

# Contents

- ✓ Chapter 1: Introduction to Technical Leadership
  - ✓ 1.1 Technical Leadership Fundamentals
  - 1.2 Building Trust and Credibility
  - 1.3 Risk-taking and Creativity
  - 1.4 Ethics, Professionalism and Time Management

## Chapter 2: Putting Leadership Principles into Practice

- 2.1 Creating a Vision
- 2.2 Team Building and Communication
- 2.3 Conflict Management and Resolution
- 2.4 Making Strategic Decisions

## Chapter 3: Ethical Leadership

- 3.1 Towards an Ethical Culture
- 3.2 Organisational and Individual requirements
- 3.3 An Inclusive Leader



# 1.1 Technical Leadership Fundamentals:

- ✓ Examples of Leadership Quotes
- ✓ Influencing Others
- ✓ Leaders vs Managers
- ✓ Engineers as Leaders
- