

Decentralization

In large multiproduct, multilocation, hierarchical entities, typical of our modern business enterprises, managers must decide who in the organization will have the authority and responsibility for making particular decisions and how such a decision maker will be evaluated and rewarded. In this and the chapters that follow, we will introduce the notion of decentralized operations: the benefits, costs, and special problems that arise in the management and evaluation of decentralized organizational units.

A large corporation contains many diverse entities and departments. These units perform activities as varied as product design and development, operations and production, logistics, purchasing, financing, information systems, marketing, and sales activities. The units typically interact with each other but may still be operated separately. For production operations, the output products of one activity may be the inputs to another, making it important that the volume of these two activities (such as component production and assembly, or production and marketing) be balanced. Some commodities may have to be purchased from external vendors, stored at various sites, transported among and within plants, and assigned to the activities that use these commodities. Some activities produce finished goods that need to be transported, stored, and sold by the other activities. Coordination is needed not only at a single point in time but continually—over many time periods—as the diverse activities respond to changes in the marketplace.

In addition to the production and marketing activities, a whole range of support and service activities must be coordinated. Functions such as personnel, information systems, finance, legal, research and development, utilities, maintenance, and engineering must be made part of the firm's overall planning and control process.

One approach to managing the diverse and complex activities of a large organization has been to stress central control. With this view, organizations are characterized by

vertical, hierarchical relations; control is exercised by orders from above and executed as specified by those below. Interacting activities are coordinated by plans set at higher levels. Accounting systems and periodic reports provide the central management with all the information needed to formulate plans and to detect any departures from centrally determined policies.

In practice, of course, no central management can possibly know everything about an organization's many activities. Therefore, central management cannot make all the decisions for lower-level managers. Many decisions must be made at the lower or local levels of any organization. The challenge in organizational and informational design is to balance the benefits and costs from decentralized decision making—benefits and costs that are a function of a firm's particular resources, constraints, and opportunities.

Alfred Chandler, in his landmark studies of the development of American industrial enterprises, clearly articulated the demand for decentralized organizations:

The lack of time, of information, and of psychological commitment to an overall entrepreneurial viewpoint were not necessarily serious handicaps if the company's basic activities remained stable, that is, if its sources of raw materials and supplies, its manufacturing technology, its markets, and the nature of its products and product lines stayed relatively unchanged. But when further expansion into new functions, into new geographical areas, or into new product lines greatly increased all types of administrative decisions, then the executives in the central office became overworked and their administrative performance less efficient. These increasing pressures, in turn, created the need for the building or adoption of the multidivisional structure with its general office and autonomous operating divisions.¹

That a certain amount of decentralized decision making is necessary within a firm should not be surprising. A modern corporation, after all, is an economy in miniature (some of our largest corporations actually produce more goods and services than many developing nations around the world). A large corporation has internal capital and labor markets—or at least mechanisms for allocating capital and labor within the firm. It has unemployment problems, suffers from cyclic fluctuations, and must be concerned with its supply of money. The firm employs planners, forecasters, and stabilizers. The actions of one organizational unit can affect many other organizational units, so that externalities among organizational units are abundant.

Socialist economies, with central direction and resource allocation, failed because they had ineffective production enterprises that lacked adequate incentives to respond to consumer preferences and the continually changing demands of the marketplace. If information and computational complexities make it desirable to have decentralized resource allocation and decision making in an economy, then a certain degree of decentralization must also be desirable within large organizational units that function within a market-based economy.

A major control problem that arises when decentralizing decision making within a company is that prices, which play such a vital role in a capitalist economy, are not as readily available within the firm to guide local decision making. There are not enough economic agents within a firm to simulate a full market system. Moreover, because of the external owners' lack of information or inability to audit behavior, managers may be mo-

tivated to act in a way that promotes their own self-interest at the expense of the owners of the firm. Therefore, a firm uses a collection of nonmarket mechanisms—such as internal communication, contracts, standards, budgeting, reporting, and reward and punishment systems—that facilitate resource allocation and decision making in the presence of information constraints that prevent markets from operating well. In this chapter and the remainder of the book, we consider these nonmarket institutional arrangements within the firm.

WHY DECENTRALIZE?

The above introductory remarks provide some general motivation for the demand for decentralized decision making. Let us now look more closely at specific incentives for firms to decentralize.

The Environment of the Firm

Successful managers must continually track the key variables in their external environment so that the firm can act before external events overwhelm it. The need to constantly scan the environment has important implications for the internal organization of the firm.

Contingency theory, a popular organizational model, predicts that the complexity of a firm's environment will determine the complexity of the internal structure of the firm. Paul R. Lawrence and Jay W. Lorsch, after an extensive study, concluded that firms whose internal processes were consistent with external demands were the most effective firms in dealing with their environment.² Complex and uncertain external environments demand that more resources be expended to monitor that environment and that more decision making will have to be decentralized within the firm to experts who can specialize in developing information about, and developing the expertise to deal with, the changes in the firm's environment. These local experts can then respond quickly and effectively to opportunities and changes.

In one of the most famous studies in the organization design literature, T. Burns and G. M. Stalker discovered a predictable relationship between the external environment and the management structure of the firms in their study.³ R. L. Daft summarized their results as follows:

When the external environment was stable, the internal organization was characterized by rules, procedures, and a clear hierarchy of authority. Organizations were formalized. They were also centralized, with most decisions made at the top. Burns and Stalker called this a "mechanistic" organization system.

In rapidly changing environments, the internal organization was much looser, free-flowing, and adaptive. Rules and regulations often were not written down, or if written down were ignored. People had to find their own way through the system to figure out what to do. The hierarchy of authority was not clear. Decision-making authority was decentralized. Burns and Stalker used the term "organic" to characterize this type of management structure.⁴

The results reported by Burns and Stalker are summarized in the following list:

MECHANISTIC FORM	ORGANISTIC FORM
Appropriate for stable conditions	Appropriate for changing conditions
Tasks are highly specialized and differentiated	Tasks are shared jointly and on a cooperative basis
Tasks and obligations are precisely defined	Tasks evolve and are defined by the nature of the problem faced
Control, authority, and the flow of information are hierarchical	A network structure of control, authority, and information is used
The many operating rules and procedures are rigidly enforced	The few rules that exist are commonly ignored
The hierarchical structure of the organization is reinforced by locating knowledge and the control of tasks exclusively at the top of the hierarchy	Knowledge and control are located where the decision is made in the network
Communications are downward and vertical and consist mainly of rules, instructions, and decisions to implement	Communications are lateral and consist primarily of sharing information and advice

Information Specialization

Perhaps the strongest factor leading to decentralization is the difficulty, if not impossibility, of sharing all local information with the central management. Local managers, through observation and experience, develop specific expertise on such matters as local market opportunities, production possibilities and constraints, morale and capabilities of their labor force, and quality and reliability of local suppliers. It would be extremely difficult, costly, and time-consuming for local managers to communicate all the relevant information they possess to a central management. Many of these observations would be difficult to quantify or even to verbalize. Language limits people's ability to articulate their knowledge and intuition, whether using words, numbers, or graphics, in ways that will be understood by others. Managers will find, despite their best efforts, that their information is not sufficiently well formulated to communicate their intuition and judgment about relevant local information. Thus, an extremely important force toward decentralization is the desire to place decision making where the relevant information is acquired, stored, accessed, and processed.

Timeliness of Response

Decentralization also permits local managers to respond quickly when making and implementing decisions. By allowing some degree of local decision making, the decentralized unit can respond to unexpected conditions faster than if all actions had to be approved by a central management group. Centralized decision making introduces delays during (1) transmission of the decision-relevant information from the local to the central unit; (2) as-

sembly of the relevant people in the central decision-making unit plus the time they require to assimilate information, deliberate, and reach a decision; and (3) transmission of the recommended decision from the central unit back to the local unit where it will be implemented. Ralph Cordiner, one of the prime forces for decentralization during his tenure as president of General Electric during the 1950s, expressed this view well:

Unless we could put the responsibility and authority for decision making closer in each case to the scene of the problem, where complete understanding and prompt action are possible, the Company would not be able to compete with the hundreds of nimble competitors who were, as they say, able to turn on a dime.⁵

Conservation of Central Management Time

Presumably, the time of the central management group is one of the firm's scarcest resources. The vast numbers of local decisions called for would overwhelm even the most talented, hard-working, and resourceful group of top executives. The law of comparative advantage operates within firms, as well as among firms. Even though, for any particular local decision, a top executive may make a somewhat better local decision (once all the relevant situation-specific factors are effectively communicated and explained) than the less-experienced or less-talented local manager, it is not necessarily optimal for the top executive to make all the local decisions. If the senior executives spend their scarce time making slightly superior day-to-day operating decisions, they may ignore the strategic decisions that in the intermediate to long run are more vital to the firm's success. Therefore, central management's attention should be committed to setting broad policy and strategic direction, leaving local managers with the authority and responsibility to make the appropriate day-to-day operating decisions, consistent with the high-level objectives established by top management.

Computational Complexity

Even if it were decided to centralize all decision making, it may not be possible to compute globally optimal decisions. With exceedingly complex operations characterized by extensive interactions and discontinuities in scale, it may be virtually impossible to solve reasonably sized resource allocation problems centrally. Limits exist to the complexity of problems that can be solved by human decision makers (a situation referred to as bounded rationality), and even computer-based algorithms cannot optimize very large systems, especially systems with nonlinearities and discrete (integer) variables. When the environment is also characterized by uncertainty, the simplifications and heuristics required for centrally determined decisions could easily lead to decisions inferior to those that would be reached at decentralized levels. Again, the analogy between a centralized firm and a socialist economy is instructive. Socialist economies have found it impossible to make all major resource-allocation and production decisions centrally. Examples of these types of difficulties are the shortages and bottlenecks reflecting, perhaps among other things, the difficulty of coordination that must be faced in planned economies. In decentralized organizations, general directions and guidelines are provided to local plant managers, who still retain discretion for decisions on resource acquisition, product mix, and distribution. These decisions are guided by incentive plans and a limited use of the price system.

Training for Local Managers

If all significant decision making were done centrally, local managers would mainly be implementing the centrally determined plans. The managers would acquire experience in motivating employees and meeting production or distribution schedules but would not receive training in decision making. How, then, would the next generation of central management acquire the requisite experience to become good resource allocators and strategic decision makers? And on what evidence could we determine who, among the many local managers, would be best qualified for advancement to the higher decision-making levels? Some degree of local decision making is desirable to (1) provide training for future general managers and (2) indicate which managers seem best qualified for advancement to higher levels of decision making.

Motivation for Local Managers

Finally, good managers are ambitious and take pride in their work. If their role is restricted to carrying out instructions determined at higher levels, they may lose interest in their assignments and cease applying their talents to their assignment. The firm may also find it difficult to attract creative and energetic people to serve merely as decision implementors. Managers will become more motivated and interested in their assignments when they are permitted more discretion in performing their tasks. Allowing for decision making at a local level encourages managers to be more aggressive in their acquisition of local information and more entrepreneurial and strategic in their actions. The challenge, of course, is to design incentive systems so that such aggressive, entrepreneurial, and strategic activities at a local level are consistent with overall corporate goals and objectives.

Summary

The arguments for decentralization seem compelling. The outcome, or payoff, of any reasonably sized organization depends on many interrelated decisions about decentralized, or local, activities. Different members in the organization have different bodies of knowledge and abilities to act. It is impossible for any individual or central group to possess all the relevant information, experience, time, and computational power to determine the detailed operating plans for the organization. Accepting this argument, however, still leaves us with the extremely difficult problem of how to decentralize decision making in practice. Present practice provides evidence on five types of decentralized organizational units. These units differ depending on the degree of authority and responsibility given to the local manager.

ORGANIZATION OF DECENTRALIZED UNITS

All units in an organization acquire inputs and produce outputs, either goods or services. Units differ, however, in the ease with which the outputs can be measured and in the discretion given to the local manager for acquiring inputs and choosing the type and mix of outputs. These considerations make different types of decentralized units appropriate depending on the difficulty of measuring outputs and the discretion or responsibility given to the local manager.

We start the discussion by considering organizational types that are evaluated solely by financial measures. This has been the traditional method used to measure and monitor the performance of decentralized units. In Chapter 8, however, we will discuss the Balanced Scorecard, a recent innovation that allows the performance of decentralized units to be assessed using a comprehensive set of financial and nonfinancial measures.

Financial performance measures can be applied to five types of decentralized units:

1. Standard cost centers
2. Revenue centers
3. Discretionary expense centers
4. Profit centers
5. Investment centers

Here, we briefly review these types of organizational units. Profit centers and investment centers are treated in more depth in later chapters.

Standard Cost Centers

Standard cost centers can be established whenever we can define and measure output well and can specify the amount of inputs required to produce each unit of output. Usually, we think of standard cost centers as arising in manufacturing operations in which, for each type of output product, a standard amount and standard price of input materials, labor, energy, and support services can be specified. Standard cost centers, however, can be used for any repetitive operation for which we can measure the physical amount of output and specify a production function relating inputs to outputs. Thus, even in service industries such as fast-food franchises, banking, or health care, we can establish standard cost centers based on the number of hamburgers and milk shakes sold, on the number of checks processed, or on the number of patient tests or radiological procedures performed.

In general, managers of standard cost centers are not held responsible for variations in activity levels in their centers. They are held responsible for the efficiency with which they meet externally determined demands as long as the demands are within the capacity of the cost center. Efficiency is measured by the amount of inputs consumed in producing the demanded level of outputs. The implication is that if a full-cost scheme is being used, the managers are not responsible for underabsorbed overhead due to volume variances. They are, however, responsible for controlling the overhead costs expected to vary with activity volumes and the level of discretionary fixed costs in the center.

Managers of standard cost centers do not determine the price of their outputs, so they are not responsible for revenue or profit. Nevertheless, if the output does not meet the specific quality standards or is not produced according to schedule, the actions of the cost center will adversely affect the performance of other units in the organization. Therefore, quality and timeliness standards must be specified for any standard cost center, and its manager must produce output according to those standards.

For a standard cost center, then, efficiency is evaluated by the measured relation between inputs and outputs, and effectiveness is evaluated by whether the center achieved the desired production schedule at specified levels of quality and timeliness.

Standard cost centers and the detailed analysis of variances from standards are discussed extensively in cost accounting textbooks, so further discussion is not required

here. For our purposes, standard cost centers will be useful when we can objectively measure output, including quality and timeliness as well as the quantity of physical units, and when we have a well-specified relationship between outputs and inputs. The product (or output) must be standard enough that the manufacturing unit need not make decisions on price, output quantity, or product mix; these decisions can be made centrally or delegated to a marketing unit. Also, decisions on plant equipment and technology for the standard cost center will usually be made centrally, not by the cost center manager. Perhaps the only variation of this simple model would be those firms that impute a capital charge for raw material and work-in-process inventory to encourage cost center managers to achieve production goals while attempting to reduce inventory quantities.

Revenue Centers

Revenue centers exist in order to organize marketing activities. Typically, a revenue center acquires finished goods from a manufacturing division and is responsible for selling and distributing those goods. If the revenue center has discretion for setting the selling price, then it can be made responsible for the gross revenues it generates. If pricing policy is determined outside the revenue center (say, at the corporate level), then the manager of the revenue center is held responsible for the physical volume and mix of sales.

When a performance measure is chosen for a revenue center, some notion of the cost of each product should be included so that the center is motivated to maximize gross operating margins rather than just sales revenue. If evaluated solely on sales revenue, managers may be motivated to cut prices to increase total sales, spend excessive amounts on advertising and promotion, or promote low-profit products. Each of these actions could increase total sales revenue but decrease overall corporate profitability.

On the basis of recent developments in activity-based costing (see Chapters 4 and 5), sales units can now be assigned both the costs of items they sell and the costs of serving their individual customers. Consequently, companies can use activity-based costing to transform revenue centers that perform marketing and sales activities into profit centers. Before the development of ABC, companies did not have accurate measures either of the specific product costs purchased by customers or of the costs of serving individual customers. Lacking such specific information, companies could not evaluate the profit contributions from marketing and sales organizations. With the increased application of ABC concepts to distribution, marketing, and sales activities, the rationale for treating many units only as revenue centers is sharply diminished.

Discretionary Expense Centers

Discretionary expense centers are appropriate for units that produce outputs that are not measurable in financial terms or for units where no strong relation exists between resources expended (inputs) and results achieved (outputs). Examples of discretionary expense centers are general and administrative (G&A) departments (controller, industrial relations, human resources, accounting, legal), research and development (R&D) departments, and some marketing activities such as advertising, promotion, and warehousing. The output of G&A departments is difficult to measure. For departments such as R&D and marketing, often no strong relation exists between inputs and outputs. For the R&D and marketing functions, we can determine whether the responsible departments are being

effective. That is, we can see whether they are meeting the company's goals in terms of new products and improved technologies (for R&D) and sales volume or market penetration (for marketing). Because of the weak relationship between inputs and outputs in these departments, however, we are unable to determine whether they are operating efficiently—that is, producing the actual amount of output with the minimally required inputs. For the G&A departments, it is even more difficult to measure output, so neither effectiveness nor efficiency can be determined. Instead, companies usually control such departments by monitoring the amount of resources provided to them—spending, people, and equipment—rather than by the outcomes they achieve. They use controls on the inputs used by the discretionary expense centers rather than using results control.⁶

Given the difficulty of measuring the efficiency of discretionary expense centers, a natural tendency may arise for their managers to desire a very high quality department even though a somewhat lower quality department would provide almost the same service at significantly lower costs. Accentuating this tendency, the white-collar professionals who typically staff these centers prefer to have the best people in their discipline associated with them so that they can take pride in the quality of their department. Thus, it becomes difficult for central management to determine appropriate budget, quality, and service levels for the firm's discretionary expense centers.

One solution is to look at industry practice to see whether the company's expenditures on a given function are in line with those of other companies. (A cynic could deride this guideline as the blind following the blind.) We frequently see a company's R&D budget, for example, expressed as a percentage of sales. Even though there is no plausible reason why a company's R&D expenditures should be causally related to its sales, such a percentage rule facilitates intercompany comparisons.

Basically, determining the budget for a discretionary expense center requires the judgment of informed professionals. The central management needs to trust and work closely with the managers of discretionary expense centers to determine the appropriate budget level. The managers of such centers are in the best position to predict the consequences of changing the budget by +10% or +20%. After finding out which activities would be augmented or reduced by changes, central management could then decide on the budget and hence on the quality or intensity of effort for the next period. Discretionary expense centers are an excellent example of cases in which great information asymmetry is most likely to exist between a local unit manager and central management.

Once the budget for a discretionary expense center has been determined, no great benefit can result from pressuring the local manager to bring actual costs in under budget. Having actual spending below budgeted levels is not necessarily favorable or a sign of efficiency, as would be the situation in a standard cost center. In a standard cost center, we have good measures of output quantity and quality, so producing a given amount of output for less-than-budgeted costs is a favorable indication. For a discretionary expense center, however, a favorable cost variance may only mean that the center has operated at a lower level of quality, service, or effectiveness than was intended when the budget was established. Typically, the control process for such expenses will involve ensuring that the quality and level of service of the center have been maintained. Similarly, cost overruns in a discretionary expense center may be caused by favorable circumstances, such as a new-product breakthrough that justifies higher development expenditures or an improved marketing climate in which increased advertising and distribution expenditures may yield great returns.

The existence of budgeted and actual expenses for discretionary expense centers may give an illusion of precision about their operations. But without good measures of the output from such centers, such data may yield little insight into whether the centers are operating effectively or efficiently. For some of these centers, the control of discretionary expense centers requires the informed judgment of knowledgeable professionals on the level and quality of service the centers are producing.

As with revenue centers, however, companies have begun to apply activity-based costing to their staff departments. ABC enables companies to treat their staff departments as standard cost centers, or even as profit centers if they are given the option of selling their outputs to external users. ABC facilitates the measurement of the quantitative output from corporate staff departments.⁷ With such measures, executives can hold the staff departments responsible for the costs incurred in delivering their service output to operating units just as they do production departments that produce and deliver products to subsequent production stages. Thus, the ABC innovation permits many organizational units, previously treated as discretionary expense centers, to become standard cost or profit centers.

Profit Centers

Standard cost centers, revenue centers, and discretionary expense centers have limited decentralization of decisions. Managers of standard cost centers may acquire and manage inputs at their discretion, but the outputs from these centers are determined and distributed by other units. Revenue centers distribute and sell products but have no control over their manufacture. Discretionary expense centers must produce a service or staff function demanded by the rest of the organization.

A significant increase in managerial discretion occurs when managers of local units are given responsibility for both production and sales. In this situation, they can make decisions about which products to manufacture, how to produce them, the quality level, the price, and the selling and distribution system. The managers must make product-mix decisions and determine how production resources are to be allocated among the various products. They are then in a position to optimize the performance of their centers by making tradeoffs among price, volume, quality, and costs.

