

# Performance evaluation in a matrix organization: a case study (Part One)

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## Abstract

**Purpose** – *The purpose of this paper is to examine and ultimately suggest the most effective method with which to evaluate employees operating within a matrix organization. The paper aims to demonstrate the tools, corporate participation and acceptance levels required in order to ensure employee and manager “buy in” and implementation.*

**Design/methodology/approach** – *This paper consists of a comprehensive review of literature demonstrating functional areas within matrix organization as well as employee evaluation methods within various organizations. It is presented in three sections, defining a matrix organization, demonstrating effective evaluation methods and strategies, and finally showing how the two should work together. Critical incidents are interspersed throughout the article in order to demonstrate how the research compares to the methods employed by a leading aviation engineering firm.*

**Findings** – *Ineffective evaluation methods within matrix organizations can lead to lower employee morale as well as an ambiguous understanding of employee roles within such an organization. Employee and management buy in and support of an evaluation system and its goals are crucial to the success of the program. The multi-rater system appeared to be most effective.*

**Practical implications** – *Several tools exist to help employers effectively evaluate their employees in a constructive and effective manner. Among them are clear job description and corporate structure, followed by a review of performance by both functional and project managers. Additionally, peer evaluations can prove to be constructive and contribute positively to the development of the employee. This paper can be a practical aid for managers in matrix organization that need to successfully and constructively evaluate employees, but are having difficulty doing so in an effective method.*

**Originality/value** – *Given the limited research with respect to evaluations within a matrix structure, this paper demonstrates an understanding of a subject that has not been adequately explored. The paper demonstrated in “real time” the critical synthesis for PA and the matrix organization – an absence noted in the literature.*

**Keywords** *Strategic evaluation, Matrix organizations, Performance management*

**Paper type** *Literature review*

## Introduction

A matrix is an organizational structure in which employees report to multiple managers, such as a functional manager and a project manager (Sy and Cote, 2004).

The ultimate goal of the evaluation exercise is to improve the employee's future performance (Schweiger and Sumners, 1994).

The objective of this three-part article is to understand the most effective method with which to review the functional performance of employees within a matrix organization. Through a review of the literature, we will attempt to identify the “best practices” in performance appraisals in the instances where an employee reports to one, manager, but functionally performs for another. This has been an enigma and challenge since the inception of the matrix. How is consistency in evaluation ensured? Making certain that there is a consistency in the standards that are applied to employees during the evaluation process, and that the

criteria it takes into consideration is relevant to the industry (Grehan, 2002), it is important to understand if employees in a matrix organization are adequately reviewed when it comes to their performance evaluation.

The absence of abundant and recent research on performance appraisals in a matrix organization has required this undertaking. We will present this research in three basic sections followed by a conclusion. Additionally, critical incidents with respect to personal experience by senior engineers at CAE, a leading firm founded in 1947 located in Montreal, Quebec in flight based simulators, will be offered, enabling the researchers to draw parallels and/or demonstrate contradictions to the research via a case study.

CAE is a world leader in providing simulation and modelling technologies and integrated training solutions for the civil aviation industry and defence forces around the globe. CAE employs more than 6,000 people at more than 75 sites and training locations in 20 countries. The company has the largest installed base of civil and military full-flight simulators and training devices. Through CAE's global network of 27 aviation training centres, equipped with over 115 full-flight simulators, the company trains more than 75,000 crew members yearly. CAE also offer modelling and simulation software to various market segments and has a professional services division assisting customers with a wide range of simulation-based needs. With clients in over 100 countries, CAE has the broadest global reach of any simulation and training equipment and services company on the market. Ninety per cent of CAE's more than C\$1 billion annual revenues are derived from worldwide exports. CAE's shares are traded on the Toronto and New York stock exchanges. CAE employs a matrix structure which will serve as a case study for this undertaking.

The structure of this research article will be as follows:

1. An examination of a matrix organization as it is described by the literature.
2. A demonstration performance evaluation and appraisal systems and strategies. What is required for an appraisal system to be effective?
3. The paper will seek to establish when and where and why an effective system of performance evaluation works, as well as demonstrates when, where and most importantly, why, it does not succeed.

