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Harvard Business Review

No. 78303

HBR
MAY–JUNE 1978

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No organization design or method of management is perfect. And any form can suffer from a variety of problems that develop because of the design itself. This is particularly true when a company tries a new form. In this article we look at one relatively new organization form—the matrix—which has gained considerable popularity in recent years but which has some significant pathologies. Before discussing its ills, however, let us look for a moment at matrix management and organization (see sidebar on page 132) and at how widespread the matrix is in U.S. industry today.

The list of well-known companies that are using some form of a matrix is becoming long and impressive. Take, for example, a company that has annual sales of $14 billion and employs about 400,000 people in scores of diverse businesses—General Electric. For decades, despite the diversity of its businesses, GE used one basic structure throughout its organization: five functional managers reporting to one general manager. Employing the logic that a company must organize to meet the particular needs of each business, some GE groups, divisions, and departments, which have found the pyramid form cumbersome, have turned to the matrix as a fundamental alternative.

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In projecting its organization over the next ten years, GE management states in its Organization Planning Bulletin (September, 1976):

"We've highlighted matrix organization. not because it's a bandwagon that we want you all to jump on, but rather that it's a complex, difficult, and sometimes frustrating form of organization to live with. It's also, however, a bellwether of things to come. But, when implemented well, it does offer much of the best of both worlds. And all of us are going to have to learn how to utilize organization to prepare managers to increasingly deal with high levels of complexity and ambiguity in situations where they have to get results from people and components *not* under their direct control. . . .

"Successful experience in operating under a matrix constitutes better preparation for an individual to run a huge diversified institution like General Electric—where so many complex, conflicting interests must be balanced—than the product and functional modes which have been our hallmark over the past twenty years."

Other major corporations, in diverse activities, such as Bechtel, Citibank, Dow Chemical, Shell Oil, Texas Instruments, and TRW, to mention a few, have also turned to the matrix. Based on our studies of the matrix in these companies, we believe that while some of the matrix's popularity is simply a passing fad, most uses of it are founded on solid business reasons that will persist. The matrix's most basic advantage over the familiar functional or product structure is that it facilitates a rapid management response to changing market and technical requirements. Further, it helps middle managers make trade-off decisions from a general management perspective.

Because the matrix is a relatively new form, however, the companies that have adopted it have of necessity been learning on a trial and error basis. The mistakes as well as the successes of these pioneers can be very informative to companies that follow their lead. Here, we present some of the more common problems that occur when a company uses a matrix form. For the sake of easy reference, we diagnose each pathology first, then discuss its prevention and treatment. By using this format, however, we do not mean to suggest that simple first-aid treatment of pathologies will cure them.

## What Is a Matrix?

The identifying feature of a matrix organization is that some managers report to two bosses rather than to the traditional single boss; there is a dual rather than a single chain of command.

Companies tend to turn to matrix forms:

1. when it is absolutely essential that they be highly responsive to two sectors simultaneously, such as markets and technology;

2. when they face uncertainties that generate very high information processing requirements; and

3. when they must deal with strong constraints on financial and/or human resources.

Matrix structures can help provide both flexibility and balanced decision making, but at the price of complexity.

Matrix organization is more than a matrix structure. It must be reinforced by matrix systems such as dual control and evaluation systems, by leaders who operate comfortably with lateral decision making, and by a culture that can negotiate open conflict and a balance of power.

In most matrix organizations there are dual command responsibilities assigned to functional departments (marketing, production, engineering, and so forth) and to product or market departments. The former are oriented to specialized in-house resources while the latter focus on outputs. Other matrices are split between area-based departments and either products or functions.

Every matrix contains three unique and critical roles: the top manager who heads up and balances the dual chains of command, the matrix bosses (functional, product, or area) who share subordinates, and the managers who report to two different matrix bosses. Each of these roles has its special requirements.

Aerospace companies were the first to adopt the matrix form, but now companies in many industries (chemical, banking, insurance, packaged goods, electronics, computer, and so forth) and in different fields (hospitals, government agencies, and professional organizations) are adapting different forms of the matrix.

## Ills of the Matrix

Many of the ailments we discuss do arise in more conventional organizations, but the matrix seems somewhat more vulnerable to these particular ones. It is wise, therefore, for managers thinking of adopting a matrix to be familiar with the diagnoses, prevention, and treatment of nine particular pathologies: tendencies toward anarchy, power struggles, severe groupitis, collapse during economic crunch, excessive overhead, sinking to lower levels, uncontrolled layering, navel gazing, and decision strangulation.

