Kraft Foods' Recipe for e-Business Success

To achieve total online linkage with supply-chain partners, Kraft Foods first integrated all its internal operations, from plant floor to the enterprise level. The leading food processor's program included 62 plants in three countries, 70 major product brands, and 6000 SKUs. Supply chain integration came next.

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A major food chain retailer plans to have a nationwide weekend promotion and is planning a special flyer for this purpose. However, it fails to bring a major food processor into its plans, and the latter does not gear up production to meet the demands the weekend promotion is expected to generate. The result? Shortfalls, "rain checks," and lost sales.

It may seem hard to believe that the problem depicted above can be allowed to happen, but it does happen more often than one might guess. The simple diagnosis is a failure in communication between supply-chain partners. The remedy is closer collaboration. In today's Internet world, that means a sound e-business strategy that encompasses all levels of the supply chain.

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Kraft Foods, Inc. is one major food manufacturer that has recognized the importance of being connected online with its supply-chain partners for some time, and has been developing a major program to make it happen. For years, the company has counted on three major resources for its success: people, assets (equipment), and raw materials and packaging. Recently it has added a fourth major resource — information.

The Internet has opened up the opportunities for information sharing to unprecedented new levels. Kraft saw the need for having a leading-edge capability in information technology, and about three years ago began building its infrastructure for e-business capability. Its goal is to develop real-time linkages with all business partners, improve its business practices, increase the speed of doing business, and in the end achieve significantly improved business results. According to Fred Sherriff, Kraft's vice-president-operations systems, the company's vision was to harness the power of B2B (business-to-business) in order to help ensure its place as the undisputed leader in the food industry.

The company's basic supply-chain structure is depicted in Figure 1. Its enterprise operations include seven regional distribution complexes that handle a full line of dry and refrigerated Kraft Foods products. They are located in Bethlehem, PA; Norcross, GA; Columbus, OH; Aurora, IL; Haslet, TX; Stockton, CA; and Ontario, CA.

In addition, "buffer warehouses" affiliated with individual plants distribute only products made at specific locations. For example, the Battle Creek, MI buffer warehouse distributes only Post cereal.

Connect the Enterprise First

An important message Sheriff has for those seeking to connect with supply-chain partners is this: First you must totally connect your own enterprise. For a company with more than 38,000 employees in the United States, Canada, and Mexico, many brands, and shipping ten billion pounds of product annually, that is not a small undertaking. In fact, "It is a very large job to be done in a very short time frame," Sherriff said. But Kraft has taken it on with a major company interconnectivity program, from the plant floor to the enterprise level, to link all of its North American facilities into one

uniform system and set of procedures.

A Single, Common Database

In order to achieve its ambitious connectivity goal, the company is making sure that all locations work with common, uniform information, and operate with a single set of information and work practice systems. And, the systems must be user-friendly, to bring all employees into the loop.

At the same time, all functional areas and departments in the company have needed to shed their functional perspective, which tended to keep them isolated as "silos" or "islands." Instead, they had to become seamless portions of an overall company process.

From Top Office to Plant Floor

Kraft's information hierarchy structure is shown in Figure 2. ERP (enterprise resource planning), corporate financials, and general ledger reside at the enterprise level, as do forecasting, planning, inventory, and deployment models. At the execution level, a manufacturing execution system (MES) provides the link between the enterprise level and the plant floor. At Kraft, the MES is a plant system that 1) provides a common set of information tools, 2) allows for information sharing across operations, 3) allows for correlation of data for knowledge improvement, and 4) builds a knowledge base that can be used by all supply-chain participants.

Logistics execution systems also are in place at this level. They include a warehouse management system (WMS) to control Kraft's distribution center (DC) processes from receiving through to shipping, and a transportation management system (TMS) that connects to carriers and provides a cost-effective distribution path for reaching the customer with the right goods at the right time and the right place.

Kraft's design incorporates the capability to receive a customer order, enter it at the enterprise level, and direct it into forecasting and distribution models. The production plan is then formulated and, through the MES, instructions are downloaded directly to an operator running a production line — at any plant. The instructions include information on the size of the order and the production procedure to be followed.

Operators at many Kraft plants perform within self-directed work teams, with little supervisory presence. Therefore, the information downloaded to the plant floor must be accurate and clear. User-friendly systems and uniform procedures must be available to all employees.