If the managers do not have responsibility or authority for determining the level of investment in assets in their centers, then profit may be the single best performance measure for the center, although any profit figure may need to be supplemented with a variety of nonfinancial indicators of short-term performance. Profit, properly measured, can provide a short-run indicator of how well managers are creating value from the resources at their disposal and the input factors they acquire. Units in which the managers have almost complete operational decision-making responsibility and are evaluated by a profit measure are called **profit centers**. The importance of profit centers and the difficulties associated with measuring profit in them justify a separate discussion, which is presented in Chapter 9.

Investment Centers

When local managers have all the responsibilities described above for profit centers and also have responsibility and authority for working capital and physical assets, then a performance measure based on the level of physical and financial assets employed in the cen-

ter is preferred. Investment centers are generalizations of profit centers in which profitability is related to the assets used to generate the profit. Return on investment (ROI) and economic value added are typical investment center performance measures; these measures are discussed in Chapter 10.

DEVELOPING A PERFORMANCE MEASURE FOR DECENTRALIZED OPERATING UNITS

Control rules, or principles, can be divided into two classes: operating rules and enforcement rules.⁸ Operating rules tell people what to do, and enforcement rules specify the consequences to a decision maker of not following the operating rules.

In a simple firm, or for observable tasks, the operating rules tell people specifically what they must do. The enforcement rules can then be related directly to the accomplishment of the task. For example, a clerk can be told (the operating rule) to order 2,000 units of some part. Subsequently, it is easy to observe whether this instruction has been carried out. The consequence (the enforcement rule) of not carrying out the instruction may be dismissal.

With decentralization, however, local decision makers who have specialized in the assigned task and concentrated on gathering information relevant to the task can often judge better than their superiors the best course of action. Thus, in decentralized organizations, operating rules seldom take the form of telling people what they must do. Rather, the operating rules are stated in terms of the firm's objectives, and people are given decision rights that enable them to take actions that will best attain the goals of the firm. These types of operating rules require very different enforcement rules than those used when a specific directive is given. Enforcement rules must use an incentive scheme to provide the motivation for the decision maker to follow the operating rules. For example, the operating rule "Do whatever you need to do to maximize the profit of your division" may have associated with it an enforcement rule that provides the decision maker with a share in reported division profits.

In each of the five types of decentralized centers, the centers' managers have discretion in selecting and implementing actions. To guide the managers' decisions and evaluate the performance of the managers and their centers, we require a performance measure. Specification of the local performance measure is perhaps the most difficult problem in decentralizing decision making and responsibility. Through this measure, the organization communicates how it wishes the local manager to behave and how this behavior will be judged and evaluated. Central management needs to determine rules, measures, and rewards for local decision making that are compatible with overall corporate goals. These guidelines and incentives must facilitate the coordination of individual or divisional goals with those of the overall corporation goals and must attempt to minimize information gathering and processing costs as well as dysfunctional costs from local suboptimizing. Clearly, this is not an easy task. Perhaps the most thoughtful and best articulated views on the challenges in organizing a decentralized firm have come from Alfred P. Sloan, who provided the organizational archetype for the multidivisional firm during his long tenure as president of General Motors. Sloan, and his brilliant chief financial executive, Donald-

son Brown, described their views as “decentralized responsibility with centralized control”:

Good management rests on a reconciliation of centralization and decentralization, or “decentralization with coordinated control.”

Each of the conflicting elements brought together in this concept has its unique results in the operation of a business. From decentralization we get initiative, responsibility, development of personnel, decisions close to the fact, flexibility—in short, all the qualities necessary for an organization to adapt to new conditions. From coordination we get efficiencies and economies. It must be apparent that coordinated decentralization is not an easy concept to apply. There is no hard and fast rule for sorting out the various responsibilities and the best way to assign them. The balance which is struck between corporate and divisional responsibility varies according to what is being decided, the circumstances of the time, past experience, and the temperaments and skills of the executives involved.⁹

In a centralized decision-making environment, the local managers follow detailed operating rules that instruct them how to act. The decisions are determined centrally and implemented locally. Any failure to perform in a centralized system is relatively obvious because job descriptions and tasks are well specified.

In decentralized operations, the operating rules (the “centralized control” that guides the “decentralized responsibilities” of local managers) are much less specific; hence performance evaluation is more difficult. We can think of the operating rules as consisting of two parts: constraints and objectives. First, the bounds of permissive or admissible behavior are specified, and the action alternatives of the managers are limited; for example, illegal behavior is proscribed, and managers may be instructed to use certain suppliers, meet certain quality standards, meet the demands of particular customers, and refrain from disposing of certain assets.¹⁰

Once their range of action alternatives has been specified, the local managers must also be given a well-specified reward or incentive function that they are expected to maximize. Thus, managers may be instructed to maximize divisional income, return on investment, or economic value added. Managers in a sales division may be instructed to maximize sales revenues, or managers in a production division to minimize costs when satisfying an externally derived demand for the product, including achieving stringent quality and timeliness goals. The specification of the local reward or incentive function is extremely important because this function will be used to motivate and evaluate the local managers’ performance. Therefore, local managers could act to improve their measured performance, perhaps at the expense of the goals of the corporation or other divisions. For example, the sales manager of a revenue center may try to increase total revenue rather than total contribution margin. The expectation that managers will attempt to improve their local measure to the exclusion of all other goals or measures is what makes the appropriate specification of a single local reward measure so difficult.

Increasingly, executives are aware of the shortcomings of using only financial measures of performance as the local reward measure. Many people are now questioning the appropriateness of assessing performance using a highly aggregate number such as net income. Instead, these people advocate that a broad set of financial and nonfinancial measures, all derived from the mission and strategy, be used to motivate and evaluate the per-

formance of the business unit. In this way, a broad set of objectives and measures can be identified and communicated through the organization. Such a balanced scorecard approach, described in Chapter 8, will allow the firm to be more responsive in identifying and responding to important changes in its environment.

To gain a better understanding of why managers are moving beyond single, financial performance measures for decentralized units, we analyze the dysfunctional aspects associated with developing a measure of performance for a decentralized operation.

Problems of Goal Congruence

The measure of performance of a decentralized unit is a new piece of information that must be developed by the firm. As discussed at the beginning of this chapter, simple firms may not need internal measures of efficiency and performance. They can assess their performance by measuring the difference in prices between buying and selling transactions conducted with economic agents external to the firm. More complex, decentralized firms must expend resources to acquire relevant data and to compute the performance measures for decentralized units that conduct many transactions within the firm.

The consequences of developing the local performance measure, though, go far beyond the cost of data acquisition and computation. Ideally, the local performance measure should be consistent with overall corporate goals. But it is just about impossible in complex and uncertain environments for any single performance measure to achieve perfect goal congruence between a decentralized unit and the overall corporation. That is why companies are using a balanced set of measures to communicate company-level strategy to local divisions and departments. When only a single measure of performance is used, the measure tends to become an end in itself, more important than the economic performance that it attempts to represent. In a revenue center, for example, the sales force may be motivated to sell only high-priced items in an attempt to maximize revenues rather than contribution margin. Any single measure may be manipulated to benefit the decentralized unit at the expense of the corporation.

This fundamental problem arises because, unlike the situation in the physical sciences, the act of measurement in the social sciences and in management changes the event and the observer.¹¹ Measurement is neither neutral nor objective. The measure chosen for evaluating performance acquires value and importance by the fact of being selected for attention. People within the system change their behavior as a function of the measure chosen to summarize the economic performance of their organizational unit.

A second problem arises because most measures of performance are based on internal achievement rather than on external opportunities. A unit may be perceived as having performed well because it exceeded last year's measure of performance or the budgeted measure. But the current good performance may have been caused by an unexpected expansion of demand in the industry, in which all the companies in the industry participated. When viewed against overall industry performance, the decentralized unit may not have maintained its market share or relative profitability. In this case, the performance will not look as favorable against an external reference base as it does against the more typically measured internal criterion. Senior managers of highly diversified corporations (conglomerates), however, may not be able to use such relative performance evaluations effectively because they possess less information about the market conditions of individual divisions than do the managers of those divisions.

A third limitation on a single performance measure occurs when the future economic consequences from current activities are ignored. Typical performance measures focus on short-term operating results and ignore longer-term effects that are harder to measure. These longer-term effects usually arise from expenditures on intangibles—research and development, advertising and promotion, plant design, maintenance, human resource development, and quality control. Because the benefits from such expenditures on intangibles are subjective and difficult to measure, we tend to ignore them and concentrate on aspects of performance that we can measure more easily. Managers will then have an incentive to spend less on intangibles and maintenance than would be desirable for long-term corporate goals. Such expenditures on intangibles reduce the current performance measure, and the adverse effects of neglecting them do not show up until later, perhaps much later when the current managers are in entirely different positions in the organization.

Similarly, many transactions in a period have characteristics and longer-term consequences that are difficult to measure objectively. The quality of the product, the morale of the employees, and the output of professional services (legal, R&D, controller's office), for example, are important characteristics that affect the long-term performance of the organizational unit but are not easily captured in a short-term performance measure, particularly a financial one. Undesirable consequences will occur if too much reliance is placed on a single measure of performance that ignores longer-term, less objectively measured consequences of current-period decisions. Again, the inability of any single measure, particularly a financial measure, to incorporate value-creating and value-destroying activities during a period is a principal driver for developing a comprehensive, balanced-scorecard (see Chapter 8), set of measures for communicating and implementing an organization's long-term strategy.

Problems of Externalities

Interactions among organizational units introduce a second set of problems when local units focus narrowly on their individual performance measures. When such interactions exist, the actions of an individual unit affect not only its own measure of performance but also the measures of other units. For example, when goods or services are transferred from one unit to another, these goods or services are frequently priced in order to recognize revenue for the supplying unit and an input-factor cost to the purchasing unit. This **transfer-pricing** process is one of the most contentious activities in decentralized firms. We will examine the relevant issues surrounding transfer pricing in Chapter 9.

Even assuming that the transfer-pricing problem can be solved in a satisfactory manner, many problematic nonprice aspects are associated with transactions among organizational units. The quality of a product or service and the timeliness of the transfer will affect the operation of the unit receiving the good or service, but the financial impact of varying quality or delivery times will be difficult to quantify. In principle, a price system could be established as a function of delivery delay (or product quality), but such a system would be extremely complex. It would be difficult to develop and to maintain. It would also introduce uncertainty to both units about the price of the transfer, since some delay might be caused by random, unexpected factors. Both units might then change their operations to minimize the effect of this inherent uncertainty. This change in operation could reduce overall output, thereby affecting the firm adversely.

The performance of other decentralized units may also affect the performance measure of an individual unit. For example, the efficiency of a manufacturing plant may be affected by the quantity and timing of output demanded from it, which are determined in part by the activities of a sales division. Solely under conditions of certainty, it can be argued that the performance measure of the manufacturing plant should not be affected by the activities of the selling division; effects due to variations in activity level should be the responsibility of the sales division, not the manufacturing unit. But once we recognize conditions of uncertainty and private information, it is no longer obvious that the manufacturing plant's performance measure should be made independent of sales activity. We argued earlier that there are nonprice characteristics of transactions from one unit to another, especially quality and timeliness. Therefore, the performance of the manufacturing division could affect the performance of the sales division in ways that are difficult to capture in a price system (because of uncertainty, lack of observability, and so on). One remedy would be for part of the performance measure of the manufacturing division to depend on the level of sales. Such a measure would provide strong incentives for manufacturing and sales managers to coordinate their decisions. More generally, the performance measure of individual local units could include a component reflecting the performance of other organizational units and, perhaps, the overall corporation. This measure would provide an incentive for managers of individual units to cooperate, avoid unnecessary frictions, and emphasize a corporate rather than a local viewpoint when managing their operations. For example, Jeremy Dent described a company in which product development managers were held responsible for the sales revenues of the products they developed, and sales managers were held responsible for the development costs of the products they sold.¹² We will return to the local versus corporate performance measurement debate when we discuss models of incentive contracts in Chapter 13.

In general, the performance of a decentralized unit, such as a manufacturing division, can be assessed by measures beyond financial ones. The balanced-scorecard approach retains financial performance measures for business units but supplements these with measures along customer (e.g., on-time delivery, defects of received items), internal business process (e.g., innovation, quality, cycle time), and learning and growth (e.g., employee and systems capabilities) dimensions.

Overconsumption of Perquisites

A further problem arises in decentralization if a local manager with discretionary spending authority consumes an excessive amount of perquisites. For example, the manager may decide to improve his local working environment by acquiring a large, expensively decorated office space, by hiring an unnecessarily large number of administrative assistants and support personnel, and by purchasing the latest and most elaborate office equipment. These expenditures will reduce the manager's performance measure, but the manager may prefer the direct consumption of these perquisites to the perhaps small increase in pecuniary compensation that could be earned by foregoing these expenditures.

Also, some managers may engage in an activity called empire building, which attempts to increase the size of the organization they are managing. The nonpecuniary rewards from empire building include the increased power and prestige associated with

managing a larger organization. These nonpecuniary factors can even become pecuniary if the managers' compensation or promotion probability is made an increasing function of the size of the units they are managing.

SUMMARY

The complex environment in which business is conducted today makes it impossible for any but the smallest firm to be controlled centrally. Some degree of decentralization will be essential to capture the benefits from the specialized information and response flexibility of local managers. Decentralization also conserves the scarce time of top executives and frees them from making complex, interdependent resource-allocation decisions. Providing local managers with discretion in managing their operations has the additional benefits of developing their capabilities as general managers and making their daily job more interesting.

Decentralization can take many forms. Repetitive processes producing well-specified and easily measured outputs can be managed as standard cost centers, in which the manager must meet externally generated demands for products according to a cost-minimizing, efficient standard. Marketing departments can be organized as revenue centers with the objective of meeting targeted goals in sales revenue, market share, or contribution margin. Some functions for which the outputs are not easily measurable or are not causally and deterministically related to the inputs expended cannot be controlled by the use of traditional techniques such as standard costs or budgets. These functions are usually organized as discretionary expense centers in which the level of expenditures and the number of personnel are determined by negotiation with the central management to determine appropriate levels of quality and service. Much greater decentralization can occur when an operating unit is given responsibility both for acquiring inputs and for selling or distributing its outputs. Such units can be organized as profit or investment centers.

Although decentralization seems essential for organizing complex operations, it introduces many problems of its own. Local managers are evaluated with a performance measure that captures some but not all of the economic consequences of their decisions. Therefore, managers may engage in dysfunctional behavior, failing to internalize the effects of their decisions on other organizational units or on the future of the entire firm. Conflicts between decentralized units can arise over the transfer of goods.

All these problems are inherent costs of decentralization. We would prefer to have easy solutions to them, but we must settle for understanding the costs as well as the benefits of decentralization, keeping alert to situations in which narrow-minded local optimizing performance or misrepresentation of local information is significantly impairing the overall well-being of the firm. The challenge is to devise the right combination of delegation of effort and decision making, observation of effort, and reward or incentive schemes to balance the benefits and costs of decentralization. Such a balance requires the judgment and experience of the owners and senior managers of the organization. The Balanced Scorecard, a new approach for communicating strategy and empowering decision making at decentralized units, allows such judgment and experience to be reflected in operational decisions.

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10. See the discussion of boundary systems, pp. 39–55 in R. Simons, *Levers of Control* (Boston: Harvard Business School Press, 1995).
11. Strictly speaking, the Heisenberg uncertainty principle establishes that even in the physical sciences the act of measurement affects the phenomenon being measured. But such effects show up at the subatomic level of observation and do not affect everyday measurement of speed, weight, and dimensions of physical objects.
12. See J. Dent, "Tension in the Design of Formal Control Systems: A Field Study in a Computer Company," in *Accounting & Management: Field Study Perspectives*, ed. R. S. Kaplan and W. J. Bruns Jr. (Boston: Harvard Business School Press, 1987), pp. 119–45.

■ PROBLEMS

7-1 *Emphasis on Short-Term Performance*

"A lot of what is preached at business schools today is absolute rot," claimed a New York financial consultant. "Business schools teach that business is nothing but the numbers—and the numbers only for the next quarter."

The overemphasis on short-term performance measures was echoed by other critics. "There has been too much emphasis on short-term profit, not enough on long-range planning; too much on financial maneuvering, not enough on the technology of producing goods; too much on readily available markets, not enough on international development."

One U.S. expert on productivity added, "Our managers still earn generally high marks for their skill in improving short-term efficiency, but their counterparts in Europe and Japan have started to question America's entrepreneurial imagination and willingness to make risky, long-term investments."

Finally, even foreign executives criticized the U.S. system. "The misguided emphasis on short-term profit seems to blind U.S. managers to the need for more research and development; moreover, they appear unable to develop strategies for dealing with long-

range problems of chronic inflation and soaring energy costs. Also the quality of U.S. manufactured goods is declining because managers have cared less about what they produce than about selling it.”

Required

- (1) Are business schools, in general, and cost accounting and management control courses, in particular, to blame for the alleged preoccupation of recent business school graduates with measurable short-term performance? What conditions provide the environment for short-term rather than long-term optimizing behavior?
- (2) What forces provide explanations for the accusations that U.S. managers are more concerned with short-term “safe” strategies rather than longer-term risky, entrepreneurial strategies?
- (3) What are the implications of these charges for the design of management control systems in decentralized organizations?

7-2 Measuring the Output of Corporate Staff Departments

Dennis Johns, manager of the financial services department of Hyde Papers, was complaining:

The CEO is really on my case. He keeps asking why corporate staff departments, like finance and information technology, can't develop methods of cost control and cost assignment just like our production departments. I keep explaining, but he doesn't seem to understand, that you can't use the same techniques for white-collar departments, staffed by professionals, that you use for our production and production support departments that do repetitive, predictable work.

The financial services department at Hyde Papers is a staff unit in the corporate controller's department responsible for all central accounting activities, including consolidations, general accounting, salaried payroll, accounts payable, accounts receivable, and invoicing. Hyde Papers is a large diversified producer of paper and pulp products. Its product divisions range from timber growing and harvesting to paper and pulp production, to paper office supplies production and distribution. All the operating divisions are supported by corporate staff departments, such as the controller's department, at company headquarters.

The functions of the financial services department are:

Consolidations, General Accounting, and Database Administration: Consolidation activities include report preparation, reconciliations, special projects or analyses, and report changes for business units and divisions. Database administration involves maintaining and updating the data and systems required for all corporate financial reports. Costs include personnel, computers, and supplies.

Payroll: The payroll function provides the biweekly check and earnings statement for each employee, the annual W-2 statement for employee tax returns, and special payments such as bonus checks, commissions, special rewards, and deferred compensation.

Accounts Payable: The accounts payable unit verifies, prepares, and mails invoice payments to suppliers, maintains records on all suppliers, and mails paychecks to employees.

Accounts Receivable: This unit processes all payments made by customers. It verifies the payment against the invoice and deposits the payment into a company's bank account. It also maintains the customer file (name and address of each customer) and conducts periodic credit checks on customers.

Invoicing: The invoicing process records the pricing and delivery terms for each shipment and sends an invoice to the customer for the appropriate amount.

Required

- (1) Do you agree with Dennis Johns's claim that white-collar, support department work cannot be controlled in the same manner as production processes?
- (2) Could the financial services department be treated as a standard cost center rather than a discretionary expense center?

CASES

PINNACLE MUTUAL LIFE INSURANCE COMPANY*

Grumbling is the only weapon we have as managers in these newly formed profit centers. When the Executive Committee decided to institute this new concept at Pinnacle, the members made it clear *what* they wanted, but not *how* it was to be accomplished. For example, as vice president, Individual Equity and Pension Products, I continue to manage that area and do the work I've always done in that function; with the creation of profit centers, I also have responsibility for the new Institutional Pension Products and Services: Nonparticipating profit center, but I have no additional staff! It's difficult to take advantage of the company's support systems, especially the accounting group, because none of these groups has ever had to think in terms of profit before. There's really a paucity of numbers to help us do our jobs.

All of us who were appointed as profit center managers (PCMs) to get this idea off the ground are very visible. The process of converting to profit centers and changing the attitudes of employees is turning out to be a lot more difficult than we thought.

These words were spoken by Elizabeth Duncan, vice president, Individual Equity and Pension Products, and profit center manager for Institutional Pension Products and Services: Nonparticipating. She and the other seven PCMs had been in their new positions for seven months and they were discovering that their uncharted road posed challenges at almost every turn. One of the biggest problems they faced was the lack of financial information to help them forecast and budget; they complained that when they finally did get financial reports, the numbers were often out of date and not useful. Pinnacle management looked ahead to addressing these and other problems, and to putting a great deal of time and effort into making the profit centers successful.

*This case was prepared by Associate for Case Development Karen E. Hansen, under the supervision of Professor William J. Bruns Jr. All of the data have been disguised.

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Rationale for Developing Profit Centers at Pinnacle

The profit center concept was introduced at Pinnacle in May 1985 and the first profit center managers were identified and appointed. By creating profit centers, the Management Committee (composed of the chairman, president, and heads of Marketing, Product Services, Law, Corporate Operations, and Investment Operations) hoped to provide greater focus to product development and marketing around the expanding set of financial service products offered by the company; in addition to life insurance, these included annuities, consumer banking, securities, real estate, equipment leasing, and home mortgage financing. Profit center managers would become the promoters of their products inside the company, thereby giving greater vitality to the competitiveness of the company.