### Tendencies toward anarchy

*A formless state of confusion where people do not recognize a "boss" to whom they feel responsible.*

*Diagnosis*—Many managers who have had no firsthand familiarity with matrix organizations tend to have half-expressed fears that a matrix leads to anarchy. Are these concerns based on real hazards? Actually today, a considerable number of organizations are successfully using the matrix form, so we need not treat anarchy as a general hazard of the matrix. However, there are certain conditions or major misconceptions that could lead a company into the formless confusion that resembles anarchy.

Through firsthand experience we know of only one organization that, using a "latent" matrix form, quite literally came apart at the seams during a rather mild economic recession. Following a fast-growth strategy, this company used its high stock multiple to acquire, and then completely assimilate, smaller companies in the recreation equipment field. Within a period of about six months the company changed from an exciting success to a dramatic disaster. Its entire manufacturing, distribution, and financial systems went out of control leaving unfilled orders, closed factories, distressed inventories, and huge debts in their wake.

Of course, there are many possible reasons why this might have happened, but one perfectly reasonable explanation is that the organization design failed under stress. What was that design?

Essentially, the organization used a functional structure. As it acquired each small company, top management first encouraged the owners and general managers to leave, and then it attached the company's three basic functions of sales, production, and engineering to their counterparts in the parent organization. Within the parent marketing department, a young aggressive product manager would be assigned to develop for the acquired product line a comprehensive marketing plan that included making sales forecasts, promotion plans, pricing plans, projected earnings, and so forth. Once top management approved the plan, it told the selected product manager to hustle around and make his plan come true. This is where the latent matrix came in.

The product manager would find himself working across functional lines to try to coordinate production schedules, inventories, cash flow, and distribution patterns without any explicit and formal agreements about the nature of his relationships with the functional managers. Because he was locked into his approved marketing plan, when sales slipped behind schedule, his response was to exhort people to try harder rather than to cut back on production runs.

But once one or two things began to crumble, there was not enough reserve in the system to keep everything else from going wrong. As the product manager lost control, a power vacuum developed, into which the functional managers fell, each grabbing for total control. The result was that a mild recession triggered conditions approaching anarchy.

*Prevention*—We believe the lesson of this experience is loud and clear. Organizations should not rely too much on an informal or latent matrix to coordinate critical tasks. Relationships between functional and product managers should be explicit so that people are in approximate agreement about who is to do what under various circumstances. Properly used, a matrix does not leave such matters in an indefinite status; it is a definite structure and not a "free form" organization.

A useful "anarchy index" is how many people in an organization do not recognize one boss to whom they feel responsible for a major part of their work. In a study of five medical schools, which are notoriously anarchical, the one with the most explicit matrix structure was also the one with the least number of "bossless" people.[1]

*Treatment*—Should the worst happen and a company plunge into anarchy, true crisis management would be the best response. The crisis response is really no mystery. The CEO must pull all key people and critical information into the center. He or she must personally make all important decisions on a round-the-clock schedule until the crisis is over. Then and only then can he undertake the work of reshaping the organization so that it can withstand any future shock such as a minor recession.

## Power struggles

*Managers jockey for power in many organizations, but a matrix design almost encourages them to do so.*

*Diagnosis*—The essence of a matrix is dual command. For such a form to survive there needs to be a balance of power, where its locus seems to shift constantly, each party always jockeying to gain an advantage. It is not enough simply to create the balance, but there must also be continual mechanisms for checking the imbalances that creep in.

In business organizations that operate with a balance of power form, there is a constant tendency toward imbalance. As long as each group or dimension in an organization tries to maximize its own advantage vis-à-vis others, there will be a continual balancing struggle for dominant power. A power struggle in a matrix is qualitatively different from that in a traditionally structured hierarchy because in the latter it is clearly illegitimate. In the matrix, however, power struggles are inevitable; the boundaries of authority and responsibility overlap prompting people to maximize their own advantage.

*Prevention*—Most top managers will find it exceedingly difficult to forestall all power struggles. Equal strength on the part of the two parties, however, will prevent struggles from reaching destructive heights. Friendly competition should be encouraged, but all-out combat severely punished. Managers in a matrix should push for their advantages but never with the intention of eliminating those with whom they share power, and always with a perspective that encompasses both positions.

