

# Encyclopedia of Management Theory

## Matrix Structure

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Matrix management encompasses a series of efforts to lay one or more new forms of departmentalization on top of an existing form. Matrix approaches extend the classical school of administration's analysis of organizational structure and offer a set of solutions to well-known and central organizational problems of task coordination and information processing. This entry describes the configuration of matrix structures, the purposes they serve, their strengths and weaknesses, their constituent elements, their relationship to other coordinative devices, and their utilization by large firms.

## Fundamentals

Firms are typically structured around different forms of departmentalization: functions (e.g., sales, marketing, manufacturing, and research and development, or R & D), projects, product lines, geographic areas, customer segments, and so on. Matrix management encompasses a series of efforts to lay one or more new forms of departmentalization on top of an existing form (e.g., function by project, function by product line). Thus, if the existing form is the vertically organized functional organization, the new form of departmentalization is a horizontal overlay of project teams or product lines on top of the vertical hierarchy. As the new form of departmentalization grows more elaborate (e.g., as projects increase or product lines proliferate), the grid becomes more dense, and the structure approaches a full matrix structure.

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The decision to adopt a matrix structure is strongly motivated by the desire to have the best of two or more forms of departmentalization used. Thus, in a typical function-by-product line structure, the firm seeks to maintain the advantages of functional organization (e.g., specialization, efficient use of resources, scale economies, focus on in-depth skill development, strategic control kept at the top of the firm) with the advantages of product line organization (e.g., coordination between functions, product focus and accountability, development of greater breadth in managerial training, flexibility in adapting to changing product needs, and maintaining proximity to the customer). The matrix is further adopted to solve problems of information processing

and communication across functional personnel in firms with multiple ongoing projects, product lines, geographic segments, and so forth.

Of course, the matrix also possesses some of its own weaknesses. These include possible confusion over who is responsible for what, conflicts resulting from two competing hierarchies with authority over personnel, power struggles between functional and product line managers, the premium placed on teamwork and interpersonal skills, and development of common ground and goals across the multiple hierarchies. Robert Ford and W. Alan Randolph include a full review of the strengths and weaknesses of the matrix structure, and Thomas Sy and Laura D'Annunzio articulate the challenges of managing matrix organizations.

Matrix structures vary in terms of the structural and administrative elements that build upon one another to form more dense grids. The new departmentalization form can be *structurally differentiated* from the existing form, using a matrix director and matrix department. The two forms of departmentalization that the matrix comprises can exert *dual authority* in terms of supervision of shared subordinates (e.g., two-boss managers). Managers in the new form of departmentalization can have formal *decision-making authority* for administration, budgeting, and policy making. The matrix structure can also possess *dual support systems* (information systems, planning). Matrix structures are commonly linked with project management and project organization. Reviewing past uses of the term, Ford and Randolph in 1992 summarized the matrix as “cross-functional overlays that create multiple lines of authority and that place people in teams to work on tasks for finite periods of time” (p. 272).

The matrix structure is commonly viewed as the end point in a sequence of lateral coordinative arrangements. Long ago, Paul Lawrence and Jay Lorsch, and, Jay Galbraith proposed that these arrangements formed a Guttman scale in which the matrix elements build cumulatively upon one another. As firms seek to coordinate their internal activities, they sequentially install liaison roles, task forces, teams, integrators, integrating departments, and finally the pure matrix structure with cross-cutting forms of departmentalization. This series of coordinative mechanisms increases the firm's capacity to handle uncertain tasks and their high information-processing demands. The more developed arrangements are appropriate for higher levels of task uncertainty and task diversity.

At the same time, matrix structures are not a typical end point in organization design but, rather, the midpoint between the two extremes of functional departmentalization and product departmentalization. The matrix is often a way station as firms (a) decentralize (move away from functional groupings) toward a product line structure and (b) centralize (move away from product lines or customer groupings) back toward the functional structure. Firms thus experiment with the matrix structure (for perhaps as much as 10 years) before shifting to a more dominant form of departmentalization.

There is very little empirical research on matrix structures but rather a lot of anecdotal and opinion-based articles. Lawton R. Burns confirmed that matrix arrangements do build upon one another in a Guttman scale, but he did not find evidence that matrix complexity is tied to the firm's task diversity and uncertainty. Burns and Douglas Wholey found instead that the adoption of matrix structures is heavily influenced by institutional pressures (mimicry of opinion leaders) rather than technical forces. There is a good deal of descriptive information on the functioning of matrix structures. One of the best known illustrations is Asea Brown Boveri (ABB), a global matrix firm (organized around business areas and countries) in the 1990s. ABB attempted three balancing acts simultaneously: be global and local, big and small, and centralized and decentralized. The case illustrates many of the managerial techniques utilized by ABB to make matrix structures work effectively.

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Managerial thinking about matrix structures has evolved beyond two-dimensional grids of departmentalized forms to emphasize the inherent “ambidexterity” of matrix structures like ABB. Michael Beer and Nitin Nohria suggest that firms need to simultaneously balance multiple dimensions, such as a short-term focus on efficiency and exploitation (theory E) with a long-term focus on R & D and exploration (theory O). The focus on ambidextrous thinking has now joined matrix structures as a popular way to conceptualize cross-cutting dimensions.

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See also

- [Bureaucratic Theory](#)
- [Differentiation and the Division of Labor](#)
- [Organizational Structure and Design](#)
- [Principles of Administration and Management Functions](#)
- [Strategy and Structure](#)
- [Technology and Complexity](#)

### Further Readings

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