The concept of profit centers seemed very new to many at Pinnacle. The mutual company form of organization emphasized the idea of service to customers who would benefit because they became part of the organization. (A mutual life insurance company is owned by its policy holders and differs from a stock insurance company, which is owned by anyone who buys stock in that company.) The mutual form and its regulated accounting procedures emphasizing reserves and safety had led to little concern or emphasis on profit. Volume of revenues and preservation and growth of assets were much more familiar performance criteria than profits. Only recently, as the company's range of financial services expanded, had efforts begun to convert accounting reports to a generally accepted accounting principles (GAAP) basis.

Most life insurance companies used Statutory Accounting Principles (SAP) rather than GAAP. SAP was a set of principles required by statute which had to be followed by an insurance company when submitting its finan-

cial statements to the state insurance department. Such principles differed from GAAP in some important aspects; one was that SAP required that expenses be recorded immediately and not be deferred to be matched with premiums as they were earned and taken into revenue. The adoption of GAAP was intended to produce financial results consistent with those of other industries and to assure consistency in financial reporting.

When Pinnacle decided to emphasize profit, it switched to GAAP for internal purposes, to gain the benefits of that reporting basis. GAAP helped match benefits and expenses to premium income, which resulted in earnings emerging as a more nearly level percent of the premiums collected. To accomplish this matching, natural reserves were developed based on actuarial assumptions appropriate at the date of issue. Natural reserves included benefit, acquisition, and maintenance expense reserves. The reserve assumptions included provisions for adverse deviation from that assumed for ratemaking. GAAP also allowed profits to emerge in proportion to the release from the risk for adverse deviation.

The profit center concept was also at odds with the way Pinnacle had always been organized. At various times, the company's organization had emphasized type of customer (individual vs. group, for example) or functions (sales, investments, or customer service). The creation of profit centers focused attention on how products and services could be developed and sold for the good of the company as a whole. Inevitably, some profit centers would compete with each other as they developed and sold products; this competition was a radical idea in a mutual company.

Despite both anticipated and unanticipated problems and resistance from corporate culture, top management was committed to the profit center form of organization. If Pinnacle was to be customer-driven, a stated management goal, then the company had to be able to

respond quickly to customer demands and competitor threats. The industry was changing rapidly as more companies offered financial services outside their traditional businesses. A profit center organization seemed necessary for Pinnacle to maintain a leadership position in the areas of insurance and financial and administrative services for individuals and groups.

The Pinnacle Companies

Pinnacle Mutual Life Insurance Company had been chartered in Connecticut and was nearly 100 years old. This strong, stable company had long been known for its product line of various types of life insurance. Through the years, Pinnacle had grown steadily to become an industry leader; among its competitors in the life insurance business were Connecticut Mutual, Prudential, John Hancock, Aetna, Hartford Life, Massachusetts Mutual, Metropolitan Life, Allstate, and New York Life. But Pinnacle's competition wasn't limited to insurance companies. Any company offering financial services or administrative services was really vying for the same customers as Pinnacle. This included companies which offered banking products, brokerage services, institutional investment, and management of data systems.

In the 1970s and 1980s, Pinnacle had expanded the number and type of financial services it offered to its customers in an attempt to satisfy consumers who were looking for more profitable ways to invest in times of higher inflation. Not only were new types of insurance and annuities added, such as a disability income insurance and single premium deferred annuities, new services were developed for individual, institutional, and corporate clients. As a result, the company found itself offering a broad range of products and services in real estate; home mortgage financing; data processing; farming; commercial development; equipment financing and leasing; medical and dental preferred provider organizations; and financial services in broker-

age, banking, and mutual funds. Management expected that much of the company's future growth would be in areas and activities outside its traditional insurance areas.

Until 1984, the company organization reflected its emphasis on the distinction between products and services sold to individuals and those sold to groups. In 1984, the company reorganized to emphasize functions. Under the new structure, products would be sold or serviced by one part of the organization, regardless of the nature of the customer, to minimize duplication of functional efforts across product or customer lines.

Pinnacle management felt that the reorganization contributed to stronger performance in 1984. The company's mission that year was to emphasize those products and services which would provide an attractive return on investment, competitive product value to their clients, and opportunities for growth by providing additional products and services for existing customers or attracting new customers to their expanded array of financial services. Pinnacle began to change its image, and to examine not only the range of investment opportunities it could offer its clients, but how the company could manage those investment areas most profitably.

Prior to the reorganization, Pinnacle management had not thought in terms of competitive stance or aggressively seeking new customers; the company had always been proud of its concern for existing customers and their life insurance needs. Elizabeth Duncan commented:

A mutual life insurance company environment is about as uncompetitive as you can get. Because our participating policy holders are our owners and the company is run for their benefit, the best thing for them, financially speaking, is for Pinnacle to stop selling new life insurance! Every new policy sold actually diminishes the amount of funds that can be returned to current policy holders in dividends because the cost of both the agent's commission and issuing the new policy usually exceeds the first year premium.

But Pinnacle's aggressive plans for the future did not include the alternative of dropping out of the life insurance business. As Pinnacle continued to expand into noninsurance products and services, it competed directly with other financial service institutions. Managers focused on this new competition and began to develop ways to manage change while continuing to meet client needs.

The Process of Creating Profit Centers

The Executive Committee favored profit centers organized around existing products and services as the way to focus managers on profit, cost, and competition. But its members were unsure how to make the transition to this new form of management. Therefore, the Committee appointed Stephen Cooper, vice president, Corporate Analysis, to coordinate the creation and staffing of profit centers.

In a memorandum to the Executive Committee on January 23, 1985 (Exhibit 1), Cooper summarized the beginning of this process and reviewed reasons to have profit centers. He was eager to ensure agreement on rationale and goals. The memo also established the agenda for a meeting two days later to discuss how many profit centers to create, how to select their managers, and how to measure their performance.

At that meeting, the Executive Committee decided to create eight profit centers to handle current products and services. However, no one was sure how to change the roles of the functional groups and then coordinate interaction between the two groups to maximize company earnings. The meeting emphasized the company's emerging needs, which members decided could be best served by creating "value centers" out of the existing functional groups (Marketing, Product Services, Financial Operations, Law and Corporate Secretary, and Corporate Operations). Value centers, for a fee or at least an allocation of cost, would

provide services including market research and data on competition, information on pricing products, accounting information and suggestions, and tax and legal advice. For example, if a PCM needed legal counseling from the Law and Corporate Secretary value center, that value center would charge the PCM for the lawyer's time to research and answer the PCM's questions. In the future, other services might be created as needed and offered to PCMs by Value Center managers (VCMs).

In order to give the new structures time to develop and a fair chance at success, profit centers would be required to use the services of the value centers for two to three years. During this start-up phase, PCMs and VCMs would work together to negotiate services and fees and establish quality measures which could be used by the PCMs to help them determine the value of the services for which they would be paying. The VCMs' Incentive Compensation would eventually be influenced by how well expense and quality measures were attained. At the end of this time, PCMs would be allowed to go outside the company to contract for these and other services if they discovered sources which would give them better service, reduce their costs of doing business, or improve their profit centers' performance.

Allowing PCMs to go to outside vendors for services which were offered internally was unusual; management hoped this competition from external sources would inspire each VCM to operate efficiently and to try to win the business of the profit centers by competing against other service providers. PCMs would be required to state their intentions to seek outside services and the reasons for doing so. This would give the value center a chance to respond and to try to meet the PCMs' needs, if possible, so that value centers would continue to provide necessary service. But if PCMs could prove that continuing to use the value center, rather than an external supplier, would result in failure to meet profit goals, then

EXHIBIT 1 Pinnacle Mutual Life Insurance Company

MEMORANDUM

TO: Executive Committee DATE: January 23, 1985
FROM: Stephen Cooper CC: CMCP
Vice President
Corporate Analysis

The purpose of this memorandum is to briefly review what transpired on January 4, describe what I hope we'll address and accomplish on January 25, and enumerate the tasks to be worked on over the next few months, and into the future.

I. *Review of January 4 meeting:*

I delineated what I felt were the two primary reasons for having profit centers:

1. To define *meaningful* units within the company whose results (e.g., profits) can be measured in a satisfactory manner. This will help the company determine which of its "parts" are doing well, and which need improvement (or should be discarded).
2. To more precisely define areas of responsibility for company managers; to measure how well those managers are performing and to provide a valid basis for determining incentive reward based on a manager's performance within his/her area of responsibility.

Clarification added to the above by Executive Committee members included the following:

1. Changing attitudes of the business community, management, and the public dictate a greater emphasis on profitable operations.

* * *

The next area of discussion concerned what "units" should be defined as profit centers. I expressed a predilection for a primary profit center level based on our functional organization, with secondary and tertiary levels being product based. However, most discussion indicated an inclination for product-based profit centers. It was felt that the organization was susceptible to change or, alternatively, may be adjusted to support agreed-upon profit center structures. Product performance measures were felt to be the primary concern, and thus the driving force behind profit centers.

Final discussion involved appropriate measures for profit center results. ROSN (Return on Surplus Needs), GAAP (Generally Accepted Accounting Principles), net income (before and after dividends), and PSI (Product and Service Income) were all suggested, and the pros and cons of each were touched upon briefly.

continued

II. *January 25 Agenda*

I'll commence with a review of the information obtained thus far on profit center techniques and problems of other companies. I'd then want to confirm what the basic profit center unit should be (opinions expressed favored product segments), explore the ramifications of that decision (organization coordination requirements, etc.), determine an *initial* number of profit centers to be measured, decide on *specific* profit centers as a result of the foregoing, and decide on the method to be used to select profit center managers (i.e., who will name them and when). Further discussion would consider whether the above structure is complete or whether it should be supplemented by any "cost centers" measured on fees for services less actual expenses.

I'd then like to continue our previous discussion on profit center measures. . . .

Finally, I'd be interested in the Executive Committee's opinion on the time period they envision to implement the various aspects of profit center measurement and organization. . . .

* * *

I look forward to a fruitful session on the 25th.

PCMs could seek outside resources. While not wanting to limit PCMs' freedom, management wanted to avoid having them focus on short-term profit at the expense of long-term growth goals. Consequently, certain restrictions, in the areas of use of outside vendors, personnel policies, management development programs, and community relations programs would be placed on PCM actions.

The January 25 meeting also covered performance measures and incentive compensation for PCMs and VCMs. The Management Committee decided that PCMs would be measured on three criteria: GAAP profits, Return on Surplus Needs (ROSN), and Product and Service Income (PSI). "Surplus needs" was a calculation, for internal purposes only, of the appropriate amount of equity for a profit center, given its liabilities. In a mutual company, ROSN was similar to return on equity. Insur-

ance companies usually maintained a "policyholders' surplus," which was an amount in addition to liabilities, available to meet future obligations to its policyholders; for a mutual insurer, this was the whole equity section of the balance sheet. PSI was similar to gross operating revenue and was earned by selling new products and accruing revenue each year from those sales. In order to protect PCMs during the start-up phases in 1985, their compensation would not be tied to their profit center's performance. In 1986, however, they would be measured against their profit goals, but not on their profit center's growth.

During the first two weeks of February, the Committee for the Measurement of Corporate Performance (CMCP), chaired by Stephen Cooper, worked on the creation of profit centers. Even though the Executive Committee had decided that eight profit centers should be

created, the CMCP felt that 10 or 12 would encourage better focus of sales efforts as well as allow for the creation of future products and services. The Management Committee approved the CMCP's list of 10 profit centers, but decided to appoint only eight PCMs; two of the eight PCMs would each manage two similar profit centers. They discussed which senior managers to appoint to these positions. Exhibit 2 shows a grid of the profit centers

and value centers; the X's indicate the intended interactions between the two groups.

As Elizabeth Duncan had mentioned, management was clear about *what* they wanted the PCMs to do. Within six weeks of the approval of the 10 profit centers, the CMCP had developed a lengthy description of the PCMs' responsibilities and relationships (Exhibit 3). On April 1, 1985, Stephen Cooper sent a memo to the Chairman of the Board and to the president

EXHIBIT 2 Profit Center/Value Centers Grid

VALUE CENTER	PROFIT CENTERS*									
	1 IND LIFE TRAD	2 IND LIFE NONT	3 IND ANN	4 IND HLTH	5 INST INS	6 INST PEN NONP	7 INST PEN PAR	8 INV PROD TRAD	9 INV PROD SPEC	10 INT NAT'L INS
Law & Corp secty	X	X	X	X	X	X	X	X	X	X
Corporate Ops										
Info Services	X	X	X	X	X	X	X	X	X	X
Other Corp Ops	X	X	X	X	X	X	X	X	X	X
Product Services										
Group Servs					X	X	X	X	X	X
Under & Pol Serv	X	X	X	X						X
International					X	X	X	X	X	X
Other Prod Serv	X	X	X	X	X					X
Marketing										
Dist Agency	X	X	X	X	X					
Gen Agency	X	X	X	X	X					
Gr Pens Sales						X	X	X	X	
Group Ins.					X					
Other Mktg	X	X	X	X	X	X	X			X
Investment Ops										
Bond & Corp Fin	X	X	X	X	X	X	X	X	X	X
Mort & R E	X	X	X	X	X	X	X	X	X	X
Inv Mktg									X	
Other Inv Ops	X	X	X	X	X	X	X	X	X	X
Executive	X	X	X	X	X	X	X	X	X	X

*Complete names of profit centers shown above:

1. Individual Life Insurance Products and Services: Traditional
2. Individual Life Insurance Products and Services: Nontraditional
3. Individual Annuity Products and Services
4. Individual Health Products and Services
5. Institutional Insurance Products and Services
6. Institutional Annuity Products and Services: Nonparticipating
7. Institutional Annuity Products and Services: Participating
8. Investment Products and Related Services: Traditional
9. Investment Products and Related Services: Specialty
10. International Insurance Operations

EXHIBIT 3 Profit Center Managers' Responsibilities and Relationships

The primary responsibility of the profit center manager (PCM) is to achieve maximum profitability and growth as measured by the following:

- Return on Surplus Needs (ROSN)—definition and requirements established by the Surplus Committee.
- Profitability—bottom line as produced by Product Profitability Accounting and Reporting System (PPARS)—definitions established by the Committee for the Measurement of Corporate Performance (CMCP).
- Product and Service Income (PSI)—measures determined by the CMCP.

As straightforward as this definition of responsibilities appears to be, it raises a number of questions and poses a number of problems which must be addressed. One such problem arises from the fact that many PCMs will actually be responsible for a number of products rather than a single product.

* * *

A second complication affecting the PCM's job results from the need to coordinate activities of people within different functional areas. Because the company is not organized by product lines, the PCM must work within a management team crossing several organizational lines.

* * *

The PCM will negotiate with value center managers (VCMs) for services at certain expense and quality levels. It is important to note that this process of negotiation will not initially take place in a "free market" setting, in that the PCM will be required, for the time being, to obtain services from sources available in the Pinnacle companies rather than immediately going outside for them. It is highly likely, of course, that PCMs will quickly become aware of competing sources which may provide the required services more inexpensively and will use this information in their negotiations. The availability of such data will no doubt place considerable pressure on each VCM to operate as efficiently as possible.

Since this kind of pressure may not suffice, however, we contemplate a policy under which the PCM will be able to give advance notice of his/her intention to use non-Pinnacle resources with reasons for doing so. If the Pinnacle department cannot provide the service at the stated cost within that time period (e.g., 2-3 years), the restrictions on utilizing outside resources will be eased, particularly if the PCM can demonstrate that failure to do so will prevent the attainment of his/her profitability goals which otherwise could be met.

* * *

An important aspect of the negotiation process may prove to be the determination by the PCM, in conjunction with VCMs, of acceptable trade-offs between quality and cost. Inappropriate resolution of such questions could easily result in sacrificing long-term goals for short-term profits.

Relationships

In many cases, the PCM will have a dual reporting relationship. First, as a functional manager, he/she will continue to report, directly or indirectly, to an executive area head. As a PCM, however, he/she will report to the Management Committee as a whole. In addition, there will be a third relationship resulting from the need for teamwork referred to above. These third relationships will be rather extensive. Most PCMs will be negotiating and contracting for such services as:

- Pricing—for both new and existing products
- Marketing—including sales, training, etc.
- Market research
- Underwriting
- Claims processing
- Systems development, testing and maintenance
- Data processing programming and production
- Accounting services
- Legal services
- Personnel services, such as hiring, salary administration

EXHIBIT 3 Profit Center Managers' Responsibilities and Relationships *continued*

As long as this list may at first appear to be, it is undoubtedly not complete; but it does serve to drive home the point that the PCM will have many relationships which he/she will have to manage (or at least coordinate) in order to operate profitably.

* * *

PCM as Entrepreneur

While the PCM clearly has the responsibility for managing his/her product portfolio profitably, the nature of the PCM's responsibility to demonstrate a truly entrepreneurial approach to the job may be less evident. In addition to doing everything possible to see that he/she receives the best possible services from VCMs or others at the best possible price, the PCM should continually be on the watch for opportunities to introduce new products, expand existing products to meet new market needs, etc. A truly entrepreneurial PCM will not sit back and let others uncover opportunities to perform more efficiently or to develop new products and markets. He/she should therefore consider the identification and development of such opportunities as a major responsibility and should, through the compensation system, be rewarded accordingly.

of Pinnacle containing this description and the list of 10 recommended profit centers.

The announcement of the creation of profit centers was somewhat out of character for this stately, old mutual life insurance company. At an annual management meeting in May, attended by about 100 officers of Pinnacle, the eight senior managers who were appointed PCMs were introduced and given Captains' hats and megaphones as symbols of their new responsibilities and authority. Many of the PCMs were actuaries, some had experience in the areas they would now manage, and all had successful track records at Pinnacle. They were congratulated and told that they would be responsible for making the profit centers viable, for working out the bugs inherent in new systems, for establishing strategic plans, and for creating budgets. At the same time, they would continue to do their current jobs, and they would be given no additional staff to do their new jobs.

The new PCMs had many questions for top management about their new roles. To help answer initial and future questions, Stephen Cooper remained in his role as coordinator of the profit center project and served as organizer and advocate to address the needs and concerns of the PCMs.

In initial meetings with the PCMs, Cooper noted that their major complaints centered on two items: the PCMs had enormous goals but no staff, and they had difficulty getting accurate financial information about their products and services. To help address these problems, Cooper asked PCMs in November 1985 to submit "wish lists of tools" which would make their new jobs easier. Seven PCMs responded; Elizabeth Duncan's list (Exhibit 4) was representative of the kinds of tools many PCMs wanted. She went one step further and listed tools the Management Committee needed to help make profit centers work and sent these in a separate memo to Cooper (Exhibit 5).

Three items appeared consistently on the wish lists: (1) rules on the allocation of expenses to new products, (2) rules on deferring the expenses of Developmental Funds Programs (DFPs), and (3) earlier and more extensive involvement in the planning, evaluation, and approval of DFPs. DFPs were essentially R&D expenditures that were budgeted independently of regular operational budgets and were approved on a program by program basis. A decision on how DFPs would be treated was important because DFPs could be costly and out of proportion to the benefit received by some profit centers;

EXHIBIT 4 Pinnacle Mutual Life Insurance Company

MEMORANDUM

TO: Stephen Cooper
Vice President

DATE: November 15, 1985

FROM: Elizabeth Duncan
Vice President

SUBJECT: Tools Necessary for My Profit Center to Work Right

1. Clear definitions of which costs are fixed and which are variable, including as part of the exercise:
 - a) Expenses which are agreed upon in advance going into the year and change only with activity measures and/or a value center's failure to meet its budget with me—not with someone else's failure to meet an activity measure.
 - b) An understanding of how change in an activity measure, such as Single Premium Deferred Annuity (SPDA) sales, will affect expenses by value center.
 - c) A clear grasp of how expenses for a new product will be treated. (Allocations are not now made until more than 1 year after a new annuity product is introduced. Heaven knows who pays them in the meantime.)
2. A thorough analysis of how costs compare with the competition's, in areas such as distribution, overhead, marketing, etc. The competition includes other large insurance companies, companies selling through general agencies, brokers, direct response, etc.
3. Detailed expense and revenue data by product for all my products with some understanding of why the numbers were derived that way.
4. GAAP profit data for my profit center (if prospective sales look as though it can be cost-justified).
5. An understanding of how Product and Service Income (PSI) is defined for each of my products and what a hurdle Return on Surplus Needs (ROS/N) really means in terms of a profit margin for each. (This is undoubtedly available somewhere, once I make the effort to track it down.)

EXHIBIT 5 Pinnacle Mutual Life Insurance Company

MEMORANDUM

TO: Stephen Cooper
Vice President

DATE: November 15, 1985

FROM: Elizabeth Duncan
Vice President

SUBJECT: Tools the *Management Committee* Needs to Make Profit Centers Work

1. A capital budget for the whole company (including subsidiaries) that would set limits for both true investment and development expenses affecting the corporation.
2. A list of potential capital and development projects which might surface over the next five years with associated price tag estimates and a probability of occurrence in each of the years.
3. A way to tie target Return on Surplus Needs (ROSN) hurdle rates to the capital budget on the theory that exceeding the capital budget will force up our cost of capital and should therefore drive up the hurdle rate.
4. A method to force every profit center manager and subsidiary CEO to implicitly pay back his/her cash flow each year and then to compete with everyone else for it. This will be necessary to free up resources for new projects and shifts in priorities.

other profit centers might not even be allocated a share of DFP projects under the current system. Cooper agreed that the CMCP would act on the first two items. For resolution of the third issue, he sent two memos (Exhibit 6) to George Steiner in his capacity as senior vice president and controller and as chairman of the DFP Steering Committee.