*Treatment*—The best way to ensure that power struggles do not undermine the matrix is to make managers on the power axes aware that to win power absolutely is to lose it ultimately. These managers need to see that the total victory of one dimension only ends the balance, finishes the duality of command, and destroys the matrix. They must see this sharing of power as an underlying principle, before and during all of the ensuing and inevitable power struggles.

Matrix managers have to recognize that they need worthy adversaries, counterparts who can match

1. From the forthcoming article by M.R. Weisbord, M.P. Charns, and P.R. Lawrence, "Organizational Dilemmas of Academic Medical Centers," *Journal of Applied Behavioral Science,* Vol. XIV, No. 3.

them, to turn the conflict to constructive ends. For this successful outcome three things are necessary.

First, matrix managers always have to maintain an institutional point of view, seeing their struggles from a larger, shared perspective. Second, they have to jointly agree to remove other matrix managers who, through weakness or whatever inability, are losing irretrievable ground. And, third, that they replace these weak managers with the strongest available people—even if to do so means placing very strong managers in weakened parts of the organization and reversing their power initiatives.

Another key element in stopping power struggles before they get out of hand and destroy the balance is the top level superior to whom the duelling managers report. Because of this element, the matrix is a paradox—a shared-power system that depends on a strong individual, one who does not share the authority that is delegated to him (say by the board), to arbitrate between his power-sharing subordinates.

The top manager has many vehicles for doing this: the amount of time he spends with one side of the matrix or the other, pay differentials, velocity of promotion, direct orders issued to one dimension and not to the other, and so forth. What he must do above all, however, is protect the weak dimension in the organization, not necessarily the weak manager in charge of that dimension.

## Severe groupitis

*The mistaken belief that matrix management is the same as group decision making.*

*Diagnosis*—The confusion of matrix behavior with group decision making probably arises from the fact that a matrix often evolves out of new project or business teams, which do suggest a group decision process. Under many circumstances, of course, it is perfectly sensible for managers to make decisions in groups. But managers should expect difficulties to arise if they believe group decision making to be the essence of matrix behavior.

We have seen one matrix organization that had a severe case of "groupitis." This multiproduct electronics company had a product manager and a product team, comprised of specialists drawn from the ranks of every functional department, assigned to every product. So far so good. But somehow the idea that the matrix structure requires that all business decisions be hammered out in group meetings became prevalent in the organization. To make decisions in other ways was considered illegitimate and not in the spirit of matrix operations.

Many of the decisions that had to be made about each product involved detailed matters with which only one or two people were regularly conversant. Yet all team members were constrained to listen to these issues being discussed until a decision was made, and were even expected to participate in the discussion and influence the choice. Some individuals seemed to enjoy the steady diet of meetings and the chance to practice being a generalist.

However, a larger number of people felt that their time was being wasted and would have preferred leaving the decisions to the most informed people. The engineers, in particular, complained that the time they were spending in meetings was robbing them of opportunities to strengthen their special competence and identities. As well as noting these personal reactions, senior managers reported a general disappointment with the speed and flexibility of organizational responses.

*Prevention*—Because the whole idea of a matrix organization is still unfamiliar to many managers, it is understandable that they confuse it with processes such as group decision making. The key to prevention is education. Top managers need to accompany their strategic choice to move toward a matrix with a serious educational effort to clarify to all participants what a matrix is and what it is not.

*Treatment*—In the case of the multiproducts electronics company, the problem came to light while we were researching the matrix approach. Once senior people had clearly diagnosed the problem, it was 90% cured. Top management emphatically stated that there was nothing sacred about group decisions and that it was not sensible to have all product team members involved all the time. Once the line between individual and group matters was drawn according to who had information really relevant to a decision, meetings became fewer and smaller and work proceeded on a more economical and responsive basis. The concept of teamwork was put in perspective: as often as necessary and as little as possible.

## Collapse during economic crunch

*When business declines, the matrix becomes the scapegoat for poor management and is discarded.*

*Diagnosis*—Matrix organizations that blossom during periods of rapid growth and prosperity sometimes are cast away during periods of economic decline. On reflection, we can understand this. In prosperous times, companies often expand their business lines and the markets they serve. The ensuing complexity may turn them toward matrix management and organization.

However, if these companies follow the normal business cycle, there will be a period of two to five years before they experience another economic crunch which is more than enough time for the matrix concept to spread throughout a company. By that time the matrix occupies a central place in company conversations and is a familiar part of these organizations. Although there may still be some problems, the matrix seems there to stay.

