

# Management and Leadership in engineering dominion

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**Abstract:** The research compared managerial group from three different sectors all from engineering background from Information technology, manufacturing and educational sector from two states of large organizations where the employees are hired from various part of India and, USA and UK. From manufacturing sector, one group was top execution managers as selected by corporate executives, while the second group was a selected group of high potential individual who would be future prospect to take up leadership roles. Another survey, training and assessment was conducted at middle management level in educational institution and the same survey was carried out in IT firm as well. The research examined influences on career development including job experience, project management experience, behavior management training, formal leadership training, and post training job assignments.

## Introduction

The research compared managerial group from three different sectors all from engineering background from Information technology, manufacturing and educational sector from two states of large organizations where the employees are hired from various part of India and, USA and UK. From manufacturing sector, one group was top execution managers as selected by corporate executives, while the second group was a selected group of high potential individual who would be future prospect to take up leadership roles. Another survey, training and assessment was conducted at middle management level in educational institution and the same survey was carried out in IT firm as well. The research examined influences on career development including job experience, project management experience, behavior management training, formal leadership training, and post training job assignments.

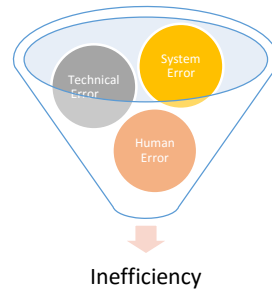
## Prominence

The study also asked for opinions from all three groups as to what they perceived as factors impacting leadership career development. The analysis intended to check on how efficiency, problem solving ability and productivity indirectly affects due to lack of intra and interpersonal skills in individuals at various hierarchical levels. The assessment revealed much more than the objective. We identified that creative thinking, to be able to make decisions in an under pressure scenarios and patience with resilient mindset and analytical approach are directly either affected due to lack of management skills or developed in employees due to leadership skills. Statistical differences between the groups were found in the areas of project management experience and the way they deal people and delegate the tasks. This has nothing much to do with the technical/ domain skills but it has deeper co-relation with project management skills such work planning, time and priority, team work, nurturing team spirit, timely guidance or mentoring, work proficiency and decision making skills. All the three groups believed there was more of a need within their company for leadership training and new improved methods in dealing with people in project management. Several reports from business interactions and industrial conclaves mentioned leadership as one of the areas that must be shaped by engineering courses to meet the needs of a modern industrial society. Due to the fast changing nature of modern engineering, young technical or workforce engineers must grow into leadership roles faster than their predecessors. Else, there would be a big gap created in leadership, managers and employees whom the work needs to be extracted. Consequently, various type of formal leadership development process must be incorporated into engineering education programs along with on-the-job training to respond to the changing nature of the engineering profession. And these programmes cannot be successful without the faculties of various engineering subjects are foremostly undergone such courses to develop the mindset of what needed to be done than what is being handled as job in hand.

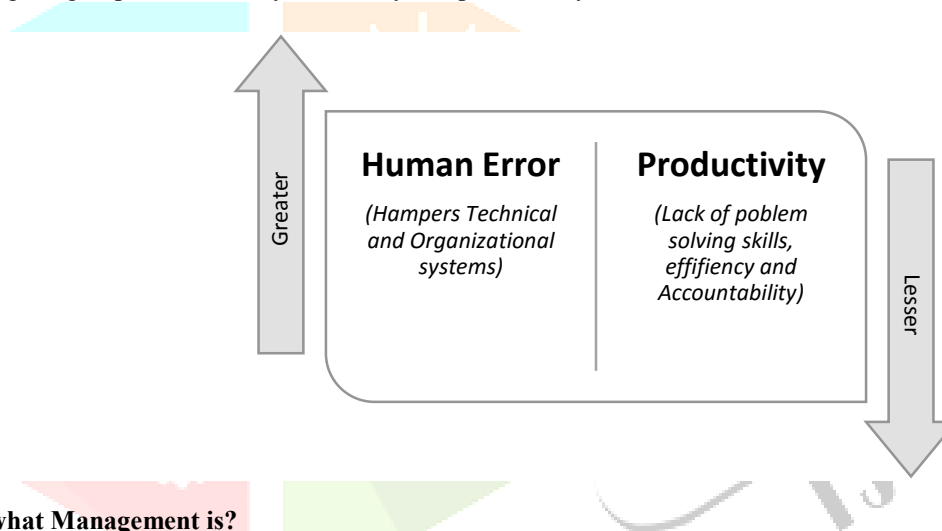
## So where is the Problem lying?

Corporations from various sectors starting from IT organizations to manufacturing to educational, all are apprehensive about the management inadequacies and headship of their employees. These organizations and institutions are spending a lot of time and capitals and are committed to education and training managers' skills, proficiencies, improve the perspective and most importantly efficiency in analyzing and decision making abilities. Leadership development learnings throughout the industry shows that significant financial payoffs are found among companies that support and encourage training and development and personal enhancement in their employees. Many organizations are now realizing that workplace environment with professionalism in behavior is crucial to maintain optimal performance and adapting to change in today's dynamically changing world. The same set of culture is been adapted by educational sectors as well in the current system. Corporate on one hand needs efficient employees, however also realized that there is excessive shortage of proficient and performance oriented people in higher education passed out crowd. This is an alarming sign projecting the barrier of sustainable development in evolving industry. There is increasing awareness in making workflow structures more adaptive and using knowledge-based and practical implication techniques rather than to provide more flexible process management support than is possible using current workflow systems. We have identified that there are three categories of problems that hampers the productivity of the company as well as accountability in employees. They are Human errors which are directly related intra and interpersonal skills, Technical errors which are related to aptitude and knowledge on latest technologies and tools and last system errors which are due to lenient policies, timely modification of policies and practice of the policies. When we boil down these three categories on which one is more influential in affecting the productivity we realized that it is majorly human errors that it is human errors that largely cause damage to productivity and with accountability issues, it is system errors that makes a doorway to unprofessional and lose practices to noncompliance with the policies. But again,

when we try to debate to evaluate to know which category could be the major factor to hamper the organizational effectiveness, it is noticed that due to human error there could be a challenge in executing the policies successfully.



This paper examines a recent survey of the experiences of managers in the rapidly growing and evolving industry in regard to the barriers and their commitment of employees to the sustainability agenda. The survey results show that lack of interpersonal skills, lack of knowledge and lack of senior management commitment towards mentoring juniors on “how to do” quality work and systematic involvement are the main barriers for the implementation of consistent and comprehensive sustainable practices that shows their effects on efficiency and productivity. The paper concludes that the multiplicityrole and the traditional degradation of the contributions made by employees makes to organizations are highly responsible for lack of success in achieving sustainable facilities. There is a need for strategic leadership and direction in driving essential change, and hence further the sustainability and progressive roadmap. The scenario described about the human error is breeding in all the three sectors that we worked on – in educational the negative impact is on quality, culture and cohesiveness in the environment where are on IT corporates and manufacturing industry it is affecting the group accountability, efficiency and productivity.



### Let's understand what Management is?

Deal with reasonably well despite some difficulty, come to terms with and getting things done with the support of human and other resources. It also includes of the tasks we do to keep rolling the work in organized and effective manner. Multiple competencies are required for successful management in regular work. Successful employees, managers and leaders are competent with

Ownership and Accountability

Strategic planning

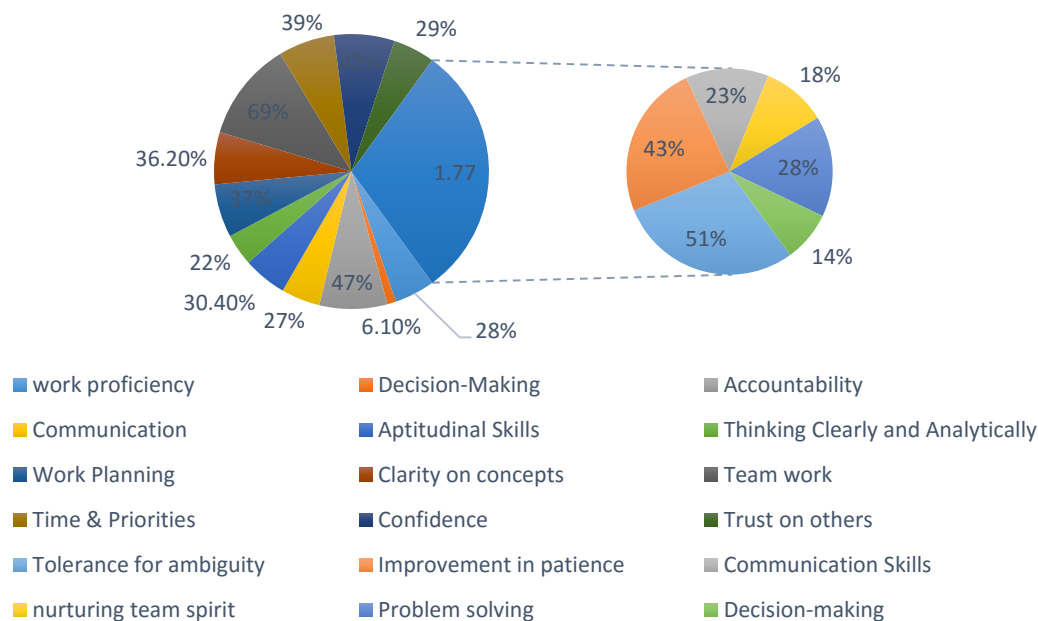
Communications – internally/ externally

Problem solving skills

Assertiveness

Mostly the human error have become main cause for technical and systems error. And by focused objective if we development the areas of improvements by competency mapping and performance analysis, employees intra and interpersonal skills can be effectively developed which can directly result on their work engagements and efficiency. To prove this herewith I submit our two years training programmes on below mentioned topics to selected group of individuals from various departments in a manufacturing organization which totally nullified blame environment and transformed employees at two levels. Here is the pie analysis of the focused areas and improved percentage of competencies.

## Improved Interpersonal skills that directly reflects on Employee Efficiency - 2017



Case study 1 - The above chart is the assessment and result of 226 employees at two levels of hierarchy where three dimensional on training evaluation by Evolve Excellence™ Organizational intervention and development training evaluation methodology was carried and at last assessments were also cross verified by conducting using Kirk Patrick Model appraisalson training firm where carried out for past ten months in JCB to get the statistics on impact of efficiency and effectiveness in project delivery and accountability by bringing in managerial and interpersonal skills. Kirk Patrick Model is worldwide standard for evaluating the standard for evaluating the effectiveness of training programmes done by training firm (refer picture 2 - below are the sample examples of on training assessment sheets and Kirk Patrick method for ref.).These are just few of the interpersonal skills that fall into the classification of management competencies that apply to virtually for every engineers.

### THE KIRKPATRICK MODEL

- Level 1: Reaction** To what degree participants react favorably to the learning event
- Level 2: Learning** To what degree participants acquire the intended knowledge, skills and attitudes based on their participation in the learning event
- Level 3: Behavior** To what degree participants apply what they learned during training when they are back on the job
- Level 4: Results** To what degree targeted outcomes occur as a result of learning event(s) and subsequent reinforcement

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On Training Observation Form - JCB Behavior Training Programme

Mentor: Dr. Vahini Reddy	Training Topic: Assertiveness in Persuasion Skills
Observer: HR Manager, Ms. Sandra Tebrani	Date: 18 <sup>th</sup> June, 2017 - OBCSSTP
Participant's Names: Mr. Amit Deshmukh	Dept./Designation: Dy. Manager
Phone:	Email ID:

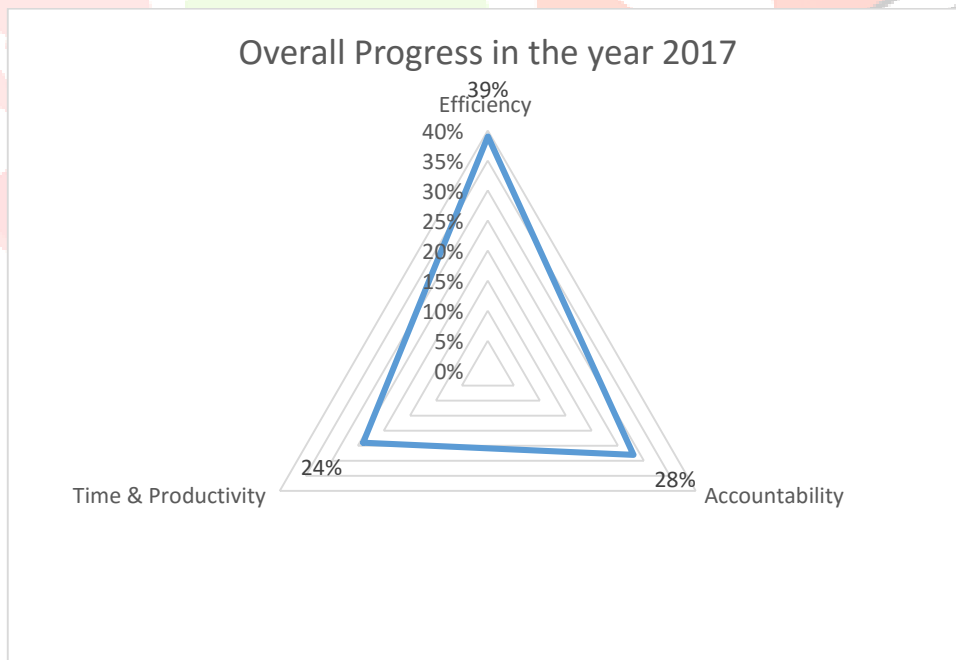
  

Competence & Commitment	Rating(1-4) 1-Rarely 2-Some of the time 3-Most of the time 4-All of the time	Comments
<b>Communication Skills</b>		
Demonstrates appropriate body language		
Is approachable and friendly		
Speaks clearly and audibly		
Listen well and asks clarifying questions, as needed		
Conveys information clearly and succinctly		
<b>Presentation skills</b>		
Effective use of visual and multimedia aids		
Presents information in varied and creative ways		
Explains new concepts using relevant scenarios		
<b>Organization skills</b>		
Manages time effectively		
Is organized and well prepared		
<b>Team Dynamics</b>		
How well he gets involved in team		
How much he knows his team		
<b>Managerial skills</b>		
Ability to manage people		
Decisiveness and problem solving techniques		

**Evolve Excellence™**

Competence & Commitment	Rating(1-4) 1-Rarely 2-Some of the time 3-Most of the time 4-All of the time	Comments
<b>Attitude</b>		
Aims Attention		
Learning stimulation that trigger behavior		
Emotional awareness that affects the judgments		
Realistic expectations		
What has happened or what was expected- He or She has clarity		
<b>Initiative</b>		
Does he or she understand that employee attitude affects company's financial success?		
Aggressive or sub massive( for example sharing)		
Does he/she takes initiative to give extra information to team members?		
<b>Confidence</b>		
Does he/she acts intelligently or fear to take a step?		
Determination and perseverance is part of his/her personality?		
<b>Assertiveness</b>		
Self aware about efforts and efficiency		
Behavior is marked by openness and receptiveness		
<b>Strength and weakness</b>		
Planning, organizing, summarization, Delegation, Optimism, flexibility, Self-Evaluation, Team Player, Respected Member and Confident Decision Maker		
Communication(listening, Understanding & Responding), Multitasking, Quick Decisions, Influential Manipulation (what Leaders do to achieve positive outcome)		
General Observations		
Observer's Signature: _____ HR's Signature: _____		
Mentor's Signature: _____		

**THE END RESULT – MANUFACTURING INDUSTRY**



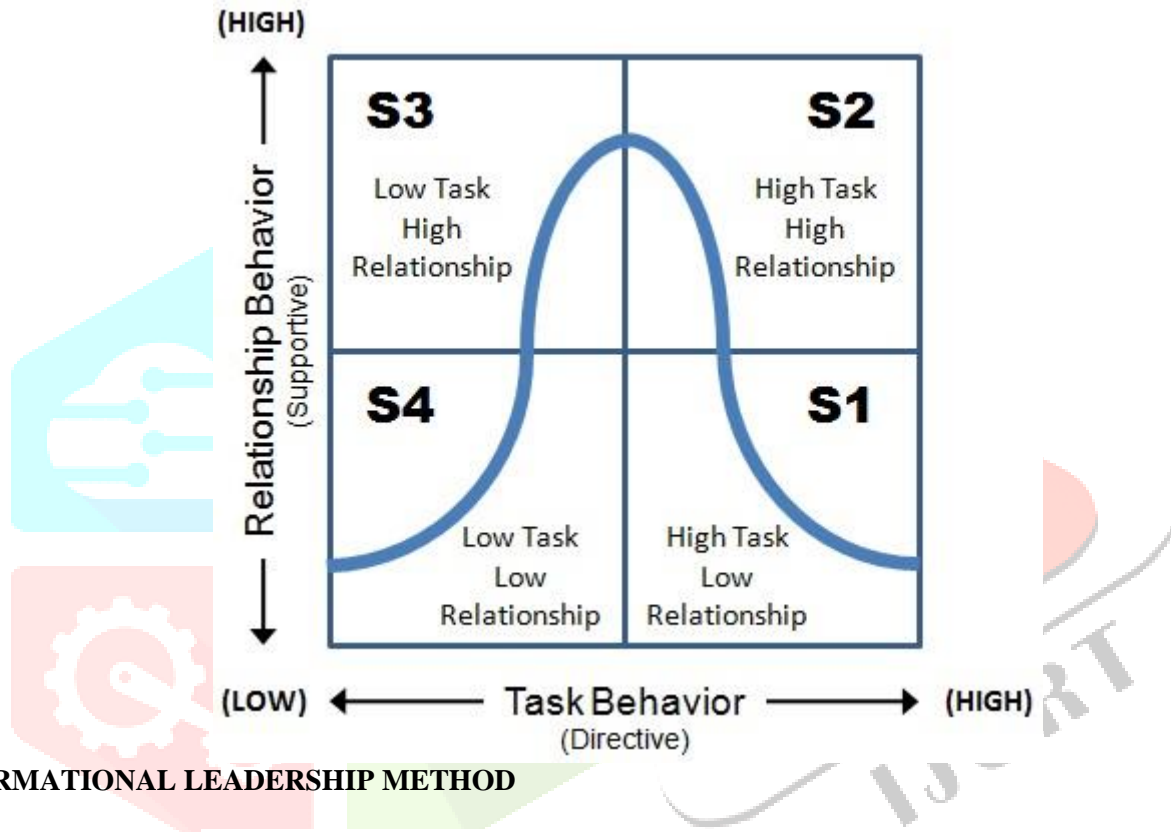
**Case study 2**

We have started with basics in Academic Leadership Excellence programme with two engineering colleges with group of 15 middle management leaders. The participants have access to the mentor to get guidance and were given freedom to experiment with new learnings in day to day activities. There was a resistance initially from educational institutions in terms of adaptability and implications as these practices appeared alien to many participants. There were few participants who continually approached, clarified and shared the challenges in implications. But as the concentrated focus goes on delivering engineering subjects the participants to an extent

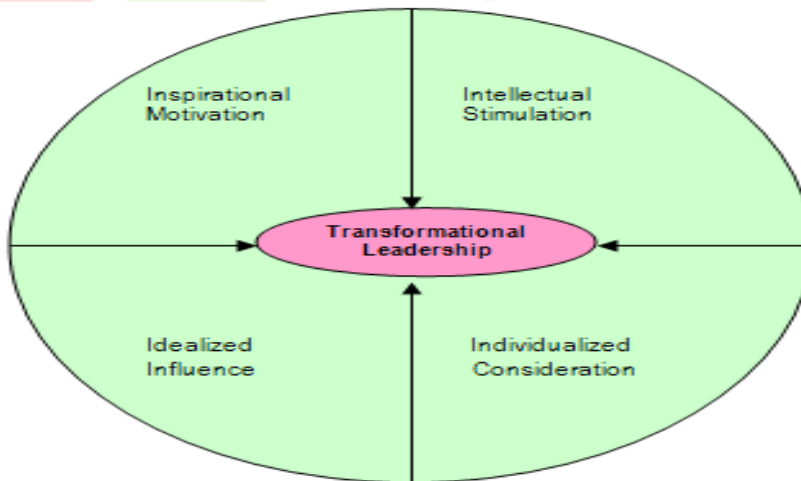
subsided the learning for some period. However, after continual reinforcement it is been observed that the challenge in implications was due to lack of “thinking process” on how to plan and strategize with new learning methods. In couple of months it is been noticed the ratio in interest level is increased and participants way of approaching to any given situation has changed which resulted in improvement in self dependency and assertiveness. In few it is been notices that the way of perceiving things have changed drastically.

After two months of experiment it is understood that both colleges had different out comes due to Methodology used to develop and nurture individuals. At one college the leader has used “Situational Leadership Theory” where the personal attention and case to case approach using the S4 D4 model is been used and in other college the mentor has used “Transformational Leadership Theory” byremotely nurturing case to case with assignments and counselling.

**SITUATIONAL LEADERSHIP METHOD**



**TRANSFORMATIONAL LEADERSHIP METHOD**



**Impact factor –**

**College 1 – less ambiguity, increase in tolerance and understanding, analysis before drawing conclusions**

**College 2 – decision making ability, 360 degree analysis and unified approach**

**Difference between Management and Leadership**

Every engineers need managerial and execution skills to get the job done and completely different set of skills are also important along with management skills that is leadership skills. Leadership is exclusively interpersonal, but at very different level neck and neck than the interpersonal competencies that are described above as "management." Then, Leadership is about influencing and directing others for a positive outcome. Leaders must not only have dynamic personality but their thought process and perspective about things must also be above to managerial skills. Tons of individual characteristics concerning to leadership are important. We can see the difference in leadership and managerial skills in below table. This table below shows the general expectations for leadership competencies in engineering and technical management roles. Various levels of managerial and leadership expects different set of skills based on the responsibilities and mark of the position. The greater the mark the higher the skills needed. Many engineers demonstrate these skills as they get caught up in an idea that having technical skills is sufficient as they are the builders of technology, which many times result in failure of organizational growth. For instance, engineers might demonstrate various features that aren't fulfilling the expectation demanded by that position. You see, not all Executive leaders leave a legacy. According to Inforpro Learning Company has said that poor leadership can crush productivity. However developing leaders is not an easy task and those charged with developing leaders in today's volatile, uncertain, complex and ambiguous world force numerous challenges.

**TABLE OF DIFFERENCE BETWEEN LEADERS AND MANAGERS**

Manager	Leader
Administers	Innovates
Is a copy	Is original
Maintains	Develops
Focuses on systems and structure	Focuses on people
Relies on control	Inspires trust
Short-ranged view	Long-ranged perspective
Asks how and when	Asks what and why
Has his eye always on the bottom-line	Eye is on the horizon
Imitates	originates
Accepts, status quo	Challenges it
Is a classic soldier	Is his own person
Does things right	Does the right thing

Table 1: difference between a manager and a leader

**Is Management and Leadership is all about Allocate Taskor To develop Accountability and Ownership**

Interpersonal skills are about both – allotment of task and to develop accountability and ownership in individuals. The only difference is at managerial level that position requires interpersonal skills are mode task accomplishment centric whereas at leadership skills is about creating more leaders and develop accountability and ownership in high potentials after thorough analysis. Managers should be totallycognize the leadership and management proficienciesand capabilities that are obligatory to execute projects and objectives, and delegate responsibilities that are not adequate for their own skills and benefits. Team members should be open, straightforward and authentic about their interest level regarding prospective / possible opportunities for leadership and management responsibilities. Engineers must now understand and accept that leadership and management is part of their job, so not having these skills and performing on these responsibilities is not reallypossibility. What is possible is, however, if not all but some of theorganization and role specific leadership and management characteristics they will be accountable for in their engineering roles.

When the line managers or immediately authority delegate responsibilities, team members should communicate issues and concerns when they are recipients of delegated assignments. As managers one must be sensitive to any issues or concerns, and make appropriate adjustments. Sometimes negotiation is necessary. Which is another leadership competency per to say. If your job description sounds anything like handling group of people like, team lead or head of department or influencer in a big team or principal where leading and managing is an important part of your role. Nonstopdevelopment in leadership and management skills should be a high priority for all engineers to perform and sustain in globally competitive industry.

## Conclusion

*Continuously developing leadership and management skills should be a high priority for all engineering domains in various sectors. Giving you one real-time example from three different industries.*

