M Makes the Money Go 'Round: Commodities Trading on the International Market

by Donald L. Gross

Behind the Scenes

Whether you eat nuts from Ghana, dried fruits from Kenya, vegetables from Mexico, or drink coffee from Brazil, you may not know that their importation may have been coordinated through a computer system driven by M Technology. As the world "shrinks" and international markets widen, computers play a key role in maintaining low prices. It is perhaps a primary reason why inflation in the United States has decreased—that is, because we now have the capability to track and monitor world prices to get the very best quality for the most competitive prices while simultaneously keeping overhead costs at a minimum.

An integrated software solution called VCTS (Vista Computer Trading System) uses M Technology to simplify the complexities of twentieth century global commerce. Installed first in 1980, VCTS operates on most available hardware platforms and is compatible with personal-computer networks, UNIX, and multiuser MS-DOS. Data, entered only once within the application, are portable from one computer system to another.

Buying, selling, and hedging purchases and sales are familiar aspects of the competitive import-export trade. Tracking, generating forms, and following government regulations require successful companies to oversee each commercial transaction in great and timely detail, but they are done behind the scenes. Also companies want to optimize profits and enhance trading capabilities while tracking the more mundane accounting and financial reporting requirements.

Understanding problems of international commerce is not gained from a textbook. Most organizations bring in trainees to learn their specific import-export operations and thereby educate personnel to their peculiarities. Regardless of an organization's size, there is a variety of specialists, each with specific capability and knowledge, to handle each distinct facet of its commercial business. Because of the particular division of labor in the unique field of international trade, most traders felt it was unlikely that there could be any outside organization who would understand all the intricacies from a data-processing vantage. Nevertheless, there are certain standards and assumptions indigenous to most of them. VCTS now incorporates more than 3,500 programs that can be tailored easily to suit individual companies. Customizations typically require 40 hours to 120 hours of programming/systems labor.

With M Technology, VCTS manages the many complicated transactions of trading by overseeing all open commitments to purchase or to sell and views them as a continuum of obligations on a monthly or longer basis. For example, purchasing commitments made today could commence 120 days later on a monthly basis for the following twelve months.

Even as open commitments to buy products exist, sales are being recorded for future periods and must be tracked as offsets to any given trading period. Likewise, as purchases are bound for market, it is important to monitor their whereabouts to ensure seamless coordination. Associated paperwork must be correct and generated quickly in order to eliminate excess freight, demurrage charges, or handling. If a ship is not unloaded quickly, the needless expense may run into tens of thousands of dollars per day and turn a profitable trade into a loss. Along with the purchase commitment, there are the letters of credit and financial arrangements to make and perhaps foreign exchange currency to secure. Likewise, offsetting trades can be arranged on the commodity markets to reduce risk. Once the product has been shipped, samples are taken for customer acceptance and for establishing a fair price.

Traders have scores of products that must be tracked simultaneously, of course. If you have ever seen the action on a stock market or commodities trading floor, you have a fairly accurate idea of the pace behind the scenes, too.

A Case Study on Coffee Trading

Long before today's importers and exporters could appreciate the major benefits of having a single information database

such as M—eliminating redundant data entry and other labor-intensive tasks—VCTS was developed and installed.

This case study will detail some of the complexities that M Technology has been able to manage well for international trade.

Let us assume that an organization buys coffee from South America and sells it in the United States, but sometimes it exports coffee to Canada or the Caribbean. Its contracts to purchase coffee are written by requesting a certain metric tonnage to be shipped over a period of time, either on a weekly or a monthly basis. Each coffee-exporting South American nation has different bag sizes for this coffee, with a nominal weight of 60 kilograms to 70 kilograms. Since coffee is sold by the pound in the United States, different units of measure (metric tons, nominal bag weights in kilograms, and pounds) must be factored in. Transporting the coffee or keeping inventory of it concerns the number of bags, the actual weight of the shipment and the groups of bags, and individual bag weights. But a nominal 69-kilogram bag rarely weighs exactly 69 kilograms. Therefore, adjustments must be made to either the number of bags or actual weights, which are expressed in metric tons, kilograms, or pounds.