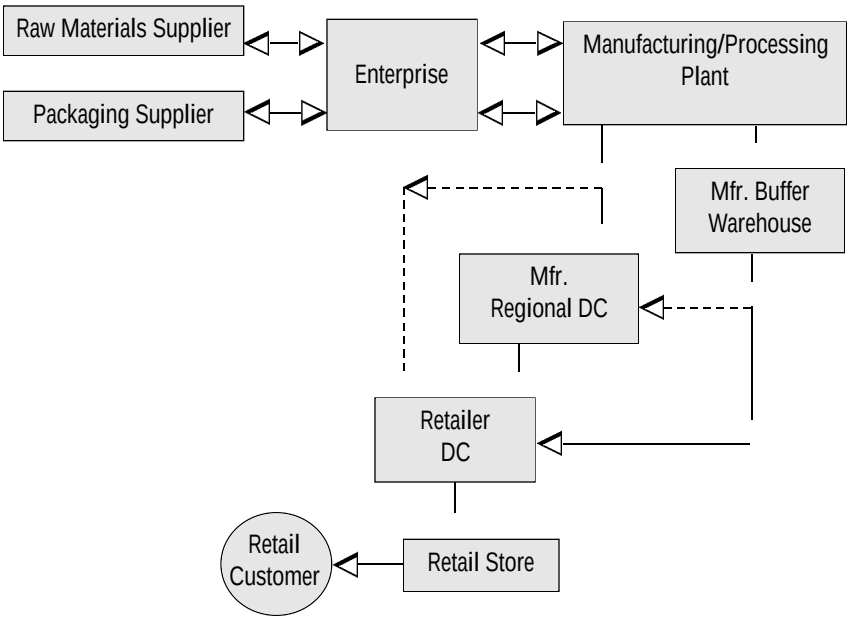

Figure 1. *Basic food manufacturing supply chain. Products flow primarily from the plant to the manufacturer's regional distribution center (DC), after which they move through the retailer's DC, from there to individual stores, and finally to the end customer. In some instances the manufacturer also uses buffer warehouses affiliated with plants. These distribute only products made at a specific location. In some cases (such as, when delivering a full truckload quantity of one item, such as cereal) the product may go directly from the plant to the customer's DC and bypass the manufacturer's warehouse.*

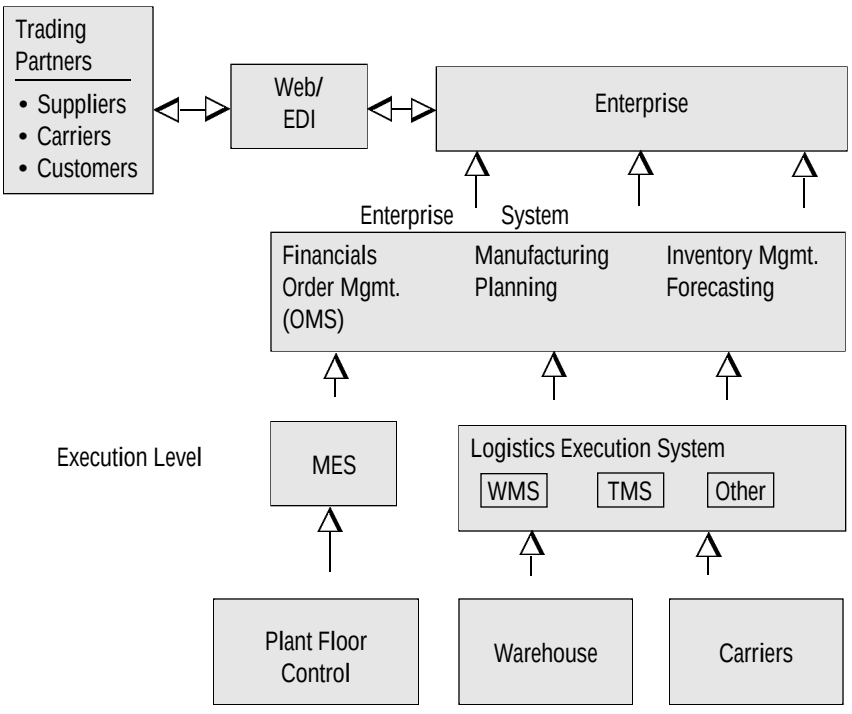

Figure 2. *System hierarchy provides for communication from the enterprise level down to the plant floor. An incoming order is entered at the enterprise level. After the production plan is formulated, instructions are downloaded, through the manufacturing execution system (MES), directly to an operator running a production line.*