"Although I think we're making progress, it will be an on-going process for the PCMs to figure out what they need and how to get it," said Stephen Cooper. "I think it would be enlightening to talk to some of them. They are in the planning and budgeting cycle now

and have some pretty strong feelings about the implementation of the profit center concept here at Pinnacle."

Interviews with Profit Center Managers

Elizabeth Duncan: Vice President, Individual Equity and Pension Products; Profit Center Manager for Institutional Pension Products and Services-Nonparticipating

Creating profit centers has been a lot more difficult than any of us thought it would be. Our past culture of not thinking competi-

EXHIBIT 6 Pinnacle Mutual Life Insurance Company

MEMORANDUM

TO: George Steiner
Senior Vice President
and Controller
Controller's Department

DATE: January 9, 1986

FROM: Stephen Cooper
Vice President
Corporate Analysis

CC: Profit Center
Managers

SUBJECT: Profit Center Data

The profit center managers recently enumerated a list of the "tools" (primarily data and information) they need to do their jobs. A compilation of these lists indicates some consensus on areas where controllers could help the profit centers acquire those tools. The following is a summary of their requests:

A. Expenses

All expense data are needed in the following configuration:

- c three years historical and one year projected, on an annual basis
- c one year historical and one year projected, on a quarterly basis
- c direct and indirect expense components separated wherever possible

1. GENERAL EXPENSE INFORMATION

- c profit center expenses, broken down by cost center and grouped by value center
- c cost center expenses and value center groupings, broken down by the Committee for the measurement of Corporate Performance (CMCP) product segment
- c the function performed by each cost center should be indicated
- c the present allocation assumptions and methods should be briefly explained

2. INDIRECT EXPENSE ANALYSIS

- c a definition of the various components of indirect expense is required
- c indirect expense components, broken down by such items as: personnel, health clinic, food services, advertising, legislative activities, library, and institute
- c the profit center allocation assumptions and methods should be briefly explained
- c a comparison of competitors' indirect expenses (to help judge the reasonableness of such expenses)
- c ratios of indirect expenses to direct expenses (to help judge the reasonableness of indirect expenses)

MEMORANDUM

SUBJECT: Profit Center Data

A. Expenses

- c three years historical and one year projected, on an annual basis
- c one year historical and one year projected, on a quarterly basis
- c direct and indirect expense components separated wherever possible

- c profit center expenses, broken down by cost center and grouped by value center
- c cost center expenses and value center groupings, broken down by the Committee for the measurement of Corporate Performance (CMCP) product segment
- c the function performed by each cost center should be indicated
- c the present allocation assumptions and methods should be briefly explained

- c a definition of the various components of indirect expense is required
- c indirect expense components, broken down by such items as: personnel, health clinic, food services, advertising, legislative activities, library, and institute
- c the profit center allocation assumptions and methods should be briefly explained
- c a comparison of competitors' indirect expenses (to help judge the reasonableness of such expenses)
- c ratios of indirect expenses to direct expenses (to help judge the reasonableness of indirect expenses)

continued

3. DEVELOPMENTAL FUNDS PROGRAM (DFP) EXPENSE ANALYSIS

- c for each DFP project, budgeted expenses broken down by cost center
- c profit center allocation assumptions and methods for budgeted DFPs should be briefly explained
- c an analysis of actual DFP expenses and allocations compared with budgeted values is required

4. UNIT FUNCTIONAL EXPENSE ANALYSIS

- c profit center expenses, broken down by Life Office Management Association (LOMA) functional expense category such as: cost for underwriting, issue, maintenance, acquisition, and marketing
- c a comparison of competitors' functional expenses (to judge the reasonableness of such expenses)

5. FIELD EXPENSE ANALYSIS

- c profit center field expenses, broken down by such activities as: sales compensation, supervisory costs, training costs, and employee benefit costs
- c a comparison of competitors' field expenses (to judge the reasonableness of such expenses)

6. INVESTMENT EXPENSE ANALYSIS

- c profit center investment expenses, broken down by type of investment (e.g., bond, mortgage) and shown as a percentage of that investment's asset value
- c each of the above expense categories should be split into acquisition and maintenance components and shown as a percentage of the appropriate asset values

B. Income Statement

1. income statements by CMCP product segment are needed on a Statutory Accounting Principles (SAP) and GAAP basis
2. after-tax GAAP results require a deferred tax analysis by segment
3. surplus reconciliations should be included with income statements
4. provide three years historical and one year projected, on an annual basis
5. provide one year historical and one year projected, on a quarterly basis
6. resource personnel are needed for answering questions, performing active tax planning, and providing other analyses

*continued***C. Balance Sheet**

1. balance sheets by CMCP product segment are needed on a SAP and GAAP basis
2. provide three years historical and one year projected, on an annual basis
3. provide one year historical and one year projected, on a quarterly basis

D. Cash Flow Analysis

1. cash flow data, developed at the CMCP product segment level
2. detailed data on sales and in-force premium income should be included
3. provide three years historical and one year projected, on an annual basis
4. provide one year historical and one year projected, on a quarterly basis

As all of this information would be useful to all profit centers, I assume your department would prepare it for each profit center, and forward it directly to them. What would be helpful at this time is a proposed timetable as to when each item would be available.

Corporate Analysis is available to coordinate this process, and provide any other help we can, so please feel free to call on us.

M E M O R A N D U M

TO: George Steiner
Chairman, DFP Steering
Committee

DATE: January 9, 1986

FROM: Stephen Cooper
Vice President, Corporate
Analysis

CC: Profit Center
Managers

SUBJECT: Profit Center Manager Involvement in Developmental Funds Program (DFP) Process

Last month, I asked the profit center managers to provide me with lists of items which would allow them to more effectively do their jobs. One item that was generally agreed upon was an earlier and more extensive involvement in the planning, evaluation, and approval of DFP projects.

I realize your committee has stated its desire to involve the profit center managers in the DFP approval process, and you intend to invite PCMs to the 1986 meetings involving discussion of DFP project memorandums. Therefore, the purpose of this memo is simply to apprise you of the PCMs' concurrence with such involvement, and to suggest that when planning for the 1987 DFP cycle, you consider participation of the PCMs at the earliest stage possible.

tively has been hard to overcome; no one had ever asked which products were winners and which were losers.

Pinnacle needs a mechanism for deciding which profit centers will get resources. We've never had to pick and choose before. Right now, I'm having to fight for resources in the legal department and this takes a lot of my time. I can only spend about 25% or 35% of my time managing my profit center. My current job of managing Individual Equity and Pension Products keeps me pretty busy; in addition, I'm a director of two subsidiaries, and I serve on the Surplus Committee, the Demutualization Committee, and the Asset Allocation Committee.

As a profit center manager, I'm fairly unique. I have the least relationship naturally to my profit center in terms of other work I do. In the beginning, this compounded my difficulties because I wasn't already in the channels of distribution for information about my products and services. In some instances, it was a case of not even knowing what I didn't know!

All of the PCMs are still learning and discovering what they need. Upper management is grappling with understanding this process, too. It's like the story of the blind men and the elephant; the problems look different to the executive vice presidents and the PCMs because they are standing in different places. In some cases, no one is sure where the authority lies to make decisions when the viewpoints are so different.

Benjamin Field: Vice President and Group Actuary; Profit Center Manager for Individual Annuity Products and Services

The problem is that we all have different ideas of how things should be done and there are no tools in place to either direct our efforts or provide information. A big part of achieving our goals will be attributable to our ability to negotiate with the value centers to

get good information on which to base decisions. But in the fall of 1985, the Controllers didn't want to make the move to the profit center system because it would change the way they would have to compile reports.

Pinnacle has operated for nearly 100 years without worrying about profit; it's a slow process to change our orientation. We're experiencing problems with levels of authority on some decisions and with communicating. For example, the CEO occasionally disagrees with what PCMs think is the right thing to do to keep costs down. Who really makes the final decisions? It's also been hard to convince value centers that we need accurate information and we need it in a hurry, even when that information has never been compiled before.

The profit center managers don't have much time to devote to pressuring value centers for what we need. Some weeks I spend 40% of my time being a profit center manager, and other weeks I don't spend any time on it at all. I'm also a value center manager which puts me in an interesting situation; I was already in the information flow, unlike Elizabeth Duncan, which made my life easier. But the two hats I wear as PCM and VCM will probably create some conflicting situations in the future. What's good for the profit center may not be good for the value center.

Peter Wright: Vice President, Policyholder Services; Profit Center Manager for Individual Life Insurance Products and Services—Nontraditional

I see the role of the profit center manager more as a catalyst than a coordinator, more entrepreneurial in nature. But the corporate culture has often avoided change and confrontation. This makes it difficult to switch to profit-oriented thinking.

I have an advantage over some of the other PCMs in that I was already familiar

with the products and services of my profit center. I also have value center departments which report to me, so I have established working relationships.

One problem we're all facing is that we wear too many hats to be able to get deeply immersed in some profit center issues. For example, the Controller sent a memo to some of the PCMs saying that they would be

charged for a new accounting system, but the memo didn't mention a dollar amount. No one complained, partly because they couldn't find out the cost because the tools aren't in place to do that, and partly because they couldn't focus on this issue and do the 60 other things they were trying to do in their regular jobs. There's a lot of confusion now; the system is still evolving.

WATTIE FROZEN FOODS LTD.: A NEW ZEALAND CASE STUDY IN MANAGEMENT ACCOUNTING AND EXTREME DECENTRALIZATION*

Businesses will not discover the pathway to competitiveness simply by reforming their existing management accounting systems. What they need is a new way of thinking about business, not improved management accounting information. Companies need information that triggers actions aimed at building strong customer relationships and at removing constraints that cause variation, delay, and excess in processes. No top-down accounting information—not even new activity-based cost management information—focuses on customers and processes. To stimulate competitiveness, management information must follow the “bottom-up empowerment cycle.” It must come from customers and from processes and it must be gathered and used primarily by people in the work force who face the customers and who run the processes. Empowerment implies ownership of information—the key to learning. Constant learning by empowered workers is the key to change—the demand for unceasing change being caused by the power of choice that new information technologies give the customer.

H. Thomas Johnson, *Relevance Regained* (Free Press, 1992)

*William D.J. Cotton, Gerard La Rooy, AICPA case 96-06.
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Wattie Frozen Foods Ltd. (WFF) manufactures frozen and dehydrated foods and markets their products in New Zealand, Australia, and the Pacific rim, including Japan. The frozen foods business was originally part of J. Wattie Canned Foods Ltd., a food processing company formed in New Zealand in the 1930s. The Wattie organization passed through a number of different stages until in 1992 it was floated as a separate company by its then owner, Goodman Fielder Wattie Ltd. This current company, which comprises five New Zealand business units including WFF, was purchased by H.J. Heinz of the U.S.A. in late 1992. The WFF business unit consists of corporate headquarters and marketing staff located in Auckland, and four factories located respectively in Gisborne, Hastings, Fielding, and Christchurch.

Although the approach and systems are in use throughout WFF, this case focuses on the management control and performance evaluation system in the Christchurch Branch factory. This branch produces frozen and dehydrated vegetable products with the main products being peas, beans, and french fried potatoes. The production process is highly integrated from crop supply in the field through processing and distribution. The business is seasonal in nature.

Growers are contracted to WFF and are provided with a significant amount of technical assistance, including the availability of quality seed stock, and a wide variety of agricultural management assistance. Relevant crop supply data are maintained, including air temperature summaries, rainfall summaries, daily wind run summaries, and solar radiation summaries. Once crops are deemed ready they are harvested quickly and transported immediately to the branch factory, where the crop reception department tests the quality of the incoming produce. Unacceptable lots are rejected.

During the season processing occurs around the clock and involves a series of integrated steps. For example, potatoes for french fries are first washed, then sliced, deep fried, frozen, and packed. Peas for freezing are washed, graded, frozen for bulk storage, and then released throughout the year for packing in consumer packs. Beans for dehydration are washed, graded, dried, stored in bulk or immediately packed in consumer packs for distribution or storage.

The production process is supported by a number of service departments. These support departments include logistics, personnel, engineers, boilers, fork lifts, process bins, dry goods, weigh bridge, crop storage, effluent, yard, and quality assurance.

In 1986 WFF adopted the principle of "Work Center Management" (WCM). This involved the division of the organization into a set of semi-autonomous work centers, and the empowering of the supervisors and employees in each work center with the ability to make decisions critical to the manufacture of a quality product in a timely fashion. Since 1986 the company has worked hard to develop the work center culture and to provide the management and employees with the appropriate management tools and systems.

When describing the new system, Gerard La Rooy (then WFF's Corporate Support Manager) stated:

The introduction of the new culture and associated systems meant big changes for the company and staff and naturally we experienced some difficulties along the way. However, as we have made considerable gains in many areas, we feel that the changes have been most worthwhile. Because of the gains made to date and the scope for further improvements, we are confident that managing the work center way is the way for us.

Motivation for Work Center Management

The company identified a number of principal needs which they felt had to be satisfied in their quest for a new and better approach to management, particularly in the four factories. These principal needs were:

1. The need to change the emphasis from reporting to managing.

This involved shortening drastically the time between actions taken and the subsequent reporting on results. In particular, monthly costing reports, even if they were produced promptly at month end, were perceived as relatively useless for real control and improvement of the operations. Also, since the application of more technology produced an on-going shift in costs from direct to indirect, there was a need to focus on the *management* of overheads rather than their mere allocation. Finally there was a need to ensure focused accountability through clearly-defined responsibilities for costs and the power to act.

2. The need for staff involvement and operational improvement.

The firm wished to inculcate in staff at the workplace an increased awareness of cost and quality issues and to recognize that quality and costs can be managed effectively only at each stage of the process, not just at the end. This required ownership of information by supervisors and workers. If the information is provided primarily to assist the actual day-to-day operation at the workplace, ownership of that information is much more likely. But information which is produced primarily to enable control to be exercised from the top will not provide the basis for performance im-

provement. In other words the management at WFF recognized the need for the "bottom-up empowerment" advocated by Johnson.

Changing the Organizational Culture

The WCM system was designed and implemented following the adoption by the company of the philosophy of management by work centers. The issue of the prior adoption of the appropriate culture was regarded by WFF management as important since it was their strong conviction that such a system as WCM could not be overlaid on a traditional organization. Prior to the implementation of the system the firm carried out a comprehensive set of training sessions throughout all levels of the organization in an attempt to imbue all employees with the changed philosophy. These training sessions and meetings emphasized a number of aspects.

1. The culture required a special way of managing.
It needed to be recognized that WCM was a consistent and all-encompassing approach that embraced all of the following: quality, budgeting, cost control, physical and financial reporting, waste and losses management, training, performance improvement, capital expenditure justification, purchasing, and asset management. The culture also required the adoption of the concept of internal customers who must be satisfied and who could refuse to accept substandard inputs. Since the new system would result in a flat organizational structure, it would require managers who were empowered, responsible, and above all, highly competent. Managers would be fully responsible for their outputs and their use of inputs and resources including labor, equipment, services, and inventories.
2. The culture required an understanding of a commitment to the concept of work centers.
Each factory needed to be divided into units which were largely self-contained and small enough to ensure focused management and accountability. Each of these units, to be

known as work centers, would become the smallest units of management and thus become the building blocks of the organization. It was important that managers subscribe to the work center concept, in that work centers must:

- Reflect the logical flow of factory operations.
- Have clear and agreed boundaries.
- Be created so that there are no overlaps.
- Cover the entire scope of the factory operations including production, service functions, and administrative functions. (There should not be any "no-man's-land").
- Have only one manager. However one manager could supervise more than one work center.
- Provide, as far as possible, for the measurement of all labor, materials and resources consumed by the work center.
- Be mirrored in the general ledger.

Work center managers would be encouraged to appreciate, and in time expected to understand, the full workings of the "mini-business" under their control.

3. The culture required a supportive site manager.
The site manager (factory manager) should recognize that his/her role was to support work center managers, to coordinate work centers, and to solve any conflicts between work centers. This would require daily contact with work center management and staff and a recognition that problems between work centers as to quality, quantities, and services need to be resolved promptly.
4. The focus of the culture must be on continuous improvement.
Staff should be encouraged to be proactive, and systems should be designed and implemented with improvement of performance in mind, rather than just control. There should be a deliberate shift in focus away from the result to the process. In discussing this point Gerard La Rooy stated: "Merely focusing on results month after month will be of little assistance in our drive to improve. Only by monitoring and understanding the underlying processes can we begin to improve our performance."

The Work Center Management System

The work center management system outlined in this section was developed by WFF to fit in with the firm's managerial philosophy and practices. The system's conceptual and development work, including database design, was done in-house by WFF. The actual construction of the database and programming was carried out by an external consulting firm.

The work centers were constructed to reflect the logical flow of operations through the factory, and resulted in a flat organizational structure. The organization chart of the Christchurch factory is outlined in Exhibit 1. From this it may be observed that the WCM system covers the entire factory environment including all production activities from crop harvesting through to product distribution, and all service and support activities. The factories are divided into definable units which have measurable inputs and outputs, and there are virtually no general overheads since each service or support operation is itself defined as a work center.

WCM System Features

The object of the system is to support decentralized management at the work center level with decisions regarding input, output and problems being addressed by work center staff rather than administrative staff. That is, all work centers are regarded as "mini businesses" which consume inputs and produce outputs. The system provides ready information at the factory floor to enable *daily* control to be exercised with proper accountability. Costs are assigned to processes at source based upon actual consumption to enable control at or shortly after the time of the event. The major features of the system are that it:

- Attempts to treat all costs as controllable so as to minimize general overheads. This even extends to the administrative and accounting

function which is itself treated as a work center with inputs and outputs: see Appendix A.

- Translates the physical quantities into dollar values for automatic posting into the general ledger.
- Encourages production and optimum staffing levels, because all work center related costs stay within the work center. This discourages the recharging of work center staff to such a general administrative activity as cleaning.
- Encourages *quality* production. The output of one work center becomes the consumption of the next, and a consuming work center can refuse substandard input. *This is a key feature of the WCM system.*
- Values input to a work center (consumption) at the standard all-inclusive cost to that point. Any cost over-runs are the responsibility of the producing work center and are not passed on to the consuming work center.
- Treats all work center losses as a cost attributable to the work center where the loss occurs. Minimizing losses is a key element of managerial control in the frozen food industry so this is a critical feature of the WCM system. See Appendix B for an example of the concept.
- Provides for a service work center to consume its own output, as in the case of engineers performing work on their facilities.
- Requires all work centers to record as "production" all goods sent to or services performed for another work center.
- Requires the receiving work center to record all inputs as "consumption."
- Requires consumption to be recorded for each work center as a cost for that work center. In addition the consumption may be allotted to products or other cost objects within the consuming work center.