Purchasers and sellers are concerned with costs and associated risks. To mitigate these concerns, they will often hedge commitments on one of the coffee-exchange markets. Hedging means that a purchaser or seller will buy against a sales contract or sell against a purchase contract as an offsetting transaction. Traders also may not necessarily hedge individual contracts, but rather their entire "book" or total position by trading period.

Purchases and sales can be made with no prices having been set. The formula for setting the price is completely negotiable. A trader may agree to buy coffee today with a price to be fixed at some future point, based on an exchange some place in the world, and the price set based on a closing price as of a certain day or combination of days. There may be premiums and/or discounts offsetting any firm price, as well as on any unpriced contract. These premiums or discounts can be triggered by the quality of the coffee, point of taking title, impurities within the coffee, or any of several other factors.

Purchases and sales are constantly being arranged for a future date and tracked by specific coffee quality, by contract, by groups of quality coffee, by trader, and by delivery location. Location is critical: If goods are destined for Florida, for example, they had better not be on a transport bound for New York for transfer to Florida—the cost is too high.

Coffee pricing can be based on any unit of measure, any currency or any other conceivable pricing schema determined by both parties. Further complicating matters are provisional invoices based on agreement, with the final invoice to come in the future. Monies can be paid in advance of the actual and final invoice or a final invoice can be generated with an offset.

Potential buyers often remove coffee samples for analysis. Removal and sampling information, such as recording which lots from which samples are selected and the results of each sampling, is important to track and report to everyone who participates in the inventory control, since the lot is reserved until the sampling party determines whether to purchase the group of bags. If a product is reprocessed, repackaged, or blended, the software package can account for each step. The package properly updates cost records while accurately establishing inventory and positions based on disposition of new products.

If various qualities or origins (namely, where the coffee was grown) are blended for the desired results for quality and taste, VCTS will remove the correct inventory during the blending or roasting process, transfer the specific costs of the inventory removed, increase the inventory of the new blended or roasted product, and transfer the costs including the manufacture.

Each bag will have its own unique identification or marks, groups of bags will have a lot control number, and shipments will have bill of lading numbers. Other pertinent information, such as railroad car number, vessel number, and sampling number, is recorded and transmitted on appropriate forms. Typical forms include sampling orders, inventory receipts, delivery orders, bills of lading, and invoice acknowledgments. There are others.

Relieving the Burden of Data Entry

Traditional invoicing procedures are laborious. The detail required is voluminous and determining the correct quantity, currency, and price is tedious. But through the VCTS, the initial data entry serves as a basis for all subsequent activity on the transaction. The simplification of the process generally has reduced the number of employees required to invoice clientele. In one case where there were six employees assigned to invoicing there is now one. The error rate perpetuated by extensive detail has been reduced drastically, too. Much of the accounting department's function has been eliminated at one company.

Also by tradition, trading "bookkeeping" required employees to enter information for each document prepared. Having a single database from which to generate a variety of reports

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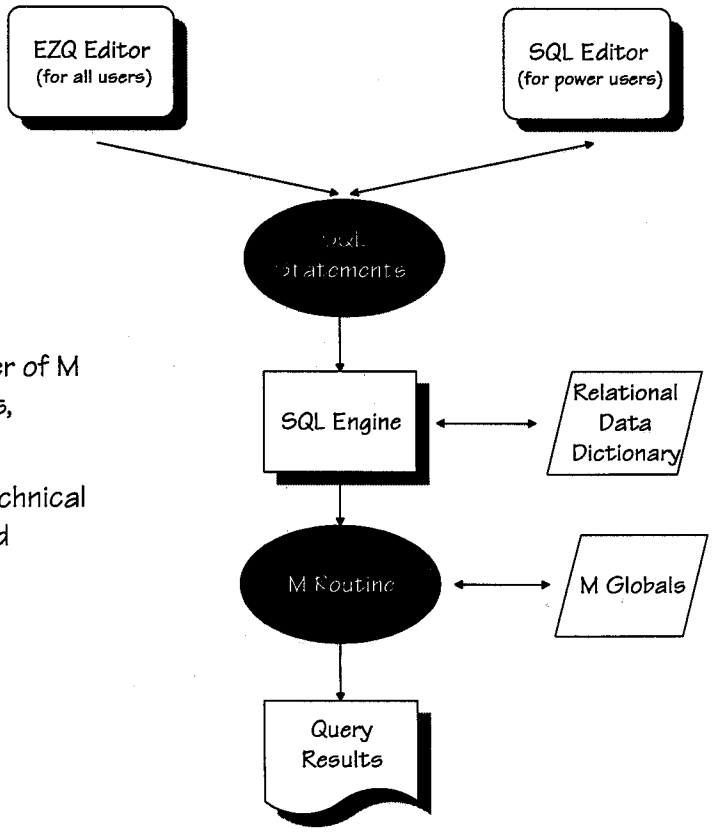