Additional questions worthy of investigation include: Do the functional manager and the project/program manager both take part in the evaluation process; is it delegated to the functional manager, or reserved for the project manager? How do we provide the feedback over the course of the period prior to a formal evaluation? Whose opinion of performance takes priority? Ultimately, who should actually evaluate the performance of the individual? How does an employee know when he/she is satisfying the expectations of everyone involved? Ultimately, we can illuminate the main challenge of this research article: How does one perform an effective employee evaluation within a matrix organization?

If employees are not being adequately appraised, we believe that there will be a negative result with respect to their contribution to the organization. As suggested by Stanleigh (2006), it can contribute not only to poor performance on behalf of the individual, but the failure of a project as a whole. It must be difficult to ensure that an employee understands his/her value within the organization if the person who is reviewing their performance is not the person whom they actually work for on a day to day basis, especially, if the evaluation is

**“A matrix structure is an organization whereby employees who may report to one manager from an organizational perspective, actually applies his/her time under the supervision of a different manager.”**

at all negative. It would be difficult to accept criticism from someone who is not present while performing their daily functions. Edwards and Sproull (1988) argued that employees who receive a less than favorable evaluation may attribute it to the supervisor's "poor judgment, lack of knowledge, or personal bias". Imagine applying this to a matrix organization? This is one of the challenges to explore and explain this paradox.

### What is a matrix organization?

As it stands, there seems to be no clear definition of the term matrix organization. Sy and Cote (2004) define the matrix as an organizational structure where employees report to several managers. One of the earliest attempts to define a matrix organization was made by John Mee in 1964 suggesting that it is basically a "web of relationships" (Kolodny, 1979; Mee, 1964). Kolodny (1979) suggested that while many have attempted to clarify this definition, most tended to follow Mee's lead. More recently, Wikipedia.org defines a matrix organization as:

Matrix management is a type of organizational management in which people with similar skills are pooled for work assignments. For example, all engineers may be in one engineering department and report to an engineering manager, but these same engineers may be assigned to different projects and report to a project manager while working on that project. Therefore, each engineer may have to work under several managers to get his or her job done ([http://en.wikipedia.org/wiki/Matrix\\_management](http://en.wikipedia.org/wiki/Matrix_management)).

Other definitions could be considered:

... a highly organic structure, with little formalization of behavior; high horizontal job specialization based on formal training; a tendency to group the specialists in functional units for housekeeping purposes but to deploy them in small, market-based project teams to do their work; a reliance on the liaison devices to encourage mutual adjustment, the key coordinating mechanism, within and between these teams; and selective decentralization to and within these teams, which are located at various places in the organization and involve various mixtures of line managers and staff and operating experts (Wellman, 2007; Mintzberg, 1993).

Matrix organizational structures were common in the 1970s and 1980s. Surprisingly contemporary research is less common and available 35 years later. Companies are continuing to adopt this structure as consumer needs are becoming more and more complex. We can see this across several industries, such as aerospace, automotive, chemical, defense, energy (Galbraith, 2000). While there is continued appreciation for this type of structure, the literature and research seems to have tapered off (Sy and D'Annunzio, 2005).

While the matrix represents a different convention, it is still a hierarchical structure. As most organizations maintain dotted lines within their structure, a matrix, in effect, converts these into solid lines by having an employee report to both a program manager, and a functional manager as described in this reference:

... individuals report to at least two managers: a functional manager who is responsible for their tools, training, and reassignment but does not direct their day-to-day work activity; and a program manager who directs the day-to-day activities of the team members (Wellman, 2007).

We have determined through the research that a matrix structure is an organization whereby employees who may report to one manager from an organizational perspective, actually applies his/her time under the supervision of a different manager. This could range from one manager of one project, to several managers of several projects over the course of a year. These teams are created through a system which employees are borrowed from various functional areas of the organization to work on a project and then leave (Anderson and Fleming, 1990) after completion.

When we refer to functional managers, we are referring to the manager to whom the employee within the organization directly reports. Formal authority with respect to employees that operate within a matrix organization on various projects tends to rest with the functional manager (Dunne *et al.*, 1978). While daily interaction and productivity may occur

under the supervision of a project manager, actual authority and performance decisions rests with the functional manager. This is one of the dilemmas.

