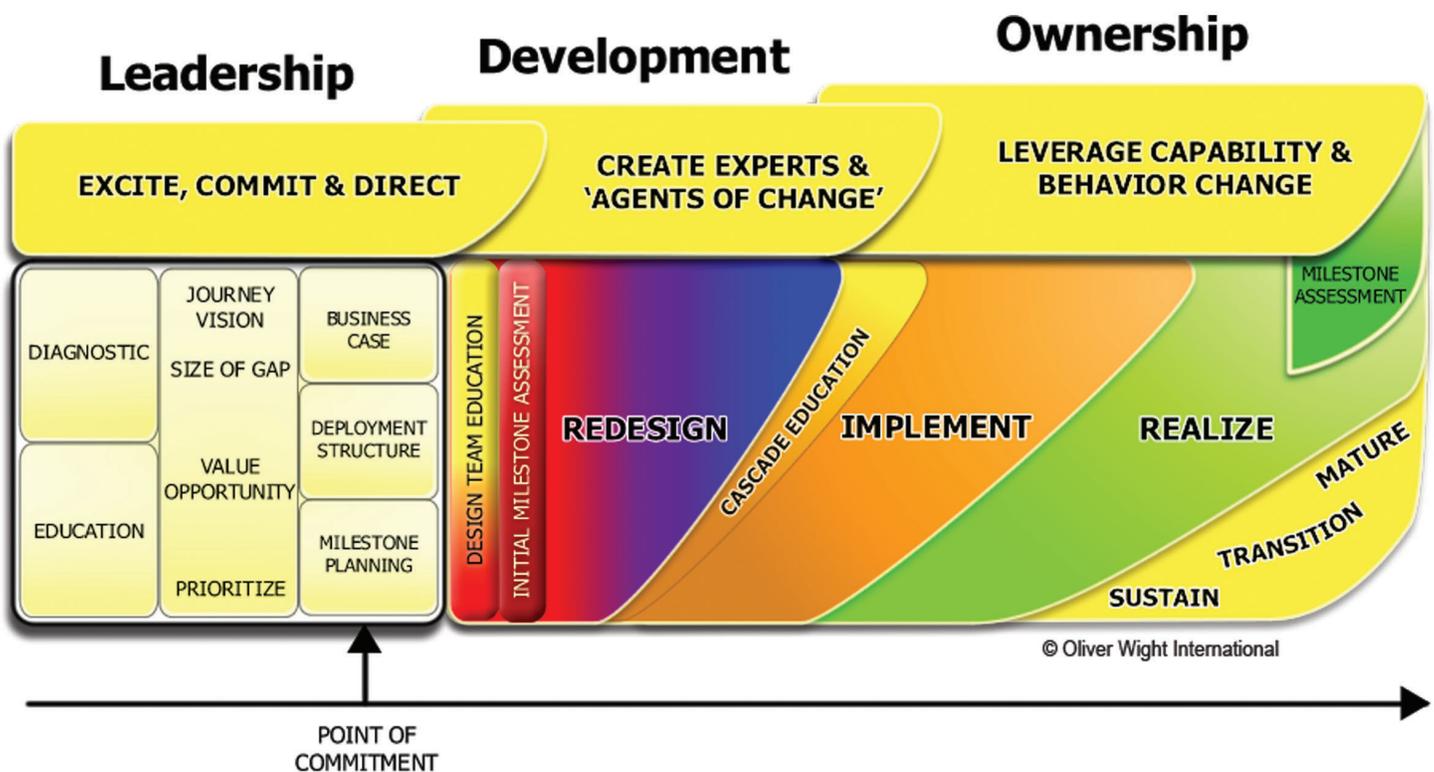


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So how do you integrate people, processes, and tools? Years ago, The Oliver Wight Companies studied the difference between successful and failed implementations that involved business processes, people, and information systems. Common traits of success and failure were found and led to the documentation of what is known as the Proven Path methodology (Figure 2).

Following are the key findings embodied in the Proven Path methodology and considered best practices. These findings have been validated repeatedly over the years by The Oliver Wight Companies as well as numerous other consulting firms, technology firms, and practitioners.

Fig 2.





Successful implementations start with senior executive involvement to build awareness of and to understand:

- Critical business problems and opportunities
- Effectiveness of current processes in solving the business problems and leveraging business opportunities
- Current skills of people in operating the business processes
- Effectiveness of current technology in supporting the business processes and enabling people to perform their work
- Industry best practices and the impact of these best practices on competitive positioning and financial performance

Once the above is understood, a high-level definition is developed on how the company intends to operate and the changes that need to be made in processes, people development, and technology to operate in the defined manner. This high-level definition is frequently called a vision of operations.