Costing Without Dollars

The WFF system comprises two distinct parts, the physical and the financial. When designing and implementing the system, management realized that they were able to gradually implement physical measurements without initially having to impact the old managerial cost accounting system. Thus the first stage of the WCM project enabled the

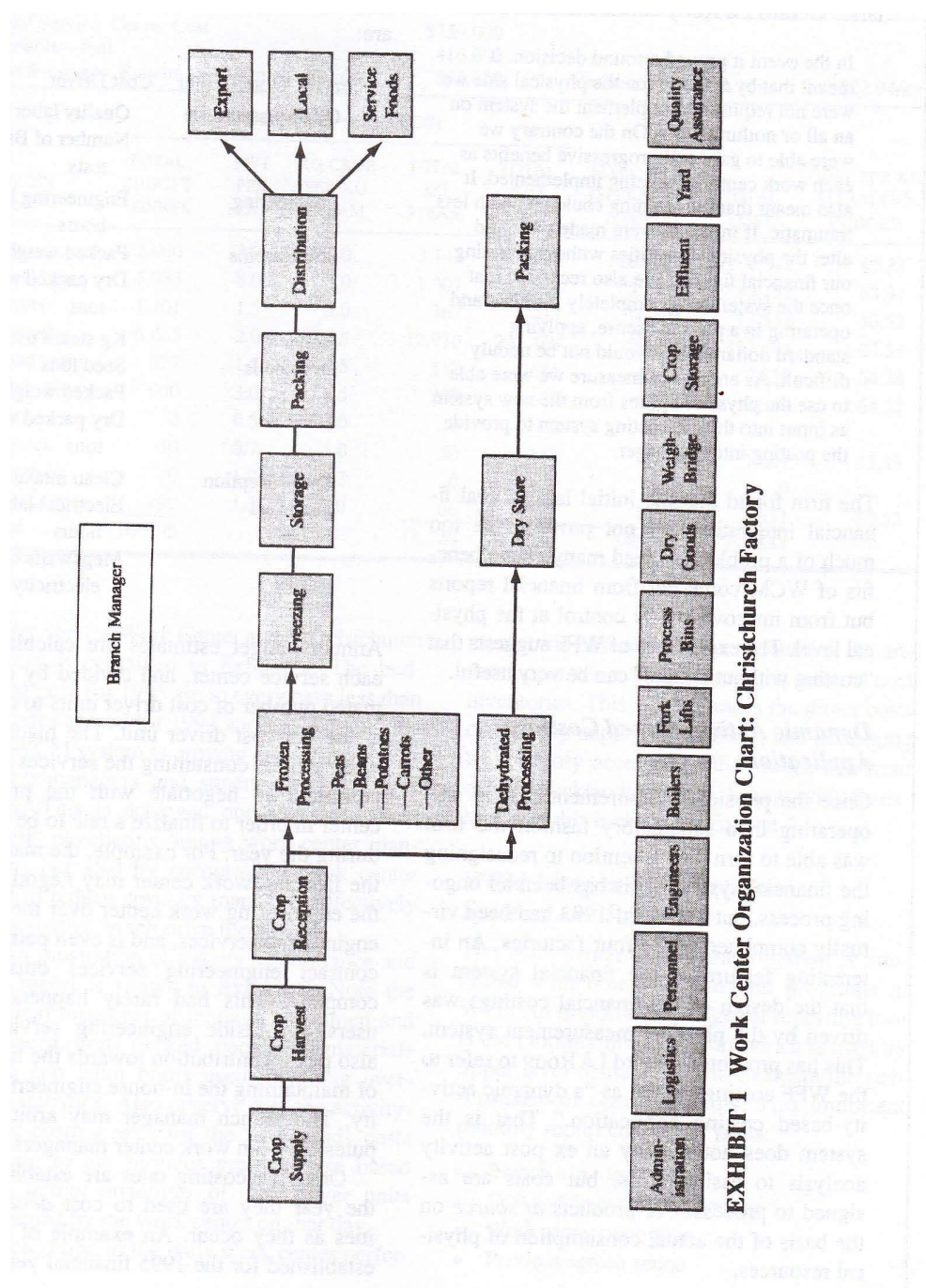


EXHIBIT 1 Work Center Organization Chart: Christchurch Factory

company to engage in "costing without dollars." Gerard La Rooy commented on this:

In the event it proved a sound decision. It meant that by focusing on the physical side we were not required to implement the system on an all or nothing basis. On the contrary we were able to gain real progressive benefits as each work center was being implemented. It also meant that the learning could be much less traumatic. If mistakes were made we could alter the physical quantities without affecting our financial figures. We also reckoned that once the system was completely installed and operating in a physical sense, applying standard dollar values would not be unduly difficult. As an interim measure we were able to use the physical figures from the new system as input into the old costing system to provide the posting into the ledger.

The firm found that the initial lack of real financial integration did not prove to be too much of a problem. Indeed many of the benefits of WCM come not from financial reports but from improved daily control at the physical level. The experience of WFF suggests that "costing without dollars" can be very useful.

Dynamic Activity-Based Costing Application

Once the physical measurement system was operating in a satisfactory fashion the firm was able to turn their attention to redesigning the financial system. This has been an ongoing process, but as of mid-1993 had been virtually completed at the four factories. An interesting feature of the financial system is that the design of the financial costings was driven by the physical measurement system. This has prompted Gerard La Rooy to refer to the WFF costing system as "a dynamic activity-based costing application." That is the system does not employ an ex post activity analysis to assign costs, but costs are assigned to processes or products *at source* on the basis of the actual consumption of physical resources.

Examples of service department work centers and associated activity-based cost drivers are:

Service Work Center	Cost Driver
Quality assurance	Quality labor hours Number of Bacto tests
Engineering	Engineering labor hours
Storage bins	Packed weight tons Dry packed weight tons
Boiler	Kg steam used
Dry goods	Seed tons Packed weight tons Dry packed weight tons
Crop reception	Clean intake tons
Electrical	Electrical labor hours Megawatts of electricity used

Annual budget estimates are calculated for each service center, and divided by the estimated number of cost driver units to compute a rate per cost driver unit. The managers of work centers consuming the services are then permitted to negotiate with the producing center in order to finalize a rate to be charged during the year. For example, the manager of the freezing work center may negotiate with the engineering work center over the rate for engineering services, and is even permitted to contract engineering services outside the company. This had rarely happened since users of outside engineering service must also pay a contribution towards the fixed cost of maintaining the in-house engineering facility. The branch manager may arbitrate disputes between work center managers.

Once the costing rates are established for the year they are used to cost *actual* activities as they occur. An example of the rates established for the 1995 financial year for the

EXHIBIT 2 Steam Budget Rates for 1995 Financial Year

Total Service Center Cost					\$759,000			
Variable—fuel					416,000			
Fixed—wages, Repairs and Maintenance, depn					343,000	Variable fuel steam cost		\$22.94/kg
VARIABLE—FUEL COST								
FROZEN CROP	TOTAL BUDGET TONNES	PWT PER HOUR	KG CROP PER KG STEAM	TOTAL KG STEAM	TOTAL FUEL COST	FIXED COST (SPREAD ON TONNES)	TOTAL COST	COST PER KG STEAM F95 BUDGET
Peas	22,000	18.0	7.0	3,143	72,082	202,310	274,392	87.31
Green beans	6,033	8.0	5.0	1,207	27,674	55,479	83,152	68.91
Carrots	1,101	1.5	3.0	367	8,417	10,125	18,542	50.52
Potatoes	6,485	2.0	0.5	12,970	297,469	59,635	357,105	27.53
Broad beans	527	1.5	4.5	117	2,686	4,846	7,532	64.38
Whole beans	900	3.0	4.5	200	4,587	8,276	12,863	64.32
Other	0	0.5	1.0	0	0	0	0	
Brassica	50	0.7	1.0	50	1,147	460	1,607	32.13
Squash	0	1.0	1.3	0	0	0	0	
Baby carrots	199	1.5	3.0	66	1,521	1,830	3,351	50.52
Total	37,295			18,120	415,583	342,961	758,544	

Boiler Service Work Center at the Christchurch factory is contained in Exhibit 2. The budgeted rates for 1995 are in every case less than the rates agreed for 1994 and it is evident that the WCM system is proving effective in motivating managers and supervisors to control costs. This is achieved not only by "sharp pencil" negotiating among work center managers, but also by encouraging work center staff to reduce costs by managing effectively the activities which drive them.

An illustration of a *daily* performance and cost report is shown in Exhibit 3. Note the physical measures of tonnage consumed and produced, units packed, packaging materials used, and labor hours used including overtime statistics. Also observe that the activity-based costing rates for the "overhead" costs relating to the services provided are based upon *actual* quantities of cost driver units consumed by the work center on that day.

In addition to the daily work center perfor-

mance and cost reports, the accounting department operates a direct costing system to cost inventories. This system traces the direct costs of the crop supply, production, and packaging to inventory accounts in the branch and head office (Auckland) ledgers. A diagrammatic example of this is shown in Exhibit 4.

WCM Integration with Other Systems and Programs

The work center management system is integrated with other systems and programs at WFF. An important managerial reporting tool is the monthly branch report which is used by upper level management to evaluate the performance of operating units. This important monthly report covers six areas:

- Branch overview
- Cost and financial performance
- Work center performance
- Previous agreed action

EXHIBIT 3 Daily Work Center Performance and Cost Report CPCKV Work Center,
8 June 1994

Tonnes consumed	65.085	Units packaged:	8434
Tonnes produced:	64.395	Total packaging used:	98045 Poly
	98.94%		7486 Cases
			80416
		Total Labor Hours Used:	332.25 Ord
			16.75 Time & Half

SERVICE	QTY	\$ PER TONNE	ACTUAL OVERHEADS PER TONNE	BUDGET OVERHEADS
Packing eng labor	9.00	145.35		
Engineering	6.00	173.72	4.95	5.58
Electricity		112.10	1.74	1.18
Forklift		78.25	1.18	0.86
GA	17.50	318.93	4.95	5.36
Dry store	3.00	132.50	2.06	2.84
Waste disposal		92.08	1.43	1.43
Consumables		211.80	3.29	3.29
Other		45.08	0.70	0.70
Packing labor (indirect)	16.75	228.82	3.55	3.28
		\$1,538.63	\$23.85	\$24.52

- Information and new action topics
- Capital expenditure

The WCM system not only provides the basis for cost and financial performance measures, but also provides monthly summaries of a wide variety of physical measures used to evaluate the performance of work centers. For example, the Crop Supply Work Center at the Christchurch factory reports include:

1. Crop harvest details (for each type of vegetable), including planned tons, year to date tons, total crop estimate, and estimated harvest dates.
2. Overtime hours.
3. Seed stock summary for each type of vegetable.
4. Agricultural research activities.
5. Weather details, including air temperature summary charts, rainfall summary charts, daily wind run summary charts, and solar radiation summary charts.
6. Grower contract updates.

The monthly report for the Dehydration Work Center includes:

1. Narrative summary of drying achievements, tonnage statistics, and financial summary.
2. Narrative summary of packing achievements, detailed packing statistics including variance analysis by product types, analysis of overtime hours.
3. Summaries of research activities for new products and markets, particularly in Japan.
4. Outline of continuous improvement team meetings.

The work center management system also supports the firm's continuous improvement program. This program is known as IMPACS which is an acronym for "Improving Management Performance and Customer Satisfaction." The management of WFF is committed to the continuous improvement philosophy and each work center is required to report

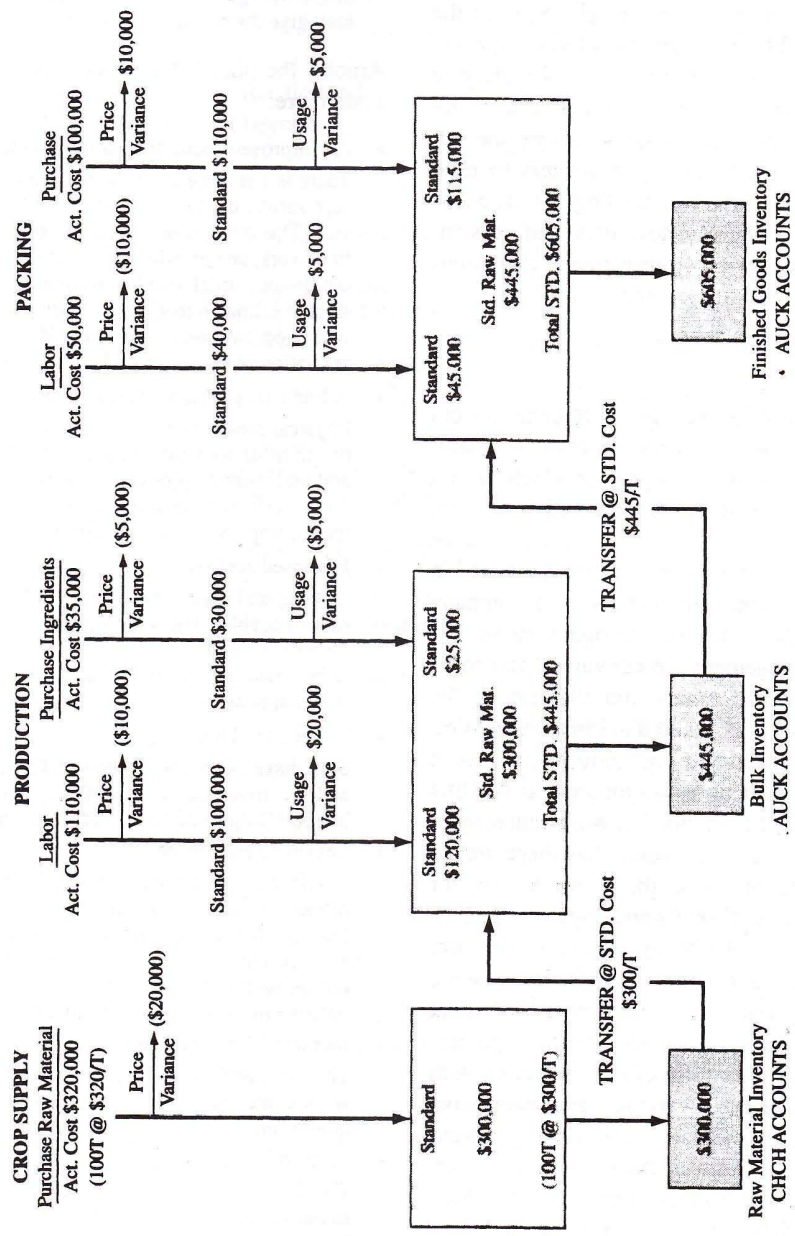


EXHIBIT 4 Diagrammatic Example of Direct Costing System

monthly on their IMPACS activities. An example of this is shown in Appendix C, and which exhibits the level of commitment to continuous improvement which exists in the firm. The WCM system facilitates improvement programs since it provides a variety of physical performance measures which are candidates for improvement. Before the advent of the WCM, system managers focused on identifying and "controlling" (manipulating?) costs, whereas now they can concentrate on identifying improvement opportunities and on the implementation of ideas.

Benefits of Work Center Management

The firm has achieved significant benefits from the WCM system, but recognizes that obtaining full benefits is a long process which has not yet been fully realized. Gerard La Rooy states: "Generally speaking our expectations have been (or are in the process of being) realized in that we are gradually becoming a company with the right culture and the right systems."

Top management are convinced that managing by work centers and the use of the WCM system has resulted in improved control and very worthwhile cost reductions in such previously difficult to control areas as forklifts and engineering. Production work center managers have come to realize that there are no "free" resources since they have to pay for such services as forklifts and engineering. This has had some interesting outcomes: The firm no longer owns forklifts, but now leases some on a long-term basis and rents additional equipment during the busy season. Engineers have been forced to become competitive with outside suppliers of service and must give value for money to the users of engineering service. This cultural change has not necessarily come easily. Murray Norton, former manager of the Christchurch Branch commented:

Some of our engineers have had difficulty embracing the work center philosophy. There

are a few people who have been here a long time who are resisting the change. It may be that some would be more comfortable in a different organization and it is possible that we may give them that opportunity.

Among the additional benefits of the WCM system are:

- **An improved focus on quality production**
There is a reluctance by work center staff to accept substandard inputs of either product or service. This extends back as far as the crop reception work center which has refused to accept out-of-spec. truckloads of incoming vegetables, since it is known that the processing work center will reject the batch. This has led to a good appreciation of the concept of internal customers.
- **A focus on physical measurements**
Physical measures of performance have proved meaningful to work center staff. Monitoring and understanding physical measurements on a daily basis has resulted in significant performance improvements in many areas.
- **Increased accuracy**
Costing and inventory information has become more reliable. Mistakes are generally picked up on the day they occur and fixed at the time rather than having to be traced later, or worse still, not at all.
- **Value added thinking**
Staff have been encouraged to focus on value added activities, and one of the outcomes of this has been improved control of waste and losses.
- **Improved staff morale**
A very valuable benefit has been improved staff morale in most work centers. The ability and freedom for staff to manage the work center as a "mini-business" and the "ownership" of information related to the work center has had a positive impact on productivity and quality.
- **Increased focus on improvement**
The availability of detailed information on work center activities has enhanced the firm's quality improvement initiatives.
- **Shift from results to processes**
The focus on processes on a real-time basis rather than results on an after-the-fact basis has been a most important step in improving employees' understanding at their segment of the business.

These benefits have not been easy to realize and it has taken years rather than months to reach the level of achievement currently attained. In addition, WFF is aware that their WCM system needs to be continuously developed and improved as the firm adapts to the needs of the 1990s and beyond.

Questions

- (1) Discuss the firm's competitive environment and product range.
- (2) Outline the production process and discuss problems potentially created by the seasonality of the business.
- (3) What is "work center management" (WCM) as practiced by Wattie? Why is there daily reporting?
- (4) What was the motivation for WCM?
- (5) Why was it necessary to change the organizational culture? How was this culture change achieved?
- (6) How do the physical numbers tie into the financial accounting system?
- (7) What are the benefits claimed for WCM?
- (8) What problems can you see in operating the WCM system?
- (9) What types of operations lend themselves to daily financial reporting?

Appendix A: Wattie Frozen Foods Ltd., Christchurch Branch, Administration and Accounting Service Work Center, Excerpts from Financial Year 1994

Mission Statement

To contribute to improving the operations of the branch through the provision of reliable and meaningful financial and administrative services.

Function and Core Activities

- Oversee and assist in data accumulation.
- Ensure translation of data into meaningful information.
- Provide reliable and meaningful financial advice and analysis.

- Assist users to interpret information.
- Provide administration services.
- Provide a focus to effect branch financial control.
- Maintain and enhance computer systems and improve their use.

Current Situation Analysis

- Recognition of our continuing role in organization from data gatherers to information interpreters.
- Improved quality of content and presentation of information.
- Increased awareness of Service Center nature by our customers.
- Increased team involvement.
- Increased project analysis.
- Improved recognition of responsibility for Branch Financial well-being through utilization of control systems, forecasting, etc.
- Improved ability to meet deadlines.
- Improving understanding by users of usefulness of financial information.

Key Actions 1993 Financial Year

- Improve R & M control system to provide forecasting control.
- Initiate project analysis to investigate:
Cafeteria Operation
Non W.F.F. Site Users
- Review all information and accounting systems to ensure economy, efficiency and compliance.
- Branch review of all management reports to ascertain, advise and fulfill users' needs.
- Drive to effect physical recovery of service centers.
- Provide variable cost center reports with flex budgets and include direct and variable costs by crop reports in monthly reports.
- Provide basic accounting course to improve users' understanding and ability to use accounting information.
- Analyze administration staff current skill level and commence cross skilling.

Cost of Administration Services**Administration Services Provided**

- Accounting
- Administration
- Systems support
- Communication
- Training

	F94	F93
Budget	\$530,000	\$625,000
Staff level	8	9
Total hours	16,000	18,000
Cost per hour*	\$ 33.13	\$ 34.72

*This "cost per hour" is the charge-out rate used to charge administration and accounting services to other support and production work centers.

Appendix B: Example of Treatment of Waste and Losses

Objectives

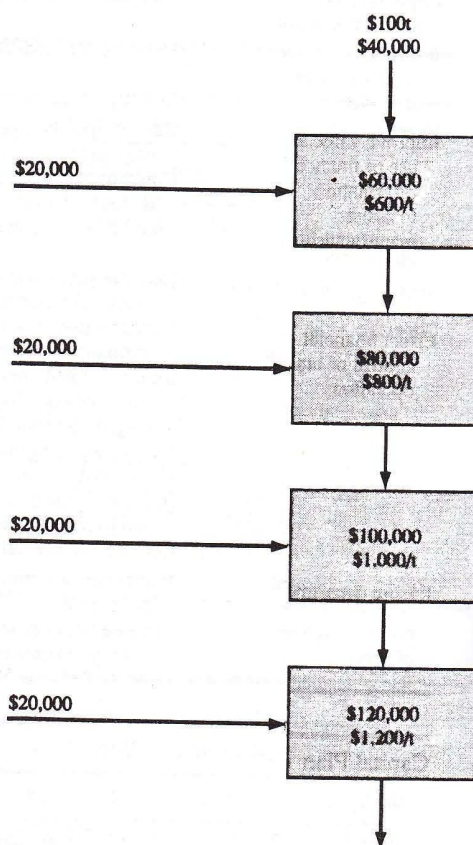
- Knowledge of the true "value-added" cost of waste and losses at each stage of production
- Treating the cost of waste (or at least the avoidable part) as a work center cost

Example of Traditional Treatment of Waste and Losses

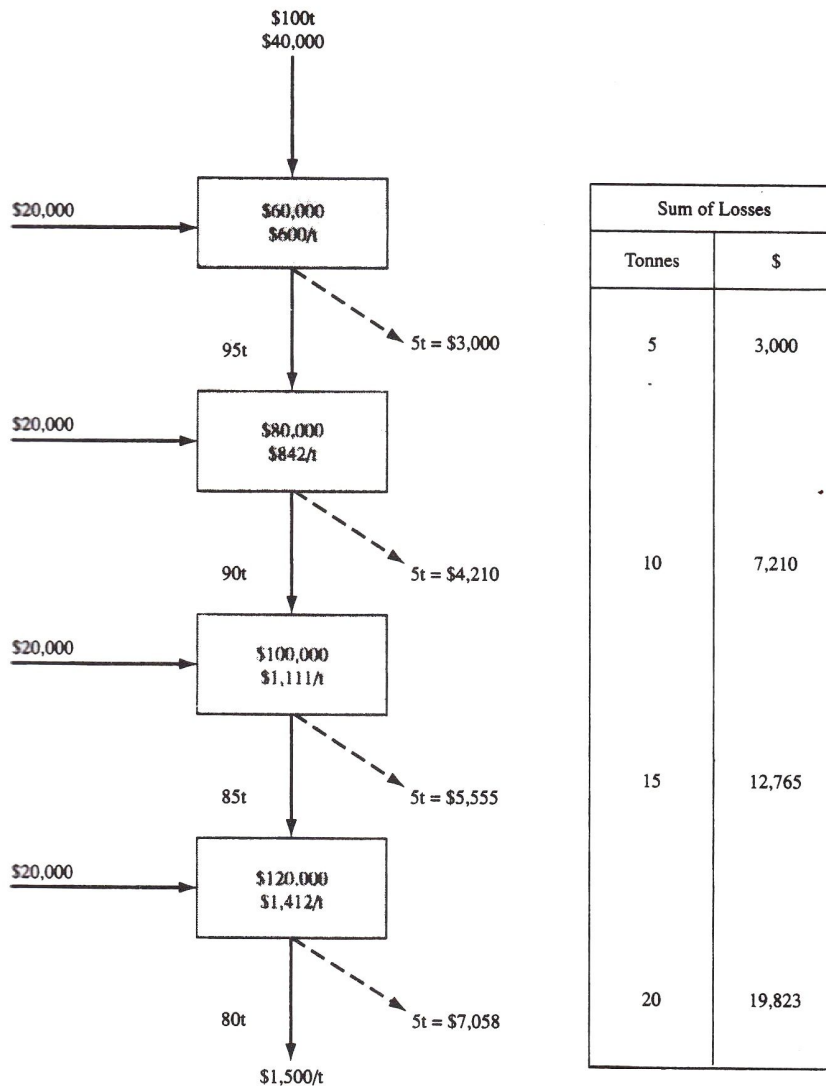
- Buy in 100 tonnes at \$400/t to produce 80 tonnes finished product.
- Cost of purchase = $100t \times \$400/t = \$40,000$
- Production costs direct and indirect are \$80,000
- Recovery = $\frac{80t}{100t} \times 100\% = 80\%$
- Loss = $20t @ \$400/t = \$8,000$
- Cost per tonne = $\frac{\$40,000 + \$80,000}{80t} = \$1,500/t$

Waste and Losses Employing Work Centers Using the same detail but in addition assuming there are four work centers and that the production cost is evenly spread over the work centers.