eliminates redundant labor. Cost accountants typically need most of the same information used by traders and operations personnel so as to analyze and document all costs associated with coffee transactions.

Entire cost-accounting operations can be summarized in a report that shows either detailed contract data or a monthly summary of all transactions for that type of product, analyzing all costs involved in receipts, inventory, and sales.

Some Generalizations about Trade

While this article uses coffee trading as an example, it could have described any of the other soft commodities, such as cocoa or sugar. Each has its peculiarities. Other commodities, such as chemicals, plastics, bulk agricultural products, metals, minerals, package food, wood pulp, rubber, animal and vegetable oils, nuts, and seeds are also traded and supported by the technology we know as M. We do not know of any product that cannot be addressed well by the technology.

Virtually every facet of international trade tends to differ from traditional commercial applications, because open purchases and sales are made not with agreed-upon prices but with pricing mechanisms that are triggered in the future. The provisional invoice rests upon any agreed-upon formula. Monthly tracking of profits and loss by trader, product, vendor, and so on, is key to success. Trading organizations typically will deal with larger quantities of products at lower margins so that costs must be better known and contained to lead to profits. Methodologies of trading organizations permeate down to distribution organizations since they essentially must be very exacting in the competitive market.

M as the Problem Solver

M Technology seems as near to the ideal vehicle to address business and commercial needs as exists, including all fourth-generation software. Its strongest selling point is that the entire suite of programs resides in one file. Hundreds of pointers interrelate such diverse items as pricing, shipments, letters of credit, and cost accounting. The complexities of international trade require the flexibility to change field lengths rapidly and effectively, as well as adding new fields as each case dictates. Just in the accounting area, greater detail on shipments, orders, vessels, prepayments, or cash management on obligations and imputed interest, enhances a trader's market position. Reducing clerical machinations and data-entry tasks while tracking incurred obligations is critical to keeping a competitive edge.

Of course there are numerous accounting packages available from software distributors or through consultants, varying in price from a few hundred dollars to a few thousand dollars.

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Large enterprises may have systems developed by in-house experts or by outsiders for $200,000. But what about the smaller organization with a limited cash flow and a Fortune 500 mindset? This is someone in between the canned software approach and a major overhaul, who is aware that functionality is often a disappointment once a new system is fully implemented.

Our approach was to develop a generic package that covers about 90 percent of a organization's total accounting needs, and then to provide hooks leading to cost-effective turnkey solutions. By providing flexibility, variable record lengths, and hierarchical data structures, all within the single database, we give each user a relatively inexpensive custom system. The system includes a complete general ledger with financial reporting, plus all the subtle nuances of receivables and payables such as prepayments, provisional invoicing, and supplier or customer transactions. The single database technology enables such reporting facilities as detailed and summary cost analyses by accounting periods and year-to-date inventory valuations, mark-to-market and imputed interest, all of which are typical manual accounting nightmares.

Once VCTS is imbued with trade-specific parameters and controls, which are likely to be unique to each company, that company will not depend on special data-processing personnel or outside consultants. M enables us to track not only specific VCTS systems for each client but also to modify the base system quickly and effectively. Sometimes design modifications require as much time as programming modifications. But because we have gained expertise in this special market and couple it with the high-level technology of M, we have been able to be effective.

M Technology has enabled VCTS and its multiple modules to perform many tasks on many levels to manage a company's market position. For example, functionality exists to enter purchase and sales contracts for a product or group of products, and to present a six-month view of open obligations. The traffic, or operational, requirements of an organization, are addressed by maintaining a complete audit trail for product movements. A proper audit trail also will expedite the production of all relevant documents such that bills of lading, shipping notices, and delivery orders can all be generated based on tracking product movements. M

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