When the down part of the economic cycle begins, senior management in these companies may become appreciably bothered by the conflict between subordinates as well as by the apparent slowness with which they respond to the situation. "We need decisive action" is their rallying cry.

In an authoritarian structure top management can act quickly because it need not consider the spectrum of opinion. Thinking there is no time for organizational toys and tinkering, the top level managers take command in an almost, but not quite, forgotten way, and ram their directives down the line. The matrix is "done in."

*Prevention*—Top management can prevent this kind of collapse of the matrix by employing general managerial excellence, independent of the matrix, long before the crunch arrives. Good planning, for example, can often forecast downturns in the economic cycle. Corporate structures such as the matrix should not have to change because of standard changes in the business cycle. When management planning has been poor, however, the matrix is a readily available scapegoat.

Companies that experience severe economic crunches often make drastic changes in many directions at once: trimming product lines, closing offices, making massive personnel and budget cuts, and tightening managerial controls. The matrix is often done in during this period for several reasons: it represents too great a risk; "it never really worked properly" and giving it the coup de grace can disguise the failure of implementation; and the quality of decision making had not improved perforamce sufficiently to counterbalance the hard times. Measures management can take to prevent this pathology do not lie within the matrix itself, as much as with improvements in basic managerial skills and planning.

A real estate and construction company provides an example of how a company can anticipate and flexibly respond to an economic crunch that demonstrates the strength rather than the weakness of the matrix. The company has developed a structure as well as procedures that are especially well suited to the economic uncertainties of the business. These include a set of fully owned subsidiaries each the equivalent of a functional department in a manufacturing company and each the "home base" for varied specialists needed to execute all phases of a major building project. The heads of the subsidiaries act as chief salesmen for their various services, and often head up the bidding teams that put together sophisticated proposals.

As a proposal project proceeds, the selected project manager is drawn into the team in anticipation of securing the contract. This ensures an orderly transition to the project management phase. The project office is given first-line responsibility for control of costs, schedules, and quality of the project, but the top management team from the parent company reviews the project regularly as a backup.

The company has used the matrix to advantage in weathering major shifts in both the availability of business by market segment, for example, from schools to hospitals, and the level of construction activity. It maintains a cadre of professional specialists and project managers, who can be kept busy during the lows of the cycle, which it rapidly expands during the highs by subcontracting for temporary services.

*Treatment*—This is one pathology that requires preventive treatment; we do not know of any cure. When the matrix does collapse during an economic crunch, it is very unlikely that it can be resurrected. At best, the organization will go back to its pendulum days, alternating between the centralized management of the crunch period and the decentralized freedoms of more prosperous times. Even if top management should try again, it is likely to get a negative response from lower level managers. "They said they were committed to the matrix, but at the first sign of hard times all the nice words about the advantages of the matrix turned out to be just that—nice words." If a company's conditioned response to hard times is to retrench, it should not attempt a matrix in the first place.

## Excessive overhead

*The fear of high costs associated with a matrix.*

*Diagnosis*—On the face of it, a matrix organization would seem to double management costs because of its dual chain of command. This issue deserves thoughtful consideration.

The limited amount of research on matrix overhead costs indicates that in the initial phases overhead costs do in fact rise, but that, as a matrix matures, these extra costs disappear and are offset by productivity gains.[2] Our experience supports this finding. In a large electronics company we observed in some detail how initial overhead increases not

2. C.J. Middleton, "How to Set Up a Project Organization," HBR March–April 1967, p. 73.

only necessarily occur in a matrix but also how they can inflate unnecessarily. In this case, the company decided to employ the matrix design from the outset in setting up its new operating division at a new plant site.

This unique organizational experiment had a number of positive attributes, but one of its problems was with overhead costs. In staffing the new division, top management filled every functional office and every product manager's slot with one full-time person. This resulted in a relatively small division having top level managers as well as full-time functional group and full-time product managers. Within months, however, this top heavy division was pared down to more reasonable staffing levels; by assigning individuals to two or more slots, management got costs under control.

*Prevention*—The division's problem was caused by top management's assumption that each managerial slot requires a full-time incumbent. Overstaffing is much less liable to occur when an organization evolves gradually from a conventional design into a matrix, and managers perform as both functional and product managers. While this technique can be justified as a transition strategy, it also has its hazards. A safer route is to assign managers roles on the same side of the matrix (i.e., two functional jobs or two product management jobs).

As a final argument against the fear of overhead costs, consider that no well-run organization would adopt a matrix structure without the longer run expectation that, at a given level of output, the costs of operations would be lower than with other organizational forms. In what way can such economies be achieved?

The potential economies come from two general sources: fewer bad decisions and less featherbedding. First and most important, the matrix can improve quality of business decisions because it helps bring the needed information and emphasis to bear on critical decisions in a timely fashion. The second source, less featherbedding, is not so obvious, but potentially of greater significance. How can it work?

*Treatment*—Perhaps the clearest example of the matrix's potential to reduce redundancies in human resources is the way some consulting organizations employ it. These firms usually set up a matrix of functional specialists against client or account managers. The body of other consultants are grouped with their fellow specialists but are available for assignment to projects under the leadership of account or client managers.

From an accounting standpoint, therefore, consultants' time is directly billed to clients' accounts when they are working for an account or engagement manager. Otherwise, their time is charged against the budget of their function manager. The firm's nonbillable costs are, therefore, very conspicuous—both by department and by individual consultant. Of course, some time charged to functional departments, such as background study, research work, and time between assignments should by no means be thought of as wasted. But management can budget such time in advance so that it can scrutinize the variances from the budget.

As one senior manager in a consulting firm put it, "There is no place to hide in a matrix organization." This fact makes clear-cut demands on middle level people and consequently puts pressure on them to produce. For the long-term good of both the people involved and the organization, top managers need to keep such pressures from becoming too strong. Because it is perfectly possible to get too much as well as too little pressure, a creative tension is sought.

## Sinking to lower levels

*The matrix has some difficulty in staying alive at high levels of a corporation, and a corresponding tendency to sink to group and division levels where it thrives.*

*Diagnosis*—Sinking may occur for two reasons. Either senior management has not understood or been able to implement the matrix concept as well as lower level managers, or the matrix has found its appropriate place. For example, if a company sets up a matrix between its basic functional and product groups, the product managers never truly relinquish their complete control, and the matrix fails to take hold at the corporate level.

But, say, one or two of the managers find the idea to be useful within their divisions. Their own functional specialists and project leaders can share the power they delegate and the design can survive within subunits of the corporation. For example, Dow Chemical's attempt to maintain the product/geography balance at the top failed, but the function/product balance held within the geographic areas for several years.

When sinking occurs because of top management misunderstanding, it is likely to occur in conjunction with other pathologies, particularly power struggles. For instance, if many senior executives consider adopting the matrix idea, but only one or a few really become convinced of its worth, there is a danger: those at the top who espouse a philosophy and method they did not employ themselves will be pitted against those who are able to show that it does work.

*Prevention*—If the corporate top management thinks through which dimensions of the company it must balance, and at what level of aggregation, it can keep the matrix from sinking. For example, top managers should ask themselves if all the business units need to be balanced by central functional departments. If the answer is no, then some business units should operate as product divisions with the traditional pyramid of command, while others share functional services in a partial matrix. However, sinking is not always bad and should be prevented only when it indicates that an appropriate design is disintegrating.

*Treatment*—Before matrix management can run smoothly, it must be in the proper location. As often as not, when a matrix sinks, it may simply be experiencing a healthy adjustment, and ought to be thought of as settling rather than as sinking. Settling is likely to occur during the early stages of a matrix's evolution and leads to manageable matrix units.

The question of size is a great concern for many managers who ask, in effect, "That sounds great for a $250-million company with a few thousand employees, but can it work for a $2-billion or $3-billion company with 50,000 employees? Its entire company is the size of one of our divisions." Our experience indicates that matrix management and organization seems to function better when no more than 500 managers are involved in matrix relationships. But that does not rule out the $2-billion to $3-billion company. In a company of 5,000 only about 50 managers are likely to be in the matrix; so in a company with 50,000 employees only about 500 may need to be involved in dual reporting lines. With that number, the people who need to coordinate regularly are able to do so through communication networks that are based on personal relations.

Whatever the size unit in which the matrix operates, the important thing is for management to have reasoned carefully from an analysis of the task to the design of the organization. Then, if settling occurs, it should be seen not as a pathology but as a self-adjustment that suggests the organization's capacity to evolve with growth.