Project managers have the responsibility of managing, coordinating roles across several functional areas of an organization; however, do they have any authority with respect to employee appraisals and evaluation? According to Anderson and Fleming (1990), at Acrojet ElectroSystems Company, project managers do not generally participate in performance evaluations, as well, they offer no input with respect to merit increases.

The matrix can take many forms; functional, balanced and project (Burns, 1989; Kolodny, 1979; Larson and Gobeli, 1987; Sy and D'Annunzio, 2005).

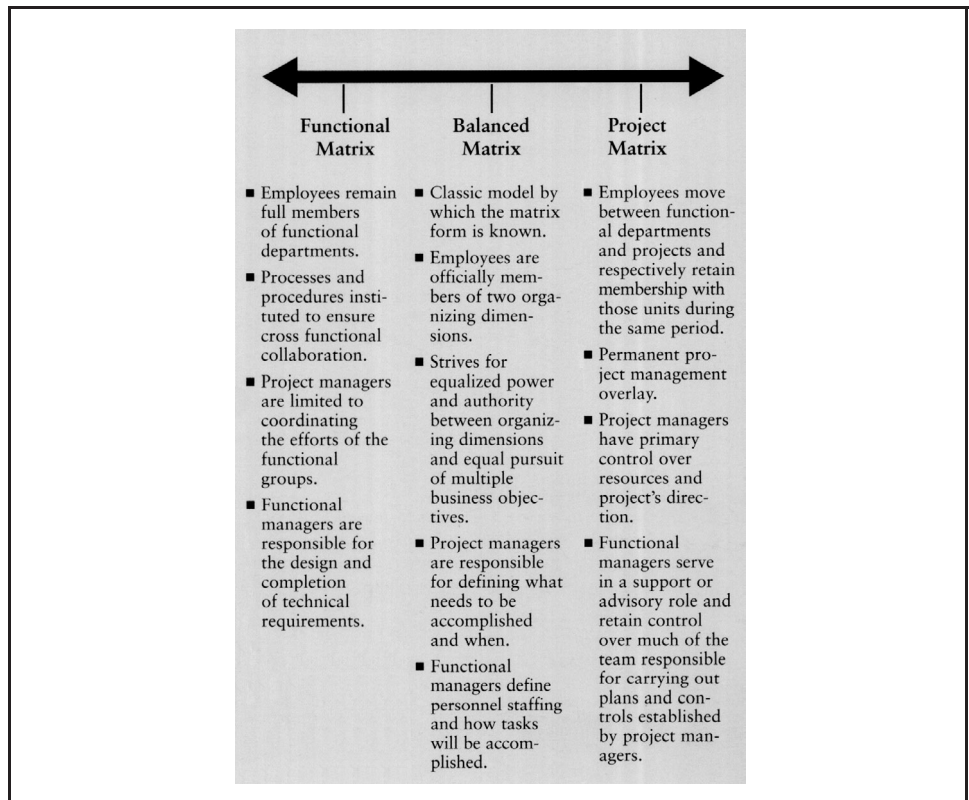
Figure 1 presents the matrix forms and characteristics associated with each of the three.

While the matrix structure may appear to be an appealing option for organizations that may require several projects to be completed with different project leaders, and the same resources, there are advantages and disadvantages, strengths and weaknesses.

Of concern within these organizations are the goals and expectations that are set for the employee. Are they clearly communicated? This would appear to be a major challenge for the organization (Sy and Cote, 2004). Employees are placed where their talents are needed, so they could conceivably be reporting to a different project manager every day. How can the organization conduct a fair evaluation of the employee? Of particular concern is the question of ambiguous authority. While in a traditional structure which is clearly delineated, how does the employee know who he is reporting to and who will be evaluating his performance? "In a matrix leaders can have responsibility without authority as a result of the dual reporting structure" (Sy and D'Annunzio, 2005). See Table I for the comparison.

There would appear to be some confusion in establishing who should actually be responsible for an individual within an organization, the functional or the project manager.