We can draw the situation like this:



Waste and Losses at Added Value Assume that the 20 tonnes unrecovered are lost at the rate of 5t per work center. The situation now becomes:



Note that in our example the added value of the sum of the losses is \$19,823 whereas the conventional approach shows the losses to be \$8,000. There is no doubt that the added value figure approximates the true situation much more closely than the figure obtained using the conventional approach.

Appendix C: IMPACS Dehydration Work Center— March: Ways to Build a Team

We have three different types of team meetings.

1. Where = The team build process started.
Who = Linda, Craig, Bill, Dawn, Robert.

Place = Linda's place once a month in our own time.

Why = To find our goals and to learn to work together.

NOTE: This is where the team building started as I believe if you haven't a team at the supervisor, manager, chargehand level there is no way that you can hope to achieve the team process anywhere else.

2. Involves all staff including Dehy Packing—David, Sarah, where available Craig.
Time = Once a fortnight in the cafe over a cup of tea.
Duration = ½ hour—Morning shift = 1:30 P.M.–2:00 P.M. Afternoon shift = 9:30 P.M.–10 P.M. Night shift = 5:30 A.M.–6 A.M.
Why = Because unless everyone is kept informed and involved then no matter what a few want to achieve it will never be possible.

From the first meeting came the AIMS's of what we want to achieve.

- To mold the team spirit.
- To air everyone's problems in an open manner.
- Everyone's progress on the line.
- To learn each others' skills so we can be a multiskilled team.
- To help each other achieve a top quality product at a maximum throughput.
- To improve the line to make the work easier and reduce overall costs.

These team talks have increased costs to our work center on a fortnightly basis but the savings overall have more than compensated for the monetary outlay of 3 hours overtime each fortnight, by increased productivity (e.g., last year's carrot production up by 50%).

3. Wattie Frozen Foods team brief. Usually incorporated with our own team talk. This I feel is a strong facet in bonding good staff into a great team.

- Below are some of the items brought up.

Morning Shift

White board & pin up board	—Packing	Action by L. Watson
Hugger dangerous	—Packing	C. Agnew
Hook for air hose	—Dehy	B. Frost
Any overtime after peas	—Dehy	C. Agnew
Lids on make-up tank	—Dehy	L. Watson/C. Agnew
Scarifier taken apart too much	—D.T. of 2 hours	Chargehands

Afternoon Shift

Clean downs disgusting; afternoon shift having to redo night shift work	D. Roper & L. Watson talk to night shift people
Ladder for cleaning tanks. Save time on cleaning	B. Hopkinson
Portawas have interchangeable connection on them.	D. Roper
Save costs due to being able to move them around.	
Lighting over slicer and dryer bad, makes cleaning difficult and can be dangerous at night.	C. Agnew

Night Shift

Asahi corn—how do we mix chemicals to put into shaker; a heavy job, at moment.	The Whole Team
Nail brushes in toilets.	Talk to S. Williams
Pallets not blown down.	Dehy Packing staff plus Dryer staff

INDUSTRIAL CHEMICALS COMPANY*

Background

In 1995, events that had been thought about and planned for the past several years in the Industrial Chemicals Company culminated in the most significant change in the company's 80-plus-year history. A major corporate restructuring was announced, including the purchase of a large U.S.-based pharmaceutical company, for \$2.8 billion.

In February of 1996, the chairman of the board and chief executive officer told a reporter for a major financial magazine, "We felt that if we were to build a strong technology base of biology and biotechnology that would simultaneously serve agriculture, animal nutrition, and health care, we could build a unique powerhouse backing it up in a way that the companies in these individual businesses couldn't do, and we've built it." The changes initiated were thus not merely pruning and trimming, but changing the very direction of the company by getting out of commodity chemicals and into more innovative areas.

The magazine made a key observation in its February 10 issue:

A major problem looms: Can the remaining product lines support the level of research needed to make a major impact in biotechnology? Earnings for the first three quarters of 1995 dropped and the company expects to show a loss for the fourth quarter, even before write-offs on closed chemical plants.

The company suffered further losses in the silicon wafer business, in which it invested close to \$500 million since 1991. And it was hurt by the sharp downturn in the farm

economy. For 1996, however, analysts estimate earnings of \$4.50 per share vs. \$3 last year before special charges.

The chairman of the board was well aware of the major concern as to the remaining product lines' capability to support the level of research needed to make a major impact in biotechnology. In fact, as 1995 drew to a close, he commissioned a special subgroup of the Executive Management Committee (the EMC is the senior management group dealing with major strategic and operational issues) to review the company's overall R&D spending, its affordability and priorities, and bring back recommendations to the EMC in time for inclusion in the 1996 budgeting process.

In addition to wrestling with the affordability and priority of research programs controlled within the operating units of the company, the EMC subcommittee also focused on the corporately managed R&D effort as to both affordability and organizational placement in terms of operations and control. Views among the subcommittee on this latter issue were varied. The most significant differences in viewpoint are characterized as follows:

One perspective was to disassemble the corporate R&D effort and place it directly with the businesses being supported wherever possible with, of course, all costs moving directly to those units. The operating unit manager would then be held accountable for the "bottom line" results and would have direct control over all R&D. R&D would thus be moored to managers with a future obligation to commercialize successfully.

Another perspective reasoned that if biotechnology was in fact to be the cornerstone of the transformation of the company, there must be a minimum threshold below which discovery efforts must not go. This viewpoint further reasoned that such effort must be

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managed corporately and not turned over to operations. Retention of control at the corporate level would ensure a long-term profit pressure.

A major part of the 1995 restructuring was a thrust to study and decentralize all corporate staff units to the fullest extent possible into the operating units that are held accountable for overall financial results. The corporate R&D group was to undergo perhaps one of the most substantial reviews of all corporate staff groups.

Research and Development

From a total corporate perspective, the R&D effort falls into three classifications:

- Class I: Maintain existing businesses. This effort is associated with managing existing business assets, maintaining competitiveness of products in existing businesses, and supplying technical service.
- Class II: Expand existing businesses. R&D associated with expanding existing business assets, expanding markets of existing products, or substantially lowering costs of existing processes.

Class III: Create new businesses. R&D associated with creating new business assets.

Table 1 is a summary of total R&D costs from 1990 through 1994 within these three categories. Table 2 provides comparative data on overall R&D spending for the company and its new acquisition against competitors.

Organizationally, each of the operating units administers its own R&D efforts, which cut across all three categories above. In very simple terms, the operating unit is relatively self-sufficient across all three categories where technology *already exists*. They "purchase" some support services from the corporate R&D group as described later. In terms of performance assessment for incentive compensation, the operating unit R&D groups are tied to the "bottom-line" results achieved by their respective units.

Corporate R&D

The corporate R&D group, in addition to providing support services to the operating unit's R&D efforts, is primarily responsible

TABLE 1 R&D Costs by Major Category

	1994		1993		1992		1991		1990	
	AMOUNT	PERCENT	AMOUNT	PERCENT	AMOUNT	PERCENT	AMOUNT	PERCENT	AMOUNT	PERCENT
Class I: Maintain existing businesses	\$107	29%	\$ 92	32%	\$ 84	32%	\$ 80	34%	\$76	37%
Class II: Expand existing businesses	81	22%	68	23%	65	24%	62	27%	65	31%
Class III: Create new businesses	150	40%	102	35%	78	30%	55	24%	44	21%
Other: Unclassified	32	9%	28	10%	37	14%	36	15%	23	11%
Total	<u>\$370</u>	<u>100%</u>	<u>\$290</u>	<u>100%</u>	<u>\$264</u>	<u>100%</u>	<u>\$233</u>	<u>100%</u>	<u>\$208</u>	<u>100%</u>

TABLE 2 R&D Spending Comparative Data

1994 R&D Expenditures for the Chemical Industry			
	SALES (\$M)	R&D AS % OF SALES	NET INCOME
Industrial chemicals (preacquisition)	\$ 6,691	5.5%	\$ 439
Competitors			
1	1,340	4.7	(21)
2	9,508	2.8	380
3	3,857	6.1	216
4	3,328	2.8	161
5	11,418	4.4	549
6	35,915	11.0	1,431
7	10,734	4.0	623
1995 R&D for the Drug Industry			
	SALES (\$M)	R&D AS % OF SALES	
Pharmaceutical (preacquisition)	\$1,246	9.6%	
Competitors			
1	4,700	4.2	
2	4,500	5.1	
3	40	12.6	
4	60	5.7	
5	160	6.3	
6	3,295	11.0	
7	296	14.4	
8	3,600	11.0	
9	4,000	6.5	
10	1,224	3.1	
11	700	6.9	
12	560	5.4	
13	1,910	8.7	
14	3,190	9.5	
15	2,300	8.0	
16	1,835	4.8	
17	949	13.5	
18	2,000	10.5	
19	3,280	6.2	

for required *new technology* in creating new businesses. At the point in the product invention time line when new-technology-based products reach a level of commercial viability, these programs are "handed off" to an operating unit R&D group for eventual movement to commercialization. In the past several years, this corporate R&D

group has been successful in "inventing" and "handing off" commercial product leads to operating units and keeping the new product discovery pipeline filled with potential products with a high probability of commercial success. A more detailed description of the corporate R&D group follows:

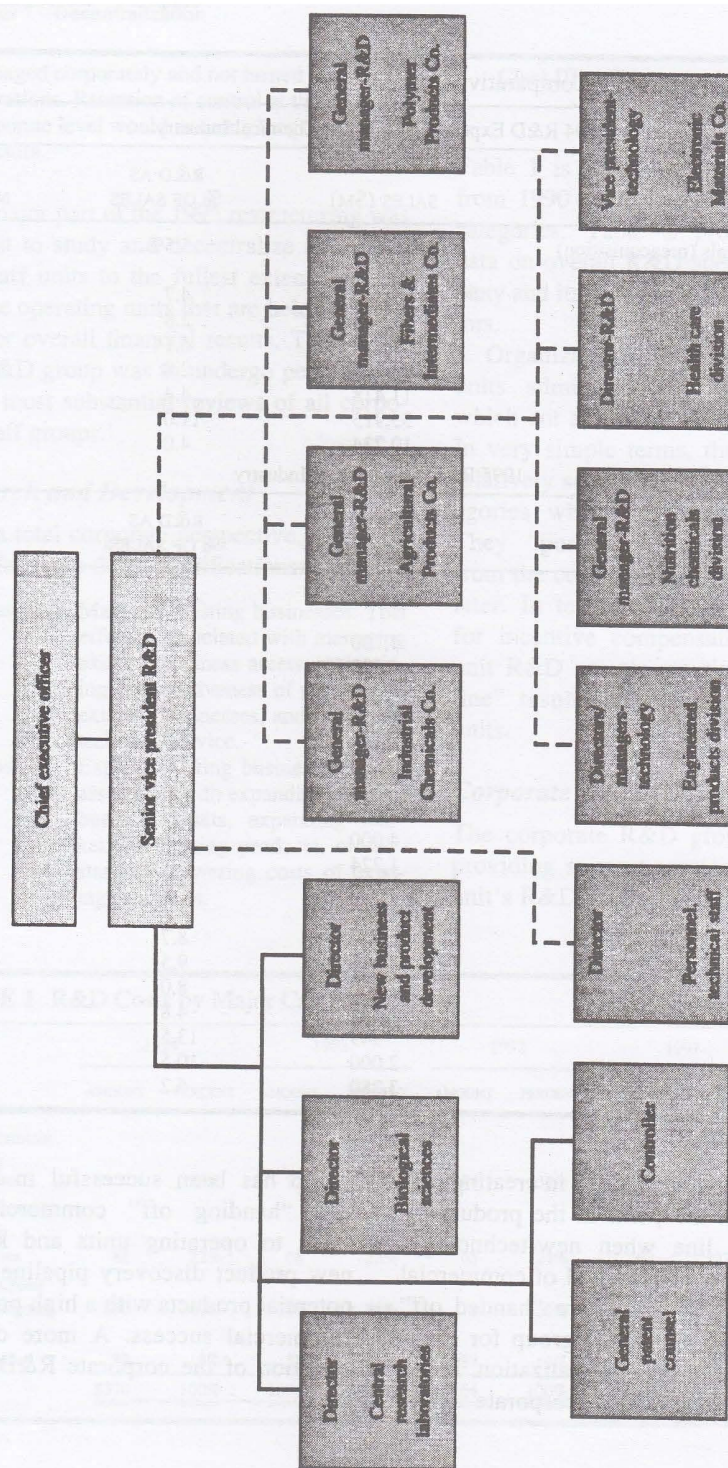


FIGURE 1 Organization Chart—Corporate R&D

The corporate research and development group is headed by a senior vice president reporting to the chairman of the board and CEO. The organization, before the 1995 restructuring, is depicted in Figure 1.

The central research laboratory group consists of an information center (20% of its costs are charged to operating units on a fee-for-service basis), an MIS facility, bioprocess development and cell culture groups (which are essentially involved in devising production processes for biotechnology-based products), a physical sciences center (a central analytical chemistry group providing very specialized and highly skilled support to many users across the company—65% of this group's costs are charged out directly on a fee-for-service basis), a group called controlled delivery (which develops vehicles for the transfer of pharmaceutical and animal science products into the living systems within which they must act), and a chemistry group providing very specialized skills for both conventional and biotechnology process chemistry (about 25% of this group's costs are charged directly on a fee-for-service basis). In addition to the direct fee-for-service chargeouts described above, a portion of the costs of this central research laboratory group (pri-

marily the bioprocess development and cell culture groups) is assigned to the biological sciences segment. The remaining costs, along with overall corporate R&D administrative costs, are allocated as a part of corporate charges.

The biological sciences group has been the major focal point for new technology in the pharmaceutical and animal sciences area. It supports plant sciences for the agricultural unit as well. The costs for the biological sciences group are reported as new direction basic research. Also controlled within corporate R&D and reported in this segment are the costs of key university relationships supporting basic and applied biomedical, crop chemicals, and animal sciences research efforts.

The patent group has always been decentralized with a patent counsel and staff assigned to each operating unit reporting on a "dotted line" basis to the operating unit and administratively to the general patent council. Thus, about 80% of patent cost is already directly borne by operating units, with the remainder allocated as a part of corporate charges.

The "bottom line" of the above operating unit/corporate R&D cost picture was as follows when 1995 ended:

	PERCENTAGE	
Directly controlled and administered by operating units		80%
Controlled and administered by corporate research and development		
Charged to operating units on fee-for-service basis	4%	
Allocated to operating units as "corporate charge" based upon net investment	3%	
Reported as part of biological sciences segment (new direction basic research)	<u>13%</u>	<u>20%</u>
Total research and development cost		100%

Required

As the controller reflected on the information obtained and the important issues being addressed by the EMC subcommittee, the following thoughts and questions surfaced in his mind:

- (1) Would operating unit control of our key R&D growth programs enhance or mitigate our chances of meeting our goals?

- (2) I know there'll be pressure to level off R&D spending across the company, including corporate R&D. We've got to make sure we get more "bang for our R&D buck" in terms of prioritizing those efforts to go after the most promising commercial opportunities if we're going to achieve our goals in biotechnology! How can we be sure we're prioritizing these efforts toward increased commercial success?

BP AMERICA: COST CENTERS AND PROFIT CENTERS*

John Bishop, Corporate Controller of BP America, gazed out his office window on the thirty-seventh floor of the BP America building, admiring the activities of the ice breakers that were clearing the shipping lanes on Lake Erie. He was contemplating this year's upcoming negotiations between the "businesses" and the "staff departments" to determine the costs of, and responsibility for, centrally provided services. (See Tables 1 and 2 for lists of businesses and staff departments.) His thoughts faded to last year, which saw the beginning of the end of the old cost

allocation system and the dawning of a new, more imaginative and innovative process for managing corporate charges. He was trying to imagine how this year's procedure would differ from last year's, what guidelines to use to judge its success, and what new problems possibly could arise.

Background

BP America was formed from the combination of Standard Oil and BP North America. The original link between BP and Standard

TABLE 1 BP America Business

BP Exploration	BP Nutrition
BP Oil	Carborundum Division
BP Chemicals	BP America Ventures
BP Advanced Minerals	Research and Development
BP Titanium Minerals	Chase Brass
BP Minerals	Kaldair
BP Coal	

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TABLE 2 BP America Staff Departments

Audit	Information Management
Control	Other Administrative and Information Services
Finance	Human Resources
Planning	External Affairs—Cleveland
Tax	Federal Government Affairs
Law	State Government Affairs
Executives	Public Affairs
Administrative Services	Patent and License
Health, Safety, and Environmental Quality	

Oil was forged in 1970 when, in exchange for an increased shareholding in Standard Oil, BP transferred to the company its crude oil leases at Prudhoe Bay on the North Slope of Alaska, along with some other upstream and downstream assets. That arrangement brought together BP's large oil reserves in Alaska and the marketing expertise of the long-established American company. In 1987, a total merger of the two companies occurred when BP purchased the minority shareholding in Standard Oil, and BP America was formed. Along with the physical exchange of assets, Standard Oil, in becoming BP America, also had to wrestle with the cultural and philosophical attitudes of a new global parent.

The 1970s and 1980s saw significant changes in the oil industry. By the 1980s, a higher degree of concentration and more intensive competition was evident, which forced BP America to reconsider both its internal and external business methodologies. One of the outcomes was greater responsibility passing out from the center of the organization to the individual businesses, creating a more decentralized company. Sir Peter Walters, chairman of BP described this as "central control over strategy and delegation of business operating decisions." The result was more day-to-day decision making at lower levels in the organization. The change also affected accountability for costs at both the corporate and business levels.

Historically, central costs were divided by the corporate staff into (1) costs directly applicable to the businesses and (2) corporate costs. The business-related costs were allocated from internal cost centers to the businesses using several allocation bases, including headcount, billable hours, and space occupied. Corporate costs were defined as all costs controlled by the CEO that benefited the corporation as a whole,

not individual businesses per se. These included items solely related to the CEO's activities, such as Planning, Control, and Executives.

New Procedures

Although the old allocation process was not considered "broken," top management believed that a change was necessary to adhere to the new philosophy of increased profit responsibility of the businesses. A new procedure was initiated to encourage a buyer-seller relationship between the central staff departments and their primary "customers," the businesses. The BP America CEO also was considered to be one of the customers of the staff departments because of his stewardship role over corporate costs, which were renamed "stewardship costs." The staff departments and their customers were required to negotiate both the level of services to be provided and the amounts to be charged for services. Under this scheme, each staff department was required to:

1. Demonstrate value for dollars spent to convince its customers to use its services
2. Be competitive with respect to alternatives: for example, services from third parties
3. Ensure the satisfaction of its customers

Conversely, the businesses had the option to:

1. Continue to use the BP America corporate staff at negotiated charges
2. Purchase services from external sources
3. Perform services themselves
4. Do without services, if expected costs were greater than expected benefits

From a corporate viewpoint, this procedure:

1. Decreased corporate overhead by dispersing more costs to users
2. Made the businesses aware of the value of corporate services

3. Helped eliminate inefficient or unnecessary services

John Bishop mentally reviewed the mechanics of the process. About a year ago, Robert "Bob" Horton, then CEO of BP America, had created the Business Forum. This group, comprising the BP America business heads and senior corporate staff, introduced the new buyer-seller procedure. Bishop considered this procedure a masterstroke, because it focused the business heads on the need to more accurately distribute central costs between stewardship and the businesses. Effectively, the process took business-related activities out of stewardship and placed them in the businesses. It also ensured the businesses' total involvement from the start.