In conjunction with developing a vision of operations, the benefits from operating with this new vision are defined. The benefits include operational and financial performance improvements. A deployment plan is also created outlining the major milestones, the steps in implementing the vision of operations, and the cost for the next phase (process redesign).

The understanding and awareness phase of the Proven Path approach gives executives the ability to determine whether the proposed new vision of operations is worthwhile—before spending a dime on process improvement and technology. Executives have the information needed to decide whether the investment makes business sense. The criteria for determining the business case should be whether the investment will better position the company to improve customer service, competitive position, and financial

performance.

Once a commitment is made by the executive team to implement the vision of operations, redesign of the business processes is the next phase. Redesign efforts involve end users in determining the detailed changes to make in the business processes.

ROLE OF END USERS

Involving end users in the process redesign has several advantages. They are experts on the strengths and weaknesses of the current business processes. They know, in a very practical sense, what it will take to execute the new vision of operations.

The retailer, Wal-Mart, is known for developing and leveraging technology better than almost any company in the world. Wal-Mart currently employs a technology staff of more than 2,000 people. Wal-Mart's technology executives insist that their software developers are "retailers first" and "programmers second," according to Ron Ireland, a former Wal-Mart technology manager. Technology developers are required to work in Wal-Mart stores and distribution centers every year to stay current on the company's front-line business needs. Knowledge of business needs is critical for designing technology that works effectively for employees at Wal-Mart stores and distribution centers.

End-user participation in the process redesign has an additional benefit. They become experts on the newly designed processes and, thus, are influential as agents of change. They help the organization to more quickly adopt the new way of doing work. This leads to faster performance improvements, which shortens the time to achieve the desired return on investment.

The best technology testimonial is when the end users say, "This is my system." As AMR Research points out in its study findings of CRM implementation failures, "corporations can only achieve benefits from CRM software if end users see an application as a blessing rather than a curse."⁵ The same is true with demand management software and just about any form of technology, in the author's experience.

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PROCESS DESIGN DRIVES TECHNOLOGY SPECIFICATION

In the Proven Path methodology, detailed technology requirements are not addressed until after the new business processes are defined. The business process definition drives the detailed technology specifications, not the other way around.

When business process redesign is not addressed first, companies frequently end up wasting their technology investment. As noted earlier, process users work around the technology when it does not meet their needs. Companies also buy technology that is not useful, as was shown in a study by Morgan Stanley. The investment banking firm found that U.S. companies spent \$130 billion on unnecessary software and other technology during a two-year period.⁶

By defining the business processes first, a more accurate detailed technology specification can be created. The understanding has been developed to determine the technology functionality needed to support the vision of operations and defined business processes. This puts the buyer in greater control of the technology selection. Otherwise, people end up making a “best guess” at what is needed (much like kicking tires when buying a car). Or they focus on which application has the most bells and whistles (when many of the bells and whistles aren’t needed). In other cases, companies end up buying sub-par technology.

Many technology tools come with standard functionality that supports best process practices. When companies opt not to design their business processes first, they frequently overlook these more robust tools and end up investing needlessly in customized software to beef up their software application of choice.

The virtue of defining the vision of operations and business processes first is supported by experts from technology firms interviewed in the course of writing this book. All the people interviewed noted what Marc Bergeron of Verticalnet calls “huge gaps in process development.” What companies need to do, according to Bergeron and others, is educate first, design the business processes second, and then buy the technology. This is a best practice.

TRENDS IN TECHNOLOGY PREFERENCES

The definition of technology requirements should also address whether the proposed technology is aligned with the company's current technology infrastructure and strategy. More companies, for example, are moving away from buying suites of enterprise-wide software from the same vendor. They desire, instead, to purchase best-in-class software applications and link them together. As a result, the integration readiness of software is becoming a more critical technology requirement.

This trend has some industry experts calling for industry standards that facilitate integration. An industry standard would prevent the kinds of problems that Hershey Foods and other companies have experienced with software incompatibility. The development of an industry standard could take years to accomplish, however. While waiting for an industry-standard application server, experts recommend investing in infrastructure technologies that enable integration with existing technology. These technologies include private trading exchange (PTX), single-portal framework, integration bus framework, and single analytical data model.⁷

After the technology requirements have been defined, including integration requirements and alignment with technology strategy, the next step is implementation. Implementation focuses on developing the skills required to operate the new business processes and technology tools as well as learning by doing.

DON'T SHORT-CHANGE SKILL DEVELOPMENT

All too often, companies attempt to short-cut skill development. Why? When companies are behind schedule, they choose not to change the schedule and, instead, compress the time available for training. Other times, the technology investment has exceeded the original budget, and companies trim training expenses from their budgets.