## Uncontrolled layering

*Matrices which lie within matrices which lie within matrices result frequently from the dynamics of power rather than from the logic of design.*

*Diagnosis*—Sometimes matrices not only sink but also cascade down the organization and filter through several levels and across several divisions. This layering process may or may not be pathological. In fact, it may be a rational and logical development of the matrix, but we include it briefly here because it sometimes creates more problems than it solves. In terms of the metaphor we have used in this article, layering is a pathology only if the matrix begins to metastasize. When this occurs, organization charts begin to resemble blueprints for a complex electronic machine, relationships become unnecessarily complex, and the matrix form may become more of a burden than it is worth.

*Prevention and treatment*—The best remedies for uncontrolled layering are careful task analysis and reduced power struggles. We have seen a few cases where one dimension of a matrix was clearly losing power to the other, so, adapting an "if you can't beat 'em, join 'em" philosophy, it created a matrix within its own dimension. A product unit, for example, developed its own functional expertise distinct from the functional units at the next level up. The best defense was a good offense, or so it seemed.

In two other cases, the international dvisions of two large companies each created its own matrix by adding business managers as an overlay to its geographic format, without reconciling these with the managers who ran the domestic product/service groups. In each case, adequate conceptualization by top managers would probably have simplified the organization design and forestalled the layering, which occurred because of power maneuvers. Management can treat this unhealthy state best by rebalancing the matrix so that no manager of one dimension is either too threatened or pushed too hard toward a power goal.

Matrix design is complex enough without the addition of power struggles. A well-conceptualized matrix is bound to be less complex and easier to manage than one that is illogically organized.

## Navel gazing

*Managers in a matrix can succumb to excessive internal preoccupation and lose touch with the marketplace.*

*Diagnosis*—Because a matrix fosters considerable interdependence of people and tasks and demands negotiating skills on the part of its members, matrix managers sometimes tend to get absorbed in internal relations at the expense of paying attention to the world outside the organization, particularly to clients. When this happens, an organization spends more energy ironing out its own disputes than in serving its customers. The outward focus disappears because the short-term demands of daily working life have yet to be worked through.

The navel gazers are not at all lethargic; rather they are involved in a heated fraternal love/hate affair with each other. This inward preoccupation is more common in the early phases of a matrix, when the new behaviors are being learned, than in matrices that have been operating for a few years.

*Prevention*—Whatever other pathologies develop in a matrix, attention to their cure is bound to increase the internal focus of the members; so prevention of other pathologies will certainly reduce the likelihood of this one occurring. Awareness of the tendency will also help. Since the product dimension of the organization generally has a more external focus than the resource dimension, the responsibility for preventing an excessive introspection is not equally distributed. The product dimension people can help the others keep perspective, but a strong marketing orientation is the best preventative of all.

*Treatment*—If the managers in the matrix are navel gazing, the first step in the treatment is to make these managers aware of the effects. Are customers complaining a lot, or at least more than usual? Managers need to confront internal conflict, but also to recognize that confrontation is secondary to maintaining effective external relationships. Navel gazing generally occurs when the matrix has been fully initiated but not yet debugged. People accept it, but they are engrossed in figuring out how to make it work.

The second step is to treat the inward focus as a symptom of the underlying issue: how to institutionalize matrix relationships so that they become familiar and comfortable routines, and so that people can work through them without becoming obsessed by them. Finally, it must always be remembered that any form of organization is only a means and should never become an end in itself.

## Decision strangulation

*Too much democracy, not enough action?*

Can moving into a matrix lead to the strangulation of the decision process, into endless delays for debate, for clearing with everybody in sight? Will decisions, no matter how well thought through, be made too late to be of use? Will too many people have power to water down all bold initiatives or veto them outright? Such conditions can arise in a matrix. We have in mind three situations—constant clearing, escalation of conflict, and unilateral style—each calling for slightly different preventive action and treatment.

*Constant clearing*—In one company we know of, various functional specialists who reported to a second boss, a product manager, picked up the idea that they had to clear all issues with their own functional bosses before agreeing to product decisions. This meant that every issue had to be discussed in at least two meetings, if not more. During the first meeting, the specialists and the product manager could only review the facts of the issue, which was then tabled until, at the second meeting, the specialists cleared the matter with their functional bosses—who by this process were each given a de facto veto over product decisions.

