

1977

Logistics imbalance: Authority vs systems

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Recommended Citation

Tempo, Vol. 23, no. 2 (1977), p. 07-10

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A LOGISTICS IMBALANCE

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Today we are in the grip of a tightening energy and materials crisis. In management terms, the crisis can be described as one of insufficient resources. The crisis goes beyond mere temporary shortages. It has a heavier longer-range impact than waiting for the completion of the Alaskan pipeline, the opening of Russian natural gas fields, or implementing the process to recover oil from shale in our western states and Canada. Many basic resources for manufacturing or distribution—ranging from water to raw materials to transportation vehicles—are in short supply.

History teaches that these factors will fluctuate. Over the short and intermediate term, the energy crisis is apt to crest and abate according to political circumstances. Further, technology can be expected to come to a series of intermittent rescues, should the political process permit.

But will it? The technology does exist in this country and elsewhere to develop alternate sources of energy, which could conceivably overcome the current shortage of fossil fuels. However, access to some of these alternate sources is increasingly subject to political pressures, due to a real or imagined environmental impact. As a result, our technological mechanisms are idling while irreplaceable resources are being depleted.

In these circumstances, logistical management—the planning for, control of, and shipment of materials, as diagrammed in Figure 1—will become increasingly important. In a world where it will no longer be possible to call a supplier and have raw materials delivered the next day, companies will prosper according to their ability to anticipate the need for raw materials and assure their delivery.

In the past, logistical activities have been fragmented, with each phase of an operation resolving its own needs. But recently businesses have begun restructuring their operations to include the so-called “unified” approach, which has recognized the interdependence among physical distribution, materials management, and logistical management.

It has been estimated that logistical activities syphon off between 35 and 45 percent of a company’s revenue, and that this figure is growing at an astonishing rate. Transportation expenses go up, for example. Labor demands new raises without providing matching gains in productivity. Warehousing costs are on the increase. And the cost of money—interest rates—for all its fluctuation, trends upward.

Obviously, no company can absorb such cost increases indefinitely. Eventually, higher operating costs must be passed along to customers in the form of higher prices, or a

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dilution of quality. However, the marketplace is not infinitely elastic. Experience shows that people buy less of an item which is priced too high—or they do without entirely. Performance, therefore, still depends on efficiency. The company which delivers the best value enjoys the greatest success.

Because resource shortages are a major contributor to increased costs, the impact of these shortages—actual or potential—must be managed. Systems must be created to provide timely information on what fluctuations in a resource's availability will mean to an enterprise. This knowledge is becoming so critical that the existence of many businesses is at stake.

The Challenge

A continuing stream of new technology has changed logistical management in one generation. But perhaps most significant is that computer and data communication technology has enabled businesses to manage the massive volume of statistics required by logistical operations.

Yet one has to wonder why, with all of these technological advances, we still cannot manage to operate our businesses as a single entity rather than as a group of fragmented fiefdoms. The answer is complex, but it may be traced to two root causes:

- We have concentrated too much on the technical side of new computer technology.
- We have let our organizational approaches become outdated.

The result is that American industry lags behind computer industry technology by several years. This is sad, but not harmful. What has been harmful is the computer industry's apparent unwillingness to recognize that the computer's potential will not be realized until the organizational structure of a business and its systems structure are wedded.

In all fairness, the computer industry did attempt to bridge this gap back in the 1960s. The approach was all-encompassing and was entitled management information systems. When MIS failed to meet its potential, it was due in part to the computer industry's lack of supporting technology and in part to business' unwillingness to deal with the organizational question.

The MIS approach was a failure because the natural flow of a company's organization structure is vertical, whereas MIS approaches tend to flow laterally across organizational boundaries (see Figure 2). Nor was it successful when the computer industry turned the natural flow of its systems so that it would coincide with the natural flow of the organization. The organizational/systems gap persisted.

What organizational elements does logistical management deal with? They may include traffic, transportation, production planning, inventory control, purchasing, order processing, warehousing, data processing, and data communications. Responsibility should, of course, apply only to those elements necessary to the business at hand. That is, a distribution company would not require a capability for production planning and control.

The Response

"First, we have to get organized."

This is a time-proven adage of management. Every manager knows this. Unfortunately, there are many gaps between knowing and doing. In general, organizing around logistical management concepts requires bringing together, under one leader, all the logistical elements within an enterprise.

Such a logistical approach serves two basic management requirements:

- Responsibility for logistical activities is established.
- Channels of communication are defined.

Structuring an organization along these lines, however, will almost inevitably result in objections being raised. For redundant activities will be eliminated. Overall personnel requirements will usually be reduced, and budgetary responsibilities will be shifted. On one major engagement, for example, the reorganization of the logistical planning elements of a large manufacturer and distributor of specialty foods helped to reduce operating expense by approximately \$2 million a year. This was in addition to several million dollars of annualized benefits that were achieved through reductions in operating personnel and inventories.

There is another reason that resistance to organizational change can be expected. Once lines of communication and authority have been in place for some time, managers and their subordinates become comfortable. The status quo breeds security. Such confidence and security are not conducive to change.

This challenge to management, then, is largely one of communication, of helping individual managers see the value of becoming a vital, integrated part of a larger entity. The ideology that considers it better to be a big frog in a small pond rather than a small frog in a big pond is passé.

In any enterprise, but especially in those which make or distribute goods, a need for logistical services exists. In general, logistical management falls within two basic patterns:

- A centralized, functional organization.
- A decentralized, profit-centered structure.

Figure 1 — OPERATIONAL ELEMENTS OF LOGISTICAL MANAGEMENT

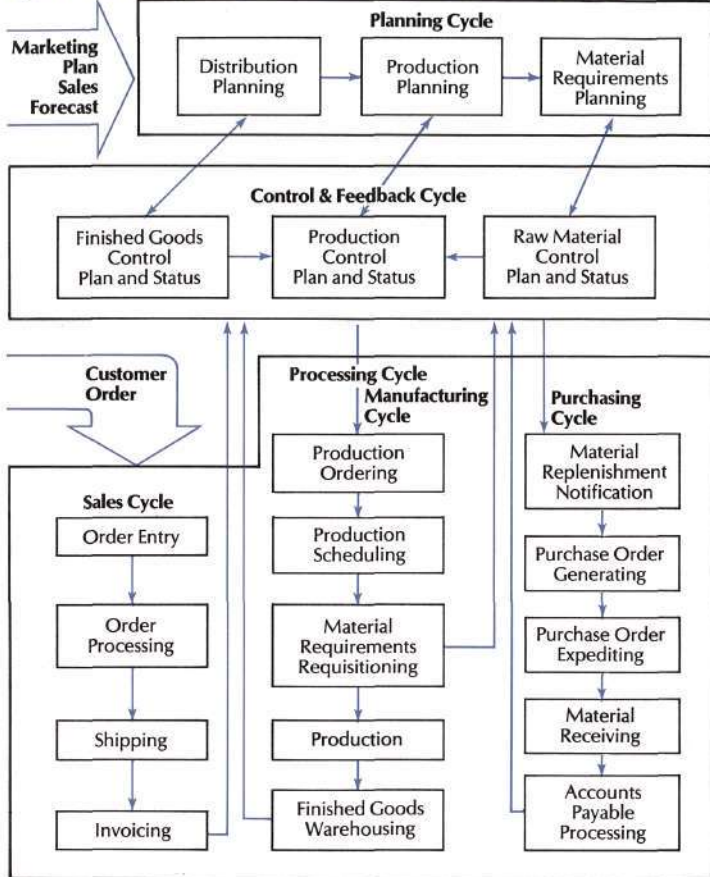


Figure 3 — FUNCTIONAL ORGANIZATION

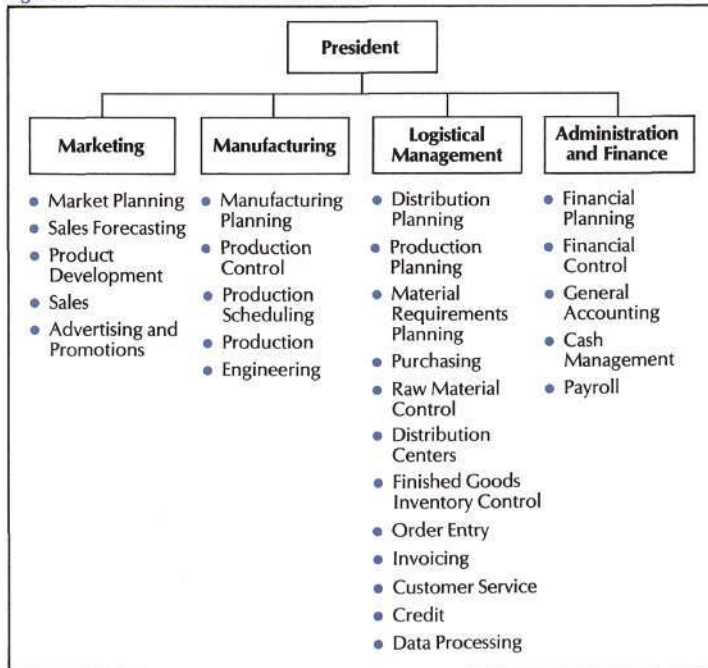


Figure 2 — ORGANIZATIONAL and SYSTEMS CONFLICT

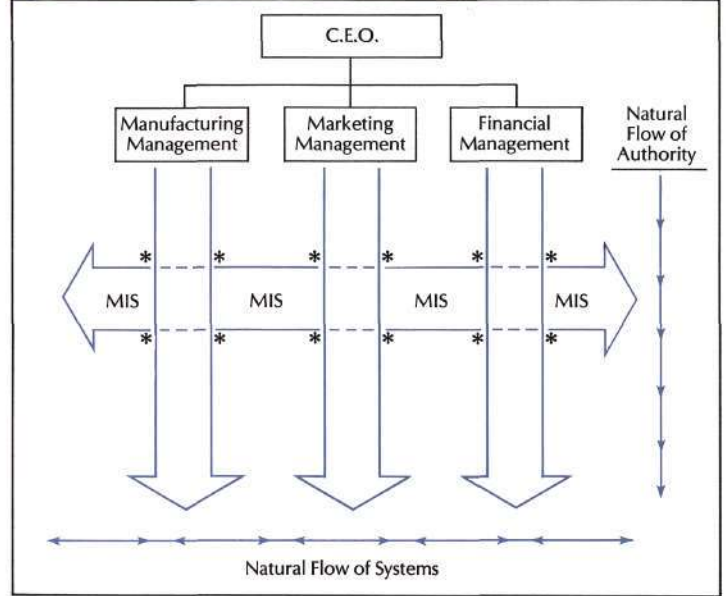
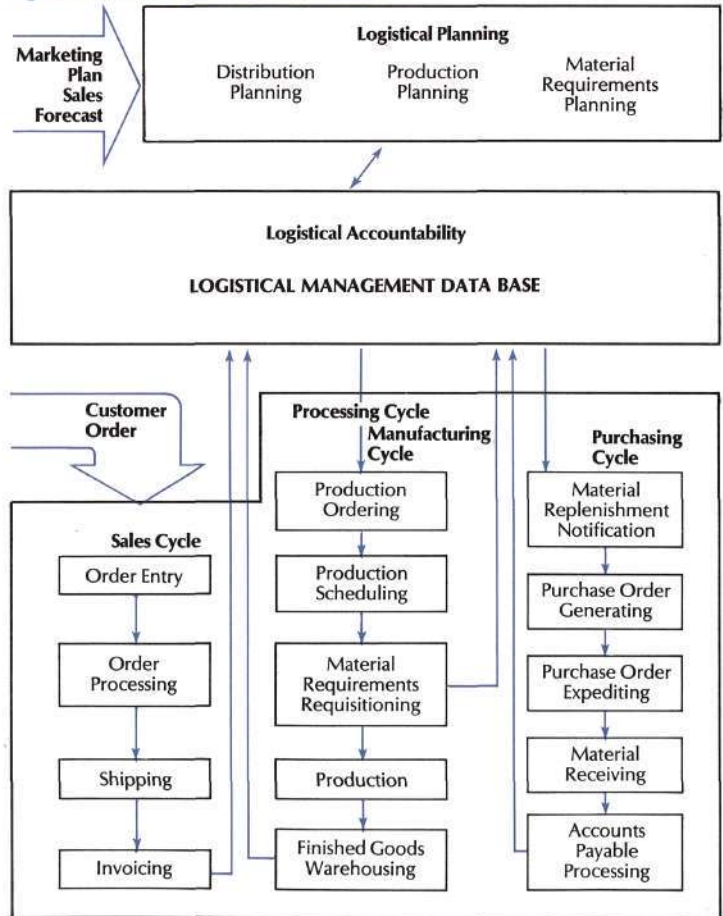


Figure 4 — REVISED OPERATIONAL ELEMENTS



Only the centralized, functional organization will be examined here, since decentralized organizations are too varied in structure to deal with in an article of this length. However, the concepts that follow are also applicable to the decentralized type.

Under a centralized organization, boundaries are drawn between manufacturing, marketing, and finance. Normally, each of these functions will perform several logistical activities. The marketing function might include distribution planning, inventory control, order entry, customer service, and so on. The manufacturing function might include requirements planning, raw material control, and production planning and control. The financial function might include invoicing, credit, and data processing. The costs involved in controlling the transaction flow of as simple a transaction as a customer order are staggering in most large, centralized organizations structured in this way.

Coordinated Approaches

A centralized, functional organization might implement the principles of logistical management as shown in Figure 3. That is, all staff and line operating elements of logistical management have been consolidated within a single function, which has been placed under a top-level executive. This puts logistical management at a level with manufacturing, marketing, and finance. Of course, the service mission of logistical management remains the same. It exists solely to provide cost-conscious support to other functions within the enterprise. This will be true in this or

any other type of organization structured around logistical management principles. The organization chart in Figure 3 is similar to the organization that the firm structured for a medium-sized manufacturer and distributor of medical solutions.

Indeed, the elimination of intra-organizational conflict through such reorganization provided the client with savings of millions of dollars in reduced costs. A more important benefit, however, has been the reduction in antagonism between the major functions of the organization. Everyone is being dealt from the same deck of cards.

This type of organization (Figure 3) offers a balanced, total-cost approach which places the logistical management responsibility in the hands of one key manager. Implied in this authority is accountability. The subtleties of this implied authority are illustrated in Figure 4. In this example, we have eliminated the dependencies between planning and control elements that were illustrated in Figure 1 and substituted an integrated approach that utilizes data base techniques to monitor the logistical planning cycle.

The data base in Figure 4 records all material-related transactions that occur in the normal day-to-day operations of an enterprise. This transaction flow, when combined with the status controls of logistical management (finished goods inventory control, shop floor control, and raw material inventory control), provides an informational base for everyone within the enterprise. The business can now operate as a single unit with the same set of goals, objectives, and results.

This symmetry of organization is illustrated in Figure 5, wherein the natural flow of authority has been disengaged from the natural flow of systems. They are permitted to follow their natural paths. Only now, instead of conflict, there is harmony. The inherent "right to know" has been satisfied.

Recognition of its systems orientation is an important starting point from which to develop an understanding of logistical management. Next comes recognizing the needs to adjust organizational patterns to coincide with the natural flow of systems; this is at the very core of systems management.

Once its concepts are accepted, logistical management can be responsible to established, proven systems management techniques. In effect, the same approach which anticipates the myriad details required to deliver an astronaut to the moon or an aquanaut to the ocean floor can also render manageable the substantial details associated with acquiring, controlling, processing, and distributing materials.

Figure 5 — LOGISTICAL MANAGEMENT DATA BASE