**Figure 1** Matrix forms



**Table I**

<i>Strengths</i>	<i>Weaknesses</i>
Leverages functional economies of scale while remaining small and task focused	Violates the principle that authority should equal responsibility
Focuses employees on multiple business goals	Violates the principle that every subordinate should be assigned to a single boss
Facilitates innovative solutions to complex, technical problems	Can create ambiguity and conflict
Improves employees' companywide focus through increased responsibility and decision making	Increases costs resulting from the need for additional management and administration
Allows for quick and easy transfer of resources	Increases likelihood of resistance to change as employees may attribute the matrix with loss of status, authority and control over traditional domain
Increases information flow through the creation of lateral communication channels	
Enhances personal communication skills	
<b>Source:</b> Sy and D'Annunzio (2005)	

While a functional manager can be responsible for managing the employees overall, is he/she the best one to evaluate day to day performance and contribution? There would appear to be a disconnect in relation to an appropriate evaluation process when an employee works for one manager, yet reports through and is evaluated by another. We need to rely on excellent communication between the functional and project managers in order to ensure an appropriate employee evaluation, regardless of who is to conduct the evaluation. Synthesizing the model and reality is the challenge. The following case study of CAE in part two will describe this dilemma and challenge. Also performance evaluations and appraisals will further be examined.

### Conclusion

In defining a matrix organization as a company that operates with silos of employees that may be transferable from project to project over a period of time, an effective method of evaluation needs to be developed. As the success of an evaluation is reflected in the acceptance of its merit by the employee being evaluated, we can say that an evaluation must be fair and objective, and free from any preconceived notions. This is not a usual perception however.

We have therefore arrived at the conclusion that the most effective method by which to measure employee performance within a matrix organization would be by employing a multi-rater system. Taking into consideration the known pitfalls and risks in evaluating employees within a matrix organization, this type of system provides the organization with the most reliable method by which to evaluate its employees.

### References

- Anderson, C.C. and Fleming, M.M.K. (1990), "Management control in an engineering matrix organization: a project engineer's perspective", *Industrial Management*, Vol. 32 No. 2, p. 8.
- Burns, L.R. (1989), "Matrix management in hospitals: testing theories of matrix structure and development", *Administrative Science Quarterly*, Vol. 34 No. 3, pp. 349-68.
- Dunne, E.A. Jr., Stahl, M.J. and Melhart, L.A. Jr. (1978), "Influence sources of project and functional managers in matrix organizations", *Academy of Management Journal*, Vol. 21 No. 1, pp. 135-40.
- Edwards, M.R. and Sproull, J.R. (1988), "Performance appraisal for matrix management", *Journal of the Society of Research Administrators*, Vol. 20 No. 1, p. 153.
- Galbraith, J.R. (2000), *Designing the Global Corporation*, Jossey Bass, San Francisco, CA.
- Grehan, P. (2002), "Ask and expert: evaluations made easy", *CA magazine*, Vol. 135 No. 1, p. 12.
- Kolodny, H.F. (1979), "Evolution to a matrix organization", *The Academy of Management Review*, Vol. 4 No. 4, pp. 543-53.

Larson, E.W. and Gobeli, D.H. (1987), "Matrix management: contradictions and insights", *California Management Review*, Vol. 29 No. 4, pp. 126-38.

Mee, J.F. (1964), "Ideational items: matrix organizations", *Business Horizons*, Vol. 14, pp. 70-2.

Mintzberg, H. (1993), *Structure in Fives*, 2nd. ed., Prentice Hall, Englewood Cliffs, NJ.

Schweiger, I. and Sumners, G. (1994), "Optimizing the value of performance appraisals", *Managerial Auditing Journal*, Vol. 9 No. 8, pp. 3-7.

Stanleigh, S. (2006), *Business Improvement Architects Shows Matrix Management is Failing with Current Employee Performance Evaluation*, CCN Matthews Businesswire, Toronto, p. 1.

Sy, T. and Cote, S. (2004), "Emotional intelligence: a key ability to succeed in the matrix organization", *Journal of Management Development*, Vol. 23 No. 5, p. 439.

Sy, T. and D'Annunzio, L.S. (2005), "Challenges and strategies of matrix organizations: top-level and mid-level managers' perspectives; HR", *Human Resources Planning*, Vol. 28 No. 1, pp. 39-48.

Wellman, J. (2007), "Leadership behaviors in matrix environments", *Project Management Journal*, Vol. 26 No. 3, p. 62.

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