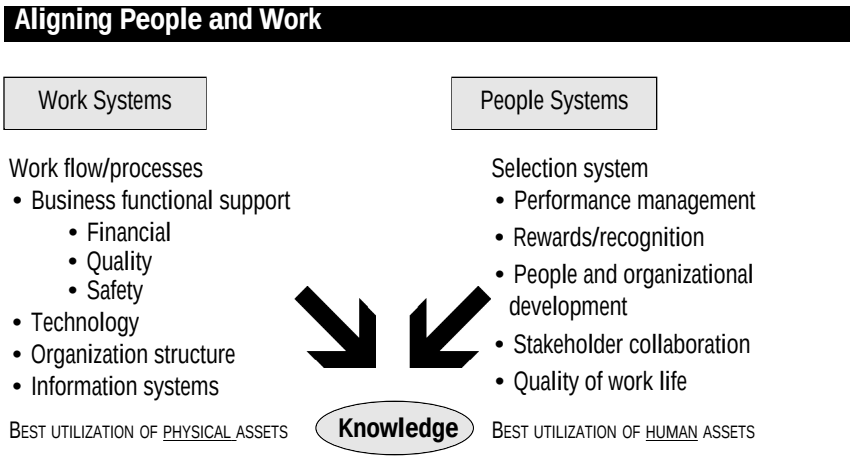

Figure 3. *Careful alignment of people with work systems promises optimum use of equipment and human assets.*

To ensure that individual line operators can function at this level of responsibility, the company has an extensive training program in place, consisting of both on-the-job and classroom training.

At the same time that food processing is being performed at a certain plant, the logistics execution system modules are already preparing for the arrival of the completed product at the manufacturer's DC for warehousing or cross-docking. Likewise, the transportation plan is already in place for subsequent shipping and delivery, and carrier and order status monitoring. In some cases, a shipment of an entire truckload order of a product, such as cereal, may go directly from the plant to the customer's DC and bypass the Kraft warehouse altogether. About 35 percent of all shipments are direct shipments of this type.

Accuracy is the Key

By establishing a user-friendly, single set of information and work practice systems, the company has set the stage for true connectivity across the enterprise. However, another issue must also be dealt with: the *quality* of information. Obviously, the information and instructions downloaded to a line operator working in a self-directed team must be highly accurate in order for the production plan to be implemented properly. This is one example out of hundreds and probably thousands in a day in which transactions across the enterprise depend greatly on data accuracy.

Therefore, as Kraft is completing its information infrastructure, it is also installing the capability to measure the integrity of the data moving through that infrastructure. The quest for data integrity includes a self-assessment program carried out at all company locations, by employees working at terminals. Validation of test data is used to first identify performance of each geographic area versus a predetermined goal.

Accuracy performance is measured also at the plant level and compared against performance of the area as a whole, and against corporate-level scores. Finally, individual units within a plant comprise the lowest-level metric. Each has its own trend graph and detail visible on a terminal screen. Trends in accuracy performance are tracked from time period to time period. Trend detail assessments are performed weekly, and provide an easily identified color rating. This activity is part of an ongoing continuous improvement program.

e-Business Evolving

Kraft Foods' drive to become fully Web-enabled is evolving, much as it sees the e-business arena in a constant state of evolution. That evolution follows these stages: 1) establishing a website (early to mid-90s), 2) e-commerce — buying and selling over the Internet (late 90s), 3) e-business — buying and selling, information sharing, standardizing on business practices (2000^{+}), and 4) intelligent e-business — synchronized and optimized end-to-end business processes, spanning multiple enterprises (2001^{+}). Today, Kraft is operating in stages 1 through 3, and is completing its work for operating fully in stage 4, intelligent e-business.

The company is installing the capability to purchase all maintenance and repair (indirect) parts over the Internet, through trading exchanges whenever possible. By and large, these are commodity and off-the-shelf items, which require little "pre-selling" or personal relationships, and are purchased primarily on price. Emergency orders for such products also are typically conducted online.

Likewise, Kraft conducts business wherever appropriate online with its contract manufacturing (or "co-manufacturing") partners. This e-business process includes describing the project, selecting the bid, signing the contract, maintaining visibility for the project status, signing off on the completed work, arranging for delivery from co-manufacturer to distribution center or retailer, and payment for services rendered.