At a meeting of the Business Forum, each staff department presented its operating plan for the year. Items presented were as follows:

1. Role and mission of the staff department
2. Input expected from businesses for the staff department to be able to fulfill its responsibilities
3. Expected headcount and budgeted costs of the staff department
4. A review of services provided to businesses, billing procedures for these services, and expected annual charges

The Business Forum then provided a recommendation to the CEO of BP America on the appropriate distribution of costs between stewardship and the businesses. The chairman of the Forum, Bill Johnson, insisted on an agreement; silence was considered to be consent. The Business Forum also made recommendations to eliminate activities that the group no longer considered to be needed. However, at no point did the Business Forum attempt to carry out the role of negotiator or mediator between individual buyers and sellers. James Ross (who

replaced Robert Horton as CEO in April 1988) immediately endorsed this entire process.

The Discussion

Bishop's thoughts were interrupted by David Sourwine, Controller, Headquarters and Treasury, who was arriving for a meeting on this very subject. After exchanging pleasantries, they got down to business:

JB: Let's look at where we've been and where we're going this year with the annual review of corporate charges.

DS: As I recall, the overall process worked pretty well last year, although there is no doubt that it was a dramatic change for some people. Of the \$141 million of budgeted costs, only \$11 million was in disagreement after the first cut, and we managed to whittle that down to \$1.1 million. One of the problems was that some of the staff departments were uncomfortable with being challenged, both on what they do and their associated costs. They felt they were being put in an adversarial position, which wasn't necessary.

JB: Yes, and some of the business heads believed that staff departments didn't attack their costs vigorously enough. I have a feeling it may be very different this time around. And it's our responsibility to get the job done with as little residual ill will as possible. I know that James Ross wants us to develop an atmosphere in which constructive challenge is healthy and expected.

DS: When is the Business Forum meeting this year?

JB: In April, when it will review the process and remind everyone that they should prepare in advance for the staff/business discussions. And this time we'll make sure that everyone understands the costs which have to be borne by the businesses and can't be hidden in stewardship any longer.

DS: A couple of the businesses seemed to be "playing games" last year—deliberately negotiating low charges and then not reducing the amounts of services they used.

JB: There are no free lunches. We'll have to make sure that everyone knows this. We'll also have to stress that the businesses must think longer-term. They must realize that if they decide not to use corporate services this year or if they underestimate their expected usage, these services may not be available when they want them. BP America cannot reduce its corporate headcount and costs one year and then go back into the market to rehire the next. And of course, Mr. Ross and the CEO Committee have the power to oversee the process for the overall good of BP America. Ross has to be satisfied that any changes made are in the corporation's best interests.

DS: I've heard rumors that some of the people in corporate staff are worried the businesses will try to unreasonably reduce billing rates.

JB: One purpose of this process is to satisfy the businesses that they're getting value for the dollars they spend on services. If they really don't want what the corporate departments are providing, that will certainly come out in the wash.

DS: Do you believe Mr. Ross is expecting the stewardship costs to be reduced again this year?

JB: If you are referring to the \$16 million shifted last year from stewardship to the businesses, I don't think he will expect the same to happen again. However, I believe the potential exists for some further transfers of business-related costs from stewardship. Also, recall that James Ross said this year he will not pick up any discrepancies, like the \$1.1 million of unbilled service he absorbed into stewardship last year.

Required

- (1) Should BP America's corporate staff departments be designated as profit centers? If so, should they be allowed to solicit business outside the corporation?
- (2) What measures should be used to evaluate the performance of staff departments?
- (3) BP America recently sold BP Minerals, a business that accounted for over 10% of the corporation's assets. What effect would you expect this sale to have on corporate staffing requirements under the new chargeout procedures?
- (4) What effect would you expect the new procedures to have on total corporate costs?

EMPIRE GLASS COMPANY (A)*

In fall 1963 Peter Small of the Harvard Business School began to write case material on the budgetary control system of the Empire Glass Company, a manufacturing company with a number of plants located throughout Canada. In particular, Peter Small was interested in how James Walker, the corporate controller, saw the company's budgetary control system. Therefore, Small focused his research on the budgetary control system in relationship to the company's Glass Products Division. This divi-

sion was responsible for manufacturing and selling glass food-and-beverage bottles.

Organization

Empire Glass company was a diversified company organized into several major product divisions, one of which was the Glass Products Division. Each division was headed by a vice president who reported directly to the company's executive vice president, Landon McGregor. (Exhibit A shows an organization chart of the company's top management group.) All of the corporate and divisional management groups were located in British City, Canada.

*This case was prepared by Assistant Professor David F. Hawkins.

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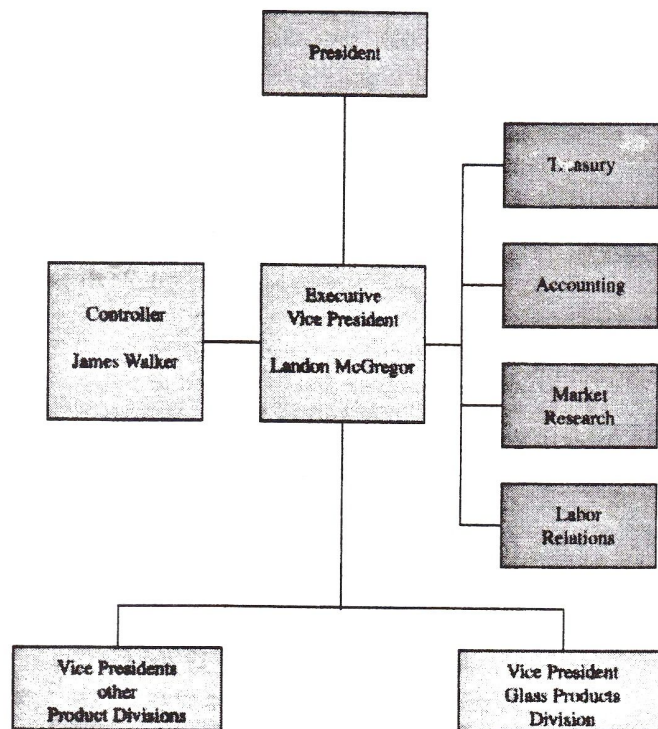


EXHIBIT A Top Management Group

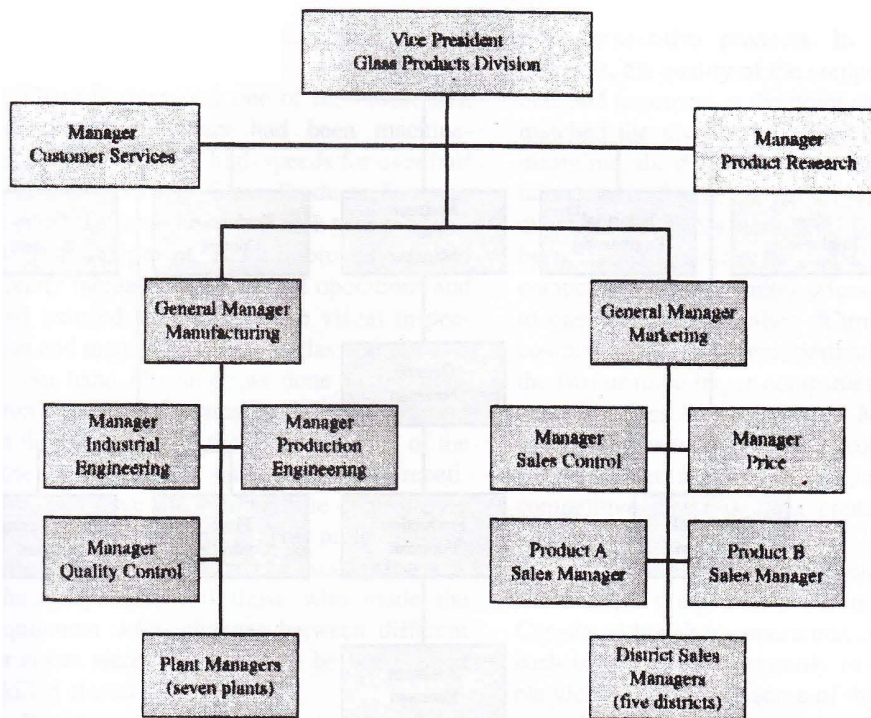


EXHIBIT B Glass Products Division—Top Management and Staff

McGregor's corporate staff included three people in the financial area—the controller, the chief accountant, and the treasurer. The controller's department consisted of only two people—Walker and the assistant controller, Allen Newell. The market research and labor relations departments also reported in a staff capacity to McGregor.

All of the product divisions were organized along similar lines. Reporting to each product division vice president were several staff members in the customer service and product research areas. Reporting in a line capacity to each divisional vice president were also a general manager of manufacturing (responsible for all of the division's manufacturing activities) and a general manager of marketing (responsible for all of the division's marketing activities). Both of these execu-

tives were assisted by a small staff of specialists. Exhibit B presents an organization chart of the Glass Products Division's top management group. Exhibit C shows the typical organization structure of a plant within the Glass Products Division.

Products and Technology

The Glass Products Division operated a number of plants in Canada, producing glass food-and-beverage bottles. Of these products, food jars constituted the largest group. Milk bottles, as well as beer and soft drink bottles were also produced in large quantities. A great variety of shapes and sizes of containers for wines, liquors, drugs, cosmetics, and chemicals were produced in smaller quantities.

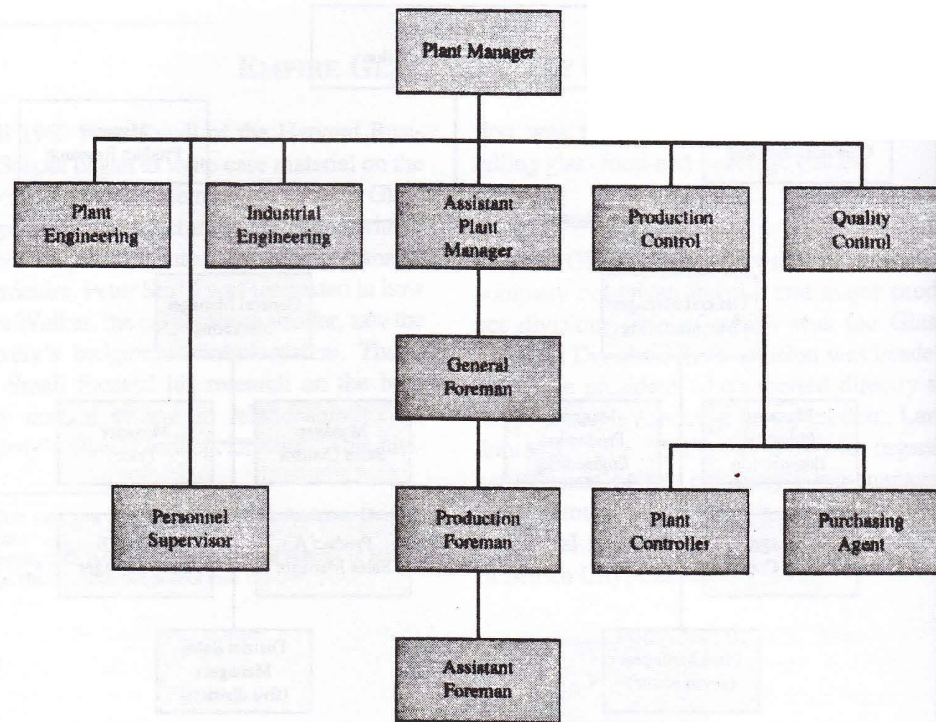


EXHIBIT C Glass Products Division—Typical Plant Organization

Most of the thousands of different products, varying in size, shape, color, and decoration, were produced to order. According to British City executives, the typical lead time between the customer's order and shipment from the plant was between two and three weeks during 1963.

The principal raw materials for container glass were sand, soda ash, and lime. The first step in the manufacturing process was to melt batches of these materials in furnaces or tanks. The molten mass was then passed into automatic or semiautomatic machines that filled molds with the molten glass and blew the glass into the desired shape. The "ware" then went through an automatic annealing oven or lehr, where it was cooled slowly under carefully controlled conditions. If the

glass was to be coated on the exterior to increase its resistance to abrasion and scratches, this coating—often a silicone film—was applied in the lehr. Any decorating (such as a trademark or other design) was then added, the product was inspected again, and the finished goods were packed in corrugated containers (or wooden cases for some bottles).

Quality inspection was critical in the manufacturing process. If the melt in the furnace was not completely free from bubbles and stones (unmelted ingredients or pieces of refractory material), or if the fabricating machinery was slightly out of adjustment, or molds were worn, the rejection rate was very high. Although a number of machines, including electric eyes, were used in the inspec-

tion process, much of the inspection was still done visually.

Glass making was one of the oldest arts, and bottles and jars had been machine-molded at relatively high speeds for over half a century, but the Glass Products Division had spent substantial sums each year modernizing its equipment. These improvements had greatly increased the speed of operations and had reduced substantially the visual inspection and manual handling of glassware.

No hand blowing was done in the division's plants; in contrast to the methods used in the early days of the industry, most of the jobs were relatively unskilled, highly repetitive, and gave the worker little control over work methods or pace. The mold makers, who made and repaired the molds, the machine repairers, and those who made the equipment setup changes between different products were considered to be the highest skilled classes of workers.

Wages were relatively high in the glass industry. The rumble of the machinery and the hiss of compressed air in the molding operation, however, plus the roar of fuel in the furnaces, made the plants extremely noisy. The great amount of heat given off by the furnaces and molten glass also made working conditions unpleasant. Production employees belonged to two national unions, and for many years bargaining had been conducted on a national basis. Output standards were established for all jobs, but no bonus was paid to hourly plant workers for exceeding standard.

Marketing

Over the years, the sales of the Glass Products Division had grown at a slightly faster rate than had the total market for glass containers. Until the late 1950s, the division had charged a premium for most of its products, primarily because they were of better quality

than competitive products. In later years, however, the quality of the competitive products had improved to the point at which they matched the division's quality level. In the meantime, the division's competitors had retained their former price structure. Consequently, the Glass Products Division had been forced to lower its prices to meet its competitors' lower market prices. According to one division executive: "Currently, price competition is not severe, particularly among the two or three larger companies that dominate the glass bottle industry. Most of our competition is with respect to product quality and customer service. In fact, our biggest competitive threat is from containers other than glass."

Each of the division's various plants to some extent shipped its products throughout Canada, although transportation costs limited each plant's market primarily to its immediate vicinity. Although some of the customers were large and bought in huge quantities, many were relatively small.

Budgetary Control System

In fall 1963 Peter Small interviewed James Walker, who had been the Empire Glass Company's controller for some 15 years. Excerpts from that interview are reproduced in the following sections.

SMALL: Mr. Walker, what is the overall function of your budgetary control system?

WALKER: Well, Peter, to understand the role of the budgetary control systems you must first understand our management philosophy. Fundamentally, we have a divisional organization based on broad product categories. These divisional activities

are coordinated by the company's executive vice president, with the head office group providing a policy and review function for the company's executive vice president.

Within the broad policy limits, we operate on a decentralized basis, with each of the decentralized divisions performing the full management job that normally would be inherent in any independent company. The only exception to this philosophy is that the head office group is solely responsible for the sources of funds and the labor relations with those bargaining units that cross division lines. Given this form of organization, the budget is the principal management tool used by the head office to coordinate the efforts of the various segments of the company toward a common goal. Certainly, in our case, the budget is much more than a narrow statistical accounting device.

Sales Budget

Walker and Small discussed the preparation of the sales budget. This was the first step in the budget preparation procedure.

WALKER: As early as May 15 of the year preceding the budget year, the top management of the company asks the various product division vice

presidents to submit preliminary reports stating what they think their division's capital requirements and outlook in terms of sales and income will be during the next budget year. In addition, corporate top management also wants an expression of the division vice president's general feelings toward the trends in the particular items over the two years following the upcoming budget year. At this stage, the head office is not interested in too much detail.

SMALL: Does the market research group get involved in these forecasts?

WALKER: No. What we want is an interpretive statement about sales and income based on the operating executives' practical feel for the market. All divisions plan their capital requirements five years in advance and have made predictions of the forthcoming budget year's market when the budget estimates were prepared last year, so these rough estimates of next year's conditions and requirements are far from wild guesses.

After the opinions of the divisional vice presidents are in, the market research staff goes to work. They develop a formal statement for the marketing climate in detail for the forthcoming budget year and in general terms for the subsequent two years.

SMALL: Putting together the sales forecast, then, is the first step in developing the budget?

WALKER: Yes. This is an important first step because practically all of the forecasts or estimates used in planning either start with or depend in some way on a sales forecast.

The market research group begins by projecting such factors as the general economic condition, growth of our various markets, weather conditions related to the end uses of our products, competitive effort, and labor disturbances.

Once these general factors have been assessed, a sales forecast for the company and each division is developed. Consideration is given to the relationship of the general economic climate to our customers' needs and Empire's share of each market. Also, basic assumptions as to price, weather conditions, and so forth, are developed and stated explicitly.

In sales forecasting, consideration is given also to the introduction of new products, gains or losses in particular accounts, forward buying, new manufacturing plants, and any changes in our definition of, say, gross sales.

The probable impact of information such as the fol-

lowing is also taken into account: industry growth trends, packaging trends, inventory carry-overs, and the development of alternative packages to or from glass.

This review of all the relevant factors is followed for each of our product lines, regardless of its size and importance. The completed forecasts of the market research group are then forwarded to the appropriate divisions for review, criticism, and adjustments.

SMALL: How would you summarize the role of the head office group in developing these sales forecasts?

WALKER: Well, I suppose our primary goal is to assure uniformity between the divisions with respect to the basic assumptions on business conditions, pricing, and the treatment of possible emergencies. Also, we provide a yardstick so as to assure us that the company's overall sales forecast will be reasonable and obtainable.

Next, the product division top management goes back to its district sales managers. Each district sales manager is asked to tell his top management what he expects to do in the way of sales during the budget year. The head office and the divisional staffs will give the district sales managers as much guidance as they request, but it is the sole responsibility of

each district sales manager to come up with his particular forecast.

After the district sales manager's forecasts are received by the divisional top management, the forecasts are consolidated and reviewed by the division's general manager of marketing. At this time the general manager of marketing may go back to the district sales managers and suggest they revise their budgets. For instance, a situation such as this might arise: We enjoy a very large share of the liquor market. In one year, however, it may be predicted on the basis of the consolidated district sales manager's estimates that we can look forward to a 20%–25% increase in sales.

Obviously, this prediction is unreasonable. What has happened is this: Each district sales manager has been told by each of his liquor customers that they expect an increase in sales. When all these anticipated individual sales increases are summed, it looks as if the market is going to grow considerably. However, this is not going to happen. What is going to occur is that company A will take sales from company B and company C will take sales from company D, and so forth.

Individually, the district sales managers know little of

what's happening outside their territory. However, from the headquarters' point of view, we can ascertain the size of the whole market and the customer's probable relative market share. That's where the market research group's studies come in handy.

Let me emphasize, however, even in this case nothing is changed in the district sales manager's budget, unless the district manager agrees. Then, once the budget is approved, nobody is relieved of his responsibility without top management approval. Also, no arbitrary changes are made in the approved budgets without the concurrence of all the people responsible for the budget.

SMALL:

At this point, have the plant managers—or the divisional general managers of manufacturing—been involved in the preparation of the sales budget?

WALKER:

Not in a formal way. Informally, of course, the plant managers know what's going on. For example, when a plant manager prepares his capital equipment investment program he is sure to talk to the district sales manager closest to his plant about the district's sales plans.

Next, we go through the same process at the division and headquarters levels. We keep on repeating the

process until everybody agrees that the sales budgets are sound. Then, each level of management takes responsibility for its particular portion of the budget. These sales budgets then become fixed objectives.

SMALL: Besides coming up with a realistic sales budget, what other objectives do the divisions have in mind when they review the sales forecasts?

WALKER: I would say they have four general objectives in mind: First, a review of the division's competitive position, including plans for improving that position. Second, an evaluation of its efforts to gain either a larger share of the market or offset competitors' activities. Third, a consideration of the need to expand facilities to improve the division's products or introduce new products. Finally, a review and development of plans to improve product quality, delivery methods, and service.

Manufacturing Budgets

Walker and Small then turned their conversation to the preparation of the manufacturing budgets. According to Walker, each plant had a profit responsibility.

SMALL: When are the plant budgets prepared?

WALKER: Once the vice presidents, executive vice president, and company president have given final approval to the

sales budgets, we make a sales budget for each plant by breaking the division sales budget down according to the plants from which the finished goods will be shipped. These plant sales budgets are then further broken down on a monthly basis by price, volume, and end use. With this information available, the plants then budget their gross profit, fixed expenses, and income before taxes.

SMALL: How do you define gross profit and income?

WALKER: Gross profit is the difference between gross sales, less discounts, and variable manufacturing costs—such as direct labor, direct material, and variable manufacturing overheads. Income is the difference between the gross profit and the fixed costs.