Whatever the reason for truncating skill development, it's an unwise decision. Ultimately, it slows the implementation. It takes longer for end users to operate the business processes and tools effectively—if they ever do at all. When users choose spreadsheets over new technology, it is frequently a symptom of lack of training. They don't understand how to use the new technology tools and choose to use the tools they know best. They don't recognize the importance of using the new tools to support communication and integration with other business processes and end users.

As a result, cutting the investment (in time and money) in skill development inevitably extends the amount of time it takes to achieve the desired performance and financial improvements. Some companies never achieve the expected benefits. Companies end up with process users operating in individual silos with individual spreadsheets. Companies miss the opportunity

of receiving untold millions of dollars in benefits. And executives blame the new technology for the failure.

PREVENT MISTAKES AND MAKE CORRECT CHOICES

In introducing clients to the Proven Path approach, they frequently ask how long it takes to educate, redesign the business processes, and buy the technology. The time it takes is dependent upon the resources and time committed to the effort. Some companies make a concerted effort over a short period of time. In these cases, the definition of the vision of operations can be completed in less than one month. The redesign and technology specification phase can be completed in two to three months. Other companies take a committee approach, meeting several times per month. In these cases, it can take up to six months to define the vision of operations and complete the process redesign and technology specifications.

Using an approach like the Proven Path is time well spent, however. It prevents mistakes in buying inadequate or wrong technology. Decision points are also defined, which helps executives make better decisions and an informed commitment to the project. At certain milestones, executives review the status of the project and the required investment in resources, time, and money for the next phase. The purpose of the review is to make a go/no-go decision about whether to:

- Proceed to the next phase.
- Fine tune the requirements and budget for the next phase.
- Abandon the effort altogether.

The go/no-go decision is based on achieving the vision of operations and the defined return on investment. The use of decision points has the effect of not forcing executives to commit the company's resources all at once. It provides flexibility to change, if change is needed, to ensure a successful implementation. It also creates a well-defined expectation of what work must be performed and makes information available to executives before they invest in the next phase.

Using this approach gives senior executives greater control over the technology investment. Senior executives are routinely blamed for technology failures. Lack of senior executive commitment is widely cited as the most common reason why technology (and process improvement) implementations fail.

In my experience, executives want to make the right choices but often lack the information and understanding to make informed decisions. The Proven Path approach enables executives to listen, understand the issues and opportunities, review the financial and resource commitments—and then commit to the project. It also causes executives to create realistic expectations of technology as an enabler rather than as the solution to a company's business problems and opportunities.

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TYPES OF DEMAND MANAGEMENT TOOLS

In the area of demand management, technology enablers continue to improve. Several tiers of tools are available:

- Stand-alone statistical forecasting applications
- Demand planning packages that integrate statistical forecasting, promotions forecasting, forecasting of product life cycles, and sales planning information
- Sales planning and customer relationship management packages
- Collaborative planning packages that enable customers to communicate their planned promotions, buying schedules and forecasts as well as end-user or consumer point-of-sale information
- Suites of the above capabilities as part of enterprise resource planning and supply chain management software

Which of the above approaches is best for a company depends on its vision of operations, business process design, and technology strategy. It is not unusual for companies to initially purchase a stand-alone statistical forecasting package. Stand-alone packages can usually be implemented very quickly—in a few days or less. Applications that are part of an enterprise-wide software suite can take a year or longer to become operational. The cost of stand-alone statistical forecasting tools ranges from \$1,500 to \$50,000, making them an affordable, near-term option. Companies frequently use the stand-alone tool until a full-scale software suite is implemented.

Whatever statistical forecasting tool that is selected—stand-alone or part of a suite of applications—most of the tools today include a variety of modeling techniques or algorithms for generating the statistical forecast. This approach was pioneered by Demand Solutions of Demand Management Inc. and Forecast Pro of Business Forecast Systems in the mid-1980s. With these tools, users do not have to

“Most of the tools today include a variety of modeling techniques or algorithms for generating the statistical forecast.”

determine the most accurate forecasting technique by trial and error. The tool makes the selection for the user, using what is widely called the expert selection mode. Users also have the option of manually selecting any of the forecasting techniques.

Some companies opt to continue to use the stand-alone package even after enterprise resource planning (ERP) software with statistical forecasting capabilities is implemented. Some (not all) ERP suites have only rudimentary statistical forecasting tools. The stand-alone applications yield more accurate statistical forecasts.

DATABASE DRIVEN TOOLS

A second tier of technology offers a more comprehensive approach to demand planning. These tools utilize a database to capture and decompose demand information—by individual customer, by sales territory, market segment, and by product category, family, and item. The database approach enables developing multiple views of demand—the sales view, product/brand view, customer view, and statistical forecast view. These tools also track and forecast promotions and include algorithms for determining product life cycles.