Sharing and Collaborating Efforts

Information sharing and collaboration represent the main thrust of Kraft's online efforts with suppliers and customers as it builds its infrastructure for the final phase of intelligent e-business. Collaborative planning and forecasting systems are part of its arsenal in this area. Both online and face-to-face meetings are conduct-

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A Big Breakthrough for Food Industry B2B

A major new consumer products online marketplace was created in 2000 that will provide standards-based methods of collaboration planning, forecasting, replenishment, and procurement transactions online for the food and related consumer goods industries. The new business-to-business (B2B) marketplace company, called Transora, was formed by 49 leading food, beverage, and consumer products companies which contributed a total of nearly $250 million to fund the venture. Kraft Foods, Inc., a subsidiary of Philip Morris Companies Inc., is among the investors.

Transora's services will span the entire supply chain, from suppliers to manufacturers to retailers. It will provide procurement, vendor and product catalogs, online order management, supply chain collaboration, and financial services. Its first services — procurement and a product catalog — were being rolled out in fourth quarter 2000, supported by preliminary pilot transactions. Other more strategic services including collaborative planning, forecasting, and replenishment between manufacturers and retailers, are scheduled for rollout in 2001.

Transora issued a press release in which executives from sponsoring companies detailed the benefits of the new marketplace, and a major food industry trade association expressed its endorsement of the concept. According to Stephen David, CIO, The Procter & Gamble Company and a Transora board member, the new marketplace will dramatically transform the way the industry conducts business. "Conducting transactions electronically on a common platform with shared standards will provide tremendous value to the entire supply chain. Simply put, it will increase the overall quantity of service we deliver to our customers," said David.

"A key benefit of our services will be in improving the speed and liquidity of transactions for participating companies," added James Chestnut, executive vice president, The Coca-Cola Company and also a Transora board member. "Transora will offer a single connection to a broad array of services and exchanges on the Internet, providing ease of connectivity and associated cost efficiencies," he said.

Another endorsement of the concept came from the Grocery Manufacturers of America (GMA), a leading trade association within the consumer goods industry. "The speed with which these companies have come together and the financial commitments they have made clearly demonstrate the value of an industry-owned and operated global trading network," said C. Manly Molpus, GMA president and CEO.

By streamlining supply-chain transactions and connecting thousands of trading partners, Transora benefits multiple players. Suppliers gain access to a much larger customer base and reduce customer acquisition costs. Manufacturers benefit from improved customer service with retailers and wholesalers. Retailers and wholesalers can simplify their ordering process and improve order accuracy. All participants in the supply chain stand to benefit from increased connectivity, enhanced automation, and improved inventory management.

A Boon to Manufacturers

Manufacturers in this industry stand to benefit from access to more buyers and suppliers, from streamlined procurement processes, reduced leadtimes, and reductions in inventory and costs of goods. These companies also will have access to a set of value-adding tools, services, and methods that include integration and information management across the value chain, based on a set of common standards within the consumer packaged goods (CPG) industry. Because Transora will facilitate communications among trading partners, manufacturers can expect improved forecasting accuracy, resulting in better production planning.

More Than an Exchange

According to Transora, there are significant differences between e-marketplaces and exchanges. For example, B2B exchanges are all about commerce; they exist to facilitate commerce between partners. In other words, a B2B exchange is an electronic environment in which buyers and sellers come to transact business. Here, buyers can purchase items from suppliers through electronic catalogs. Or, through e-sourcing, one seller may be linked to many buyers, for procuring or selling goods and services. Likewise, exchanges can match supply and demand through real-time, bid-ask spot markets.

An e-marketplace, on the other hand, provides a broad offering of products, services, and content, as well as a venue for business transactions, including the use of exchanges. Thus, in addition to providing a number of supply-chain services, an e-marketplace might offer catalogs, e-sourcing, and an exchange environment. Going beyond the processes of buying and selling, e-marketplaces foster communication and collaboration among participants. In Transora's case, it provides the common technology platform with shared standards that enhances all the business processes in the supply chain.

Other investors in Transora besides Kraft Foods, Inc. include such companies as Coca-Cola, Diageo PLC, The Earthgrains Company, PepsiCo, Procter & Gamble, Sara Lee Corporation, and Unilever NV. Further information about the new e-marketplace is available on www.transora.com.

ed with both suppliers and customers in arriving at implementation plans and schedules that will meet customer needs.