This impossible clearing procedure represented, in our view, a failure of delegation, not of the matrix. One needs to ask why the functional specialists could not be trusted to act on the spot in regard to most product decisions in ways that would be consistent with the general guidelines of their functional departments? Either the specialists were poorly selected, too inexperienced and badly informed, or their superiors were lacking in a workable degree of trust of one another. Regardless, this problem, and its prevention and treatment, needs to be addressed directly without making a scapegoat of the matrix.

*Escalation of conflict*—Another possible source of decision strangulation in matrix organizations occurs when managers frequently or constantly refer decisions up the dual chain of command. Seeing that one advantage of the conventional single chain of command is that two disagreeing peers can go to their shared boss for a resolution, managers unfamiliar with the matrix worry about this problem almost more than any other. They look at a matrix and realize that the nearest shared boss might be the CEO, who could be five or six echelons up. They realize that not too many problems can be pushed up to the CEO for resolution without creating the ultimate in information overload. So, they think, will not the inevitable disagreement lead to a tremendous pileup of unresolved conflict?

Certainly, this can happen in a malfunctioning matrix. Whether it does happen depends primarily on the depth of understanding that exists about required matrix behavior on the part of managers in the dual structure. Let us envision the following scene: a manager with two bosses gets sharply conflicting instructions from his product and his functional bosses. When he tries to reconcile his instructions without success, he quite properly asks for a session with his two bosses to resolve the matter. The three people meet, but the discussion bogs down, no resolution is reached, and neither boss gives way.

The two bosses then appeal the problem up a level to their respective superiors in each of the two chains of command. This is the critical step. If the two superiors properly understand matrix behavior, they will first ascertain whether the dispute reflects an unresolved broader policy issue. If it does not, they know their proper step is to teach their subordinates to resolve the problem themselves—not to solve it for them. In short, they would not let the unresolved problem escalate, but would force it back to the proper level for solution, and insist that the solution be found promptly.

Often, conflict cannot be resolved; it can, however, be managed, which it must be if the matrix is to work. Any other course of action would represent management's failure to comprehend the essential nature of the design.

*Unilateral style*—A third possible reason for decision strangulation in a matrix system can arise from a very different source—personal style. Some managers have the feeling they are not truly managing if they are not in a position to make crisp, unilateral decisions. Identifying leadership with decisive action, they become very frustrated when they have to engage in carefully reasoned debates about the wisdom of what they want to do.

Such a manager is likely to feel frustrated even in regard to a business problem whose resolution will vitally affect functions other than his own, such as in a company that is experiencing critical dual pressure from the marketplace and from advancing technology. A matrix that deliberately induces simultaneous decision making between two or more perspectives is likely to frustrate such a person even further.

If managers start feeling emasculated by bilateral decision making, they are certain to be unhappy in a matrix organization. In such cases the strangulation is in the eye of the beholder. Such people must work on their personal decision-making style or look for employment in a nonmatrix organization.

## At Last, Legitimacy

We do not recommend that every company adopt the matrix form. But where it is relevant, it can become an important part of an effective managerial process. Like any new method it may develop serious bugs, but the experiences that many companies are acquiring with this organization form can now help others realize its benefits and avoid its pitfalls.

The matrix seems to have spread despite itself and its pathologies: what was necessary was made desirable. It is difficult and complex, and human flexibility is required to arrive at organizational flexibility.

But the reverse is also true; success has given the form legitimacy, and, as the concept spreads, familiarity seems to reduce the resistance and difficulties people experience in using the matrix. Managers are now beginning to say, "It isn't that new or different after all." This familiarity is a sign of acceptance, more than of change or moderation of the design.

For generations managers lived with the happy fiction of dotted lines, indicating that a second reporting line was necessary if not formal. The result had always been a sort of executive ménage à trois, a triangular arrangement where the manager had one legitimate relationship (the reporting line) and one that existed but was not granted equal privileges (the dotted line).

As executives develop greater confidence with the matrix form, they bring the dotted line relationship out of the closet, and grant it legitimacy.

Each time another organization turns to the matrix, it has a larger and more varied number of predecessors that have charted the way. The examples of wider applicability suggest that the matrix is becoming less and less an experiment and more and more a mature formulation in organization design. As more organizations travel the learning curve, the curve itself becomes an easier one to climb. Similarly, as more managers gain experience operating in matrix organizations, they are bound to spread this experience as some of them move, as they inevitably will, into other organizations.

We believe that in the future matrix organizations will become almost commonplace and that managers will speak less of the difficulties and pathologies of the matrix than of its advantages and benefits.