For companies with a large number of products, a complex business environment, and a large customer base, the demand planning tools are advantageous in the long run. The effectiveness of the tools is dependent upon the ability to capture demand information by customer, sales territory, market segment, and product. This data capture typically requires integration with sales planning, customer relationship management, and enterprise resource planning software. As a result, it takes more forethought in developing the data capture process and stronger technology infrastructure to utilize demand planning technology to its fullest capability. These tools also take longer to implement.

As more companies develop collaborative relationships with trading partners for demand planning, the need for supporting technology tools has emerged. The earliest efforts at collaboration utilized faxes and EDI for communicating demand information. These tools work effectively when collaborating with a few trading partners but

“*This data capture typically requires integration with sales planning, customer relationship management, and enterprise resource planning software.*”

are inefficient when dealing with many trading partners. Trading partner collaboration is a process, not a technology. The process is dependent upon the visibility of demand information—and that is the critical supporting role that technology plays.

The technology tools have developed more quickly than effective collaboration processes, in most cases. Technology is now available for sharing demand information and demand plans with trading partners via EDI and web-based exchanges. Product movement information at retail stores and distribution centers can be made visible to trading partners using a shared system. Access by trading partners to this shared system is accomplished through private exchanges.

Collaboration demand planning software provides multiple demand views, showing the seller's plan, buyer's plan, marketing plan, and the collaborated (agreed-upon) plan. By highlighting differences in the buyer and seller views by time period, these differences can be resolved through collaboration.

Collaboration demand planning software on the market today can communicate promotions planned by trading partners and the historical performance of promotions in generating demand. Point-of-sale information can be communicated and compared to the demand plan by product item. Today's software can also be used to plan replenishment and communicate replenishment schedules.

Despite these technology advances, as of this writing, trading partner collaboration has not reached critical mass, nor has it achieved the expectations of the early collaboration pioneers. It is proving to be much easier to install collaboration hardware and software than to develop the business processes and people skills to perform collaboration.

Whether implementing internal demand planning processes or demand collaboration processes with trading partners, there is no autopilot when it comes to managing the business. Technology makes information visible to enable better decision making. The critical success factors for demand management, including collaboration with trading partners on demand plans, are people, processes, and technology, in that order.

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1 CRM: INFLECTING PAIN OR PROFIT?, AMR RESEARCH, DECEMBER 2002.

2 HOPKINS, JIM; KESSLER, MICHELLE, "COMPANIES SQUANDER BILLIONS ON TECH," USA TODAY, MAY 19, 2002.

3 BURKE, JAMES; ORNSTEIN, ROBERT; THE AXEMAKER'S GIFT, G. P. PUTNAM'S SONS, 1995, P. 176.

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NOTE: A MORE DETAILED DESCRIPTION OF THE TOPICS CONTAINED WITHIN THIS DOCUMENT CAN BE FOUND IN THE BOOKS: *ENTERPRISE SALES AND OPERATIONS PLANNING* AND *DEMAND MANAGEMENT BEST PRACTICES* BY GEORGE E. PALMATIER AND COLLEEN CRUM



ABOUT THE AUTHORS

George Palmatier, an Oliver Wight Principal, has assisted many companies that make everything from soup to satellites in implementing integrated management processes. He is recognized as an expert on Sales & Operations Planning, Integrated Business Planning and demand management as well as ERP, Integrated Supply Chain Management, and Integrated Product Development (IPD). George works with clients to formalize and integrate their strategic plans into an integrated business management process, Integrated Business Planning. With twenty years of experience in sales, marketing, strategic planning, and general management, George has a thorough knowledge of how to achieve sustained results improving business performance. During his 11 years as vice-president of sales and marketing at Bently Nevada Corporation (now part of General Electric), George was responsible for bringing the sales and marketing departments into an integrated business management process. Bently Nevada was one of the pioneers in developing and implementing Sales & Operations Planning using it in a truly integrated management process. George has authored or co-authored four books: *The Marketing Edge*, *Enterprise Sales and Operations Planning*, *Demand Management Best Practices*, and *The Transition from Sales and Operations Planning to Integrated Business Planning*.



Colleen "Coco" Crum, a principal with Oliver Wight Americas, is considered a thought leader and innovator in demand management and sales and operations planning. She has helped develop methodologies enabling companies to successfully implement S&OP and demand management and achieve quick time to financial benefit. She has assisted companies across the manufacturing spectrum, including chemicals, consumer goods, electronics, biotechnology, and aerospace and defense. Coco has co-authored four books: *Enterprise Sales and Operations Planning*, *Demand Management Best Practices*, *Supply Chain Collaboration*, and *The Transition from Sales and Operations Planning to Integrated Business Planning*, and participated in the development of a best practice model for grocery supply chain replenishment resulting in the publication of a book on ECR by Canadian food industry trade groups.



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