An example of collaboration with suppliers is the relationship of one of Kraft's Canadian plants with a major supplier. This plant runs on a JIT production method, and the supplier keeps track of inventories over the Web. A vendor-managed inventory (VMI) program is in place here, with the supplier automatically keeping the plant inventory stocked as needed.

Kraft Foods' vision of being the undisputed leader in its industry takes on several aspects:

- Lowest cost, highest quality producer
- Most efficient use of people resources
- Most efficient use of operating equipment resources
- Most efficient use of technology
- Most effective use of the Web to synchronize all supply-chain processes
- Most rapid response to customer needs.

In its program to drive down costs, the company targets a one percent annual reduction in labor costs, plus the same reduction in yield, inventory, and transportation costs respectively, adding up to a total four percent annual cost reduction. The goal is being achieved in part with a careful alignment of work systems and the people who will function within them (Figure 3). The tactics include developing work practices and tools that will make the job easier, and reduce or eliminate the need for certain types of activity.

Work systems include production equipment used throughout Kraft's plants. The company closely monitors the efficiency of all operating equipment, looking particularly at: 1) operating speed, 2) reliability (percent uptime), and 3) first pass quality (little or no defects). Thus, the measure of overall equipment effectiveness (OEE) is: OEE = speed x reliability x first pass quality.

It is this best utilization of physical assets (equipment) coupled with the best utilization of human assets that will enable Kraft to achieve its aggressive productivity goals, which include:

- Five percent labor savings over five years through more effective labor scheduling and management
- Ten percent reduction in over-packing errors (through weight control procedures)
- Improved yield through product consistency and reduction in production errors.

In order to attain and maintain world-class status as a leader in its industry, Kraft recognizes that the bottom line today really lies in the final grade of customer service. Through its use of technology, and its development of integrated information systems and their application to supply-chain processes, the company has been able to show striking achievements in the area of customer service. In particular, reliability has been high, as evidenced by the ability to produce to order, and ship complete orders on time. Significant, ongoing cost savings are expected in the future.

Kraft's e-business activity is a work in progress. Major innovations are expected to continue as the cost of computer chips and storage memory keep dropping, and high-speed, broadband connections become widely available.

Meanwhile, a key to achieving successful supply-chain processes is for all partners to "speak the same language." To that end, an important part of Kraft's current e-business initiative is to influence outside industry partners to adopt common standards, and to establish a common "e-commercialization" language used across the supply chain. The common language is intended to help

New: An e-Exchange for Food Distributors

VolumeFoods, Inc., a leading e-procurement provider in the foodservice industry, announced last November the launch of the first online B2B exchange in the foodservice industry to use demand aggregation — the pooling of several companies' orders to make a single purchase. The new exchange, Volumefoods.com, is targeted to foodservice distributors with revenues between $10 million and $1 billion. Consisting of more than 75 company members from all over the United States with a combined purchasing power of over $4.5 billion, the exchange will enable distributors to easily consolidate their orders and rapidly increase their purchasing power on thousands of products.

Allowing distributors to pool their purchases together for large-volume discounts helps provide a bridge over the great purchasing power disparity existing within the industry between the top three national distributors and the rest of the country, according to the new exchange's CEO Mark Taylor. In addition to offering demand aggregation, Volumefoods.com provides registered users "a complete e-procurement solution," including the ability to place requests for quotation (RFQ), purchase directly from manufacturer listings, receive and track rebates, administer on-site credit, and manage the entire order process from requisition to order fulfillment.

Volumefoods.com obtained an exclusive license from Volumebuy, Inc. for the latter's NetPowerSales™ system, a trading exchange product containing a B2B demand aggregation solution. Built with established business rules and processes, the site offers distributors services including global sourcing, dynamic pricing, RFQs, order fulfillment and logistics, and account management.

Additional details on the trading exchange product may be obtained at www.volumesoft.com. Further information on the new foodservice exchange featuring demand aggregation is available at www.volumefoods.com.

users easily adopt and integrate electronically.

An important step toward the goal of improving Web processes and transactions among industry partners was the establishment in June 2000 of a major e-marketplace for the consumer goods industries. Original funding for the organization, called Transora, was provided by 49 leading food, beverage, and consumer products companies, including Kraft Foods. Details are provided in the accompanying box on p. 25, "A Big Breakthrough for Food Industry B2B." A foodservice industry online B2B exchange is described in the box, "New: An e-Exchange for Food Distributors."

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Additional Resources

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