

# The Current Understanding on Leadership Styles Demanded by Organisations for Engineering Managers: A Review

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**ABSTRACT** – This paper unravels the current notable styles of leadership for engineering managers demanded to accomplish great organization performance. Furthermore, by critically reviewing the latest scholarly works on the issue, the authors in this paper hopes to motivate professionals or soon-to-be professionals in engineering fields to acquire the significant set of skills to be strong prospective managers in engineering industry and hence, directly combat the difficulty in leadership among engineering managers.

## 1. INTRODUCTION

There has been much contention that surmises technical path is shortened when a particular phase is achieved that causes the transition from being an engineer to engineering manager [1][2]. It is critical for engineering managers to also be great leaders as the one who will deliver their plans and visions are normally the followers [3]. However, as they climb up the organizational hierarchy, the engineering managers often meet challenges in the leadership areas because they tend to lack the skills to deal with other employees [1][3]. Despite this setback, there is room for improvement because leadership does indeed can be learned and cultivated [4][5]. Therefore, this paper aims to reveal several main leadership styles that are demanded for engineering managers based on the latest studies to understand the skills and qualities needed to be developed with the purpose to become effective engineering managers and ultimately grow as influential leaders.

## 2. LEADERSHIP STYLES

There is a plethora of research works investigated on leadership styles but less are found specifically for engineering managers in this millennium. Below are the categorized types of leadership most significantly mentioned by scholars and the full list is tabulated in Table 1.

### 2.1 *Apprentice-style*

The apprentice-style category can be reflected like a coaching role where the leader acted as a coach to their subordinates. Coaching is identified as one of the leadership styles that will generate result for example, inexperienced employees might be coached by managers on the job by being demonstrated on the desired ways of executing certain task and this means that engineering managers should possess the talent to

assist other people [6]. Technical mastery is a leadership style that has broader dimension than coaching and it includes providing expertise in complex application of mathematical and scientific theory, unconventionally solving problem as well as nurturing employees' development with official and unofficial mentorship roles [7].

### 2.2 *Team-oriented*

This category of leadership styles focuses on managing the employees as a team and one of the example is the integrator style. By focusing on improving interpersonal relationships of the employees, the integrator is shaping them into joined and unified workforce [8]. Democratic is also a type of leadership that is vital for engineering managers [6]. The managers with democratic style in leadership have the ability to build mutual respects among the employees such as by accepting the viewpoint of others and subsequently forming idyllic surroundings for solving problems and making decision together [4]. Collaborative optimization is another type of leadership styles that is noteworthy for engineering managers and the manager functions as the team catalyzer who has the capability to bring out the finest in everyone and consequently making teams that generate great performance [7].

### 2.3 *Visionary and Task-Oriented*

The task-oriented style of leadership can be seen in the transactional style and it is a type that engineering managers should practice where the managers focus on the connection between rewards and performance of employees [9]. Besides that, other type of essential leadership leaning towards task-oriented style is the producers as the managers with this style are always seeking for achievement and usually very enthusiastic and always on the go [8]. Authoritative is more towards visionary leadership because the managers in this style have the knack to clearly elucidate visions for favorable outcome and is important to generate positive working atmosphere [4]. Managers in engineering also need to have organizational innovation as leadership style with the quality of visionary and entrepreneurial realization that gives inventive opinions technically and scientifically to push companies move forward [7].

### 2.4 *People and Relationship-oriented*

Affiliative leadership style can be described as relationship-oriented and it is crucial for engineering

managers to have pleasant working environment [6]. Transformational leadership style is necessary for engineering managers too due to the fact that they inspire others to work towards the same goals and at the same time taking care of their wellbeing [9][10]. Engineering managers ought to also have authentic leadership style and this style is evolved from transformational style but it also brings out positive psychological range and greatly developed organizational circumstance causing better self-consciousness and self-control good conducts [9].

Table 1 Leadership Styles for Engineering Managers

Leadership Styles	Scholars
Technical Mastery	Rottmann et al, 2015
Collaborative Optimization	[7]
Organizational Innovation	
Producers	Larsson, et al, 2015 [8]
Integrators	
Authoritative	
Affiliative	Chang, 2016 [6]
Democratic	
Coaching	
Transformational	Zuofa & Ocheing, 2017 [9]
Transactional	Zuofa & Ocheing 2017 [8]; Abdulwahed & Hasna, 2017 [10]
Authentic	

### 3. LEADERSHIP STYLES EFFECTS ON PERFORMANCE

Earlier study points out that, managers who attained great outcomes do not practice on only one leadership style but rather adopted few styles depending on situations. [4]. Effective leaders generally alternate between authoritative, affiliative, democratic and coaching to obtain results [6]. Additionally, engineering managers especially in civil engineering usually generate effective performance in terms of cost for high speed project when have producers as leadership style meanwhile, integrators influenced positively in the performance in the aspect of cost, time, and quality for complex projects [8]. From all those previous research, the relationship between the engineering managers, leadership styles and effective performances can be illustrated as in Figure 1 because leadership styles of engineering managers do in fact could give positive or negative impacts on the performance in organizations.

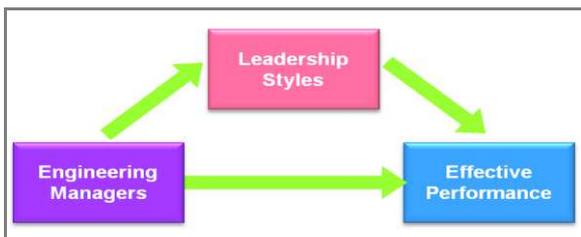


Figure 1 Relationship between engineering managers, leadership styles and effective performance

### 4. SUMMARY

It can be concluded that nowadays, managers in engineering field must choose wisely the aforementioned leadership styles dependent on the circumstances to yield effective organizational performance. This is because there is no all-around leadership style that is the best as those styles are appropriate for different situations [8]. Therefore, managers should not be dependent on only one type of leadership style but alternating those styles based on different scenarios [4]. Moreover, young engineers or future young engineers should prepare and plan to gain the talent and skills needed in leadership to be upcoming leaders that are effective and efficient.

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