SMALL: Is the principal constraint within which the plants work the sales budget?

WALKER: That's right. Given his sales budget, it is up to the plant manager to determine the fixed overhead and variable costs—at standard—that he will need to incur so as to meet the demands of the sales budget.

In some companies I know of, the head office gives each plant manager sales and income figures that the plant has to meet. We don't operate that way, however. We believe that type of directive misses the benefit

of all the field experience of those at the district sales and plant levels. If we gave a profit figure to our plant managers to meet, how could we say it was their responsibility to meet it?

What we say to the plant managers is this: Assuming that you have to produce this much sales volume, how much do you expect to spend producing this volume? And what do you expect to spend for your programs allied to obtaining these current and future sales?

SMALL: Then the plant managers make their own plans?

WALKER: Yes. In my opinion requiring the plant managers to make their own plans is one of the most valuable things associated with the budget system. Each plant manager divides the preparation of the overall plant budget among his plant's various departments. First, the departments spell out the programs in terms of the physical requirements—such as tons of raw material—and then the plans are priced at standard cost.

SMALL: What items might some of these departmental budgets include?

WALKER: Let me tell you about the phase of the budget preparation our industrial engineering people are responsible for. The plant industrial engineering department is assigned the responsibility for developing engineered cost

standards and reduced costs. Consequently, the phase of budget preparation covered by the industrial engineers includes budget standards of performance for each operation, cost center, and department within the plant. This phase of the budget also includes budget cost reductions, budgeted unfavorable variances from standards, and certain budgeted programmed fixed costs in the manufacturing area such as service labor. The industrial engineer prepares this phase of the budget in conjunction with departmental line supervision.

SMALL: Once the plant budgets are completed, are they sent directly to the divisional top management?

WALKER: No. Before each plant sends its budget into British City, a group of us from head office goes out and visits each plant. For example, in the case of the Glass Products Division, Allen [Newell, assistant controller] and I, along with representatives of the Glass Products division manufacturing staffs visit each of the division's plants.

Let me stress this point: We do not go on these trips to pass judgment on the plant's proposed budget. Rather, we go with three purposes in mind. First, we wish to acquaint ourselves with the thinking behind the figures that each plant man-

ager will send in to British City. This is helpful because when we come to review these budgets with the top management—that is, the management above our level—we will have to answer questions about the budget, and we will know the answers. Second, the review is a way of giving guidance to the plant managers as to whether or not they are in line with what the company needs to make in the way of profits.

Of course, when we make our field reviews we do not know what each of the other plants is doing. Therefore, we explain to the plant managers that, although their budget may look good now, when we put all the plants together in a consolidated budget, the plant managers may have to make some changes because the projected profit is not high enough. When this happens we have to tell the plant managers that it is not their programs that are unsound. The problem is that the company cannot afford the programs.

I think it is very important that each plant manager has a chance to tell his story. Also, it gives them the feeling that we at headquarters are not living in an ivory tower.

SMALL: How long do these plant visits take?

WALKER: They are spread over a three-week period, and we spend an average of half a day at each plant.

SMALL: I gather the role of the head office and divisional staff is to recommend, not decide. That's the plant manager's right.

WALKER: Correct.

SMALL: Who on the plant staff attends these meetings?

WALKER: The plant manager is free to bring in any of his supervisors he wishes. We ask him not to bring in anybody below the supervisory level. Then, of course, you get into organized labor.

SMALL: What do you do on these plant visits?

WALKER: During the half-day we spend at each plant we discuss the budget primarily. However, if I have time, I like to wander through the plant and see how things are going. Also, I go over in great detail the property replacement and maintenance budget with the plant engineer.

SMALL: After you have completed the plant tours, do the plant budgets go to the respective division top management?

WALKER: That's right. About September 1, the plant budgets come into British City, and the accounting department consolidates them. Then the product division vice presidents review their respective divisional budgets to see if the division budget is reasonable

in terms of what the vice president thinks the corporate top management wants. If he is not satisfied with the consolidated plant budgets, he will ask the various plants within the division to trim their budget figures.

When the division vice presidents and the executive vice president are happy, they will send their budgets to the company president. He may accept the division budgets at this point. If he doesn't, he will specify the areas to be reexamined by division and, if necessary, plant management. The final budget is approved at our December board of directors' meeting.

SMALL: As I understand it, the district sales managers have a responsibility for sales.

WALKER: Specifically volume, price, and sales mix.

SMALL: And the plant manager is responsible for manufacturing costs?

WALKER: His primary responsibility extends to profits. The budgeted plant profit is the difference between the fixed sales dollar budget and the budgeted variable costs at standard and the fixed overhead budget. It is the plant manager's responsibility to meet this budgeted profit figure.

SMALL: Even if actual dollar sales drop below the budgeted level?

WALKER: Yes.

Comparison of Actual and Standard Performance

The discussion turned to the procedures and management philosophy related to the periodic comparison by the head office group of the actual and standard performance of the field organization. In particular, the two men discussed the manufacturing area.

SMALL: What do you do with the actual results that come into the head office?

WALKER: We go over them on the basis of exception: that is, we only look at those figures that are in excess of the budgeted amounts. We believe this has a good effect on morale. The plant managers don't have to explain everything they do. They only have to explain where they go off base.

SMALL: What cost and revenue items are of greatest interest to you?

WALKER: In particular, we pay close attention to the net sales, gross margin, and the plant's ability to meet its standard manufacturing cost. Incidentally, when analyzing the gross sales, we look closely at the price and mix changes. All this information is summarized on a form known as the Profit Planning and Control Report #1 [see Exhibit 1]. This document is backed up by a number of supporting documents [see Exhibit 2].

SMALL: When you look at the fixed costs, what are you interested in?

EXHIBIT 1 Profit Planning and Control Report (PPCR) #1

MONTH			REF.		YEAR TO DATE		
GAIN (+) OR LOSS (-) FROM		ACTUAL			ACTUAL	INCOME GAIN (+) OR LOSS (-) FROM	
PREV. YEAR	BUDGET					BUDGET	PREV. YEAR
			1	GROSS SALES TO CUSTOMERS			
			2	DISCOUNTS & ALLOWANCES			
			3	NET SALES TO CUSTOMERS			
%	%		4	% GAIN (+)/LOSS (-)		%	%
<i>DOLLAR VOLUME GAIN (+)/LOSS (-) DUE TO:</i>							
			5	SALES PRICE			
			6	SALES VOLUME			
			6(a)	TRADE MIX			
			7	VARIABLE COST OF SALES			
			8	PROFIT MARGIN			
<i>PROFIT MARGIN GAIN (+)/LOSS (-) DUE TO:</i>							
			9	PROFIT/VOLUME RATIO (P/V)			
			10	DOLLAR VOLUME			
%	%	%	11	PROFIT/VOLUME RATIO (P/V)	%	%	%
INCOME ADDITION (+)				INCOME ADDITION (+)			
			12	TOTAL FIXED MANUFACTURING COST			
			13	FIXED MANUFACTURING COST - TRANSFERS			
			14	PLANT INCOME (STANDARD)			
%	%	%	15	% OF NET SALES	%	%	%
INCOME ADDITION (+) INCOME REDUCTION (-)				INCOME ADDITION (+) INCOME REDUCTION (-)			
%	%	%	16	% PERFORMANCE	%	%	%
			17	MANUFACTURING EFFICIENCY			
INCOME ADDITION (+)				INCOME ADDITION (+)			
			18	METHODS IMPROVEMENTS			
			19	OTHER REVISIONS OF STANDARDS			
			20	MATERIAL PRICE CHANGES			
			21	DIVISION SPECIAL PROJECTS			
			22	COMPANY SPECIAL PROJECTS			
			23	NEW PLANT EXPENSE			
			24	OTHER PLANT EXPENSES			
			25	INCOME ON SECONDS			
			26				
			27				
			28	PLANT INCOME (ACTUAL)			
%	%	%	29	% GAIN (+)/LOSS (-)	%	%	%
%	%	%	30	% OF NET SALES	%	%	%
INCREASE (+) OR DECREASE (-)				INCREASE (+) OR DECREASE (-)			
			37	TOTAL EMPLOYED CAPITAL			
%	%	%	38	% RETURN	%	%	%
			39	TURNOVER RATE			

PLANT

DIVISION

MONTH

EXHIBIT 2 Brief Descriptions of PPCR #2 through PPCR #11

REPORT	DESCRIPTION
Individual Plant Reports	
PPCR #2	<i>Manufacturing Expense:</i> Plant materials, labor and variable overhead consumed. Details of actual figures compared with budget and previous years' figures for year-to-date and current month.
PPCR #3	<i>Plant Expense:</i> Plant expenses incurred. Details of actual figures compared with budget and previous years' figures for year-to-date and current month.
PPCR #4	<i>Analysis of Sales and Income:</i> Plant operating gains and losses due to changes in sales revenue, profit margins, and other sources of income. Details of actual figures compared with budget and previous years' figures for year-to-date and current month.
PPCR #5	<i>Plant Control Statement:</i> Analysis of plant raw material gains and losses, spoilage costs, and cost reductions programs. Actual figures compared with budget figures for current month and year-to-date.
PPCR #6	<i>Comparison of Sales by Principal and Product Groups:</i> Plant sales dollars, profit margin and P/V ratios broken down by end-product use (e.g., soft drinks, beer). Compares actual figures with budgeted figures for year-to-date and current month.
Division Summary Reports	
PPCR #7	<i>Comparative Plant Performance, Sales, and Income:</i> Gross sales and income figures by plants. Actual figures compared with budget figures for year-to-date and current month.
PPCR #8	<i>Comparative Plant Performance, Total Plant Expenses:</i> Profit margin, total fixed costs, manufacturing efficiency, other plant expenses and P/V ratios by plants. Actual figures compared with budgeted and previous years' figures for current month and year-to-date.
PPCR #9	<i>Manufacturing Efficiency:</i> Analysis of gains and losses by plant in areas of materials, spoilage, supplies, and labor. Current month and year-to-date actuals reported in total dollars and as a percentage of budget.
PPCR #10	<i>Inventory:</i> Comparison of actual and budget inventory figures by major inventory accounts and plants.
PPCR #11	<i>Status of Capital Expenditures:</i> Analysis of the status of capital expenditures by plants, months and relative to budget.

WALKER: We want to know whether the plants carried out the programs that they said they would carry out. If they have not, we want to know why they have not. Here we are looking for sound reasons. Also, we want to know if they have carried out their projected programs at the cost they said they would.

SMALL: Do you have to wait until you receive the monthly PPCR #1 [Profit Planning

and Control Report #1] before you know how well the various plants performed during the month?

WALKER: No. At the end of the sixth business day after the close of the month, each plant wires to the head office certain operating variances, which we put together on what we call the variance analysis sheet [see Exhibit 3]. Within a half-hour after the last plant report comes through, variance analysis

sheets for the divisions and plants are compiled. On the morning of the seventh business day after the end of the month, these reports are usually on the desks of the interested top management.

The variance analysis sheet highlights the variances in what we consider to be critical areas. Receiving this report as soon as we do helps us at head office to take timely action. Let me emphasize, however, we do not accept the excuse that the plant manager has to go to the end of the month to know what happened during the month. He has to be on top of these particular items daily.

SMALL: Is there any way the head office can detect an adverse trend in operations before you receive the monthly variance analysis sheet?

WALKER: Yes. At the beginning of each month, the plant managers prepare current estimates for the upcoming month and quarter on forms similar to the variance analysis sheets.

Because our budget is based on known programs, the value of this current estimate is that it gets the plant people to look at their programs. Hopefully, they will realize that they cannot run their plants just on a day-to-day basis.

If we see a sore spot com-

ing up, or if the plant manager draws our attention to a potential trouble area, we may ask for daily reports concerning this item to be sent to the particular division top management involved. In addition, the division top management may send a division staff specialist—say, a quality control expert if it is a quality problem—to the plant concerned. The division staff members can make recommendations, but it is up to the plant manager to accept or reject these recommendations. Of course, it is well known throughout the company that we expect the plant managers to accept gracefully the help of the head office and division staffs.

SMALL: When is the monthly PPCR #1 received at British City?

WALKER: The plant PPCR #1 and the month-end trial balance showing both actual and budget figures are received in British City at the close of the eighth business day after the end of the month. These two very important reports, along with the supporting reports [PPCR #2 through PPCR #11, described in Exhibit 2] are then consolidated by the accounting department on PPCR-type forms to show the results of operations by division and company. The consolidated reports are distributed the next day.

Sales-Manufacturing Relations

Small was curious about the relationship between the sales and manufacturing groups, particularly at the plant level.

SMALL: If during the year, the actual sales volume is less than the budgeted sales volume, what changes do you make in the plant budget?

WALKER: This is one of the biggest risks we run with our budget system. If the sales decline occurs during the early part of the year, and if the plant managers can convince us that the change is permanent, we may revise the plant budgets to reflect *these new circumstances*. However, if toward the end of the year the actual sales volume suddenly drops below the predicted sales volume, we don't have much time to change the budget plans. What we do is ask the plant managers to go back over their budget with their staffs and see where reduction of expense programs will do the least harm. Specifically, we ask them to consider what they may be able to eliminate this year or delay until next year.

I believe it was Confucius who said "we make plans so we have plans to discard." Nevertheless, I believe it is wise to make plans, even if you have to discard them. Having plans makes it a lot

easier to figure out what to do when sales fall off from the budgeted level. The understanding of operations that comes from preparing the budget removes a lot of the potential chaos and confusion that might arise if we were under pressure to meet a stated profit goal and sales decline quickly and unexpectedly at year-end—just as they did this year.

Under these circumstances, we don't try to ram anything down the plant managers' throats. We ask them to tell us where they can reasonably expect to cut costs below ~~the budgeted~~ level.

SMALL: What happens when a plant manager's costs are adversely affected by the sales group's insisting that a production schedule be changed so as to get out an unexpected rush order?

WALKER: As far as we are concerned, the customer's wants are primary—our company is a case where sales wags the rest of the dog.

Whenever a problem arises at a plant between sales and production, the local people are supposed to solve the problem themselves. Let's take your example: A customer's purchasing agent insists that he wants an immediate delivery, and this delivery will disrupt the production department's plans. The pro-

duction group can make recommendations as to alternative ways to take care of the problem, but it's the sales manager's responsibility to get the product to the customer. The salesmen are supposed to know their customers well enough to judge whether or not the customer really needs the product. If the sales manager says the customer needs the product, that ends the matter.

Of course, if the change in the sales program involves a major expense at the plant that is out of line with the budget, then the matter is passed up to division for decision.

As I said earlier, the sales department has the sole responsibility for the product price, sales mix, and delivery schedules. They do not have direct responsibility for plant operations or profit. That's the plant management's responsibility. However, it is understood that the sales group will cooperate with the plant people wherever possible.

SMALL: I guess cooperation is very important to the success of your system.

WALKER: Definitely. We believe the whole budgetary control system works best if we can get cooperation. But, within the framework of cooperation the sales and production groups have very clear responsibilities.

Motivation

SMALL: How do you motivate the plant managers to meet their profit goals?

WALKER: Well, first of all, we only promote capable people. Also, a monetary incentive program has been established that stimulates their efforts to achieve their profit goal.

SMALL: What other incentive devices do you use?

WALKER: Each month we put together a bar chart that shows, by division and plant, the ranking of the various manufacturing units with respect to manufacturing efficiency.¹

We feel that the plant managers are one hundred percent responsible for variable manufacturing costs. I believe this is true since all manufacturing standards have to be approved by plant managers. Most of the plant managers give wide publicity to these bar charts. The efficiency bar chart and efficiency measure itself is perhaps a little unfair in some respects when you are comparing one plant with another. Different kinds of products are run through different plants. These require different setups, etc., which have an important impact on a position of the plant. However, in general the efficiency

¹Manufacturing efficiency = $\frac{\text{total actual variable manufacturing costs}}{\text{total standard variable manufacturing costs}} \times 100\%$.

rating is a good indication of the quality of the plant manager and his supervisory staff.

Also, a number of plants run competitions within the plants which reward department heads, or foremen, based on their relative standing with respect to a certain cost item. The plant managers, their staffs and employees have great pride in their plants.

SMALL: While I waited to see you this morning, I read some of the company publications for employees. They all seemed to stress profits and product quality.

WALKER: That's true. In my opinion, the number one item now stressed at the plant level is quality. The market situation is such that in order to make sales you have to meet the market price and exceed the market quality. By quality I mean not only the physical characteristics of the product but also such things as delivery schedules.

As I read the company employee publications, their message is that if the company is to be profitable it must produce high-quality items at a reasonable cost. This is necessary so that the plants can meet their obligation to produce the maximum profits for the company under the circumstances prevailing.

SMALL: Do you analyze the sales reports?

WALKER: No. It is the sales group's responsibility to comment on the sales activity. They prepare their own reports. They also control their selling costs against budgets prepared by the sales managers.

Initial sales statistics are developed from plant billings summarized by end use and are available on the third business day after month-end. Detailed sales statistics by end use and customer indicating actual and variance to both budget and prior year are prepared by data processing at British City and available on the eighth business day after month-end. Sales and price and mix variances by plant and end use can be obtained from PPCR #1, PPCR #4, and PPCR #6.

The Future

SMALL: Mr. Walker, do you intend to make any changes in your budgetary control system?

WALKER: An essential part of the budgetary control system is planning. We have developed a philosophy that we must begin our plans where the work is done—in the line organization and out in the field. Perhaps, in the future, we can avoid or cut back some of the budget preparation steps and start putting our sales budget together later on in the year than May 15. However, I doubt if we will change the basic philos-

ophy. Frankly, I doubt if the line operators would want any major change in the system—they are very jealous of the management prerogatives the system gives to them.

It is very important that we manage the budget. We have to be continually on guard against its managing us. Sometimes, the plants lose sight of this fact. They have to be made conscious daily of the necessity of having the sales volume to make a profit. And, when sales fall off and their plant programs are reduced they do not always appear to see the justification for budget cuts. Although, I do suspect that they see more of the justification for these cuts than they will admit. It is this human side of the budget to which we will have to pay more attention in the future.

Notes

During his conversation with James Walker, Small asked him to describe the various items listed on PPCR #1.

WALKER: Let's start with reference 3, net sales to customers. This is the difference between the gross sales to customers [ref. 1] and any discounts or allowances [ref. 2].

The next line, % gain (+)/loss (–) [ref. 4], is the increase or decrease in net sales dollars expressed as a

percentage of the budget and previous year's actual figures.

Next, we break the cause of the dollar volume gain or loss into its component parts: namely, changes due to sales price, volume, and mix. Variable cost of sales [ref. 7] includes such items as direct materials, operating labor, and that part of indirect labor that varies in monthly dollar amounts directly with changes in unit production volume. These costs are constant per unit of production. The amount listed in the budget column is the standard cost of the actual production. Reference 8, profit margin, is the difference between the total net dollar sales and the total variable manufacturing costs of products sold. Next, we identify further the causes of the change in profit margin. The item reference 9, profit margin gain (+)/loss (–) due to profit/volume ratio (P/V), is that portion of the profit margin gain or loss resulting from changes in the relationship between the net selling price and the standard variable manufacturing costs of the products sold to customers. This relationship, expressed as a percentage, is known as the P/V ratio [see ref. 11].

The profit margin gain (+)/loss (–) due to dollar volume [ref. 10] is that por-

tion of the profit margin or loss resulting from the changes in dollar volume of net sales to customers, exclusive of changes in P/V. It is the algebraic difference between the total profit margin variance and reference 9.

We keep a close check on the P/V ratio because it shows us how much we are making over our variable costs. Of course, volume changes alone never affect the P/V ratio.

Total fixed manufacturing costs [ref. 12] are the costs that should remain unchanged irrespective of fluctuation in volume during the year. Included in this category are depreciation, rent, general insurance, general taxes, and most supervision costs. Fixed costs are calculated on an annual basis, and each monthly figure is shown as one-twelfth of the annual total.

The next item, fixed manufacturing cost—transfers [ref. 13], doesn't apply to the Glass Products Division as they have very little intra- or interdivision transfers. Therefore, in the case of the Glass Products Division plant income (standard) [ref. 14] is the difference between profit margin dollars [ref. 8] and total fixed manufacturing cost [ref. 12].

In the actual column of reference 16, % performance, we enter the ratio of

the standard to the actual manufacturing cost expressed as a percentage.

In the gain/loss column for this same item, we enter the difference in percentage points between current performance and budget, and between the current performance and previous year.

In the actual column of reference 17, manufacturing efficiency, we put the difference between standard and actual manufacturing efficiency dollar costs.

In the gain/loss columns of reference 17, we enter the increase or decrease in income resulting from changes in manufacturing dollar savings or excesses.

References 18 through 25 are self-explanatory. In addition to cost savings or excesses resulting from efficiency, special conditions may arise to cause other departures from standard cost. These additional differences are classified according to cause, and the more significant ones are shown individually on separate lines in this portion of PPCR #1. Reference 28, plant income (actual), is the income remaining after adjusting reference 14 for all the departures from standard manufacturing listed on references 18 through 25, inclusive.

Total employed capital [ref. 37] is the value of employed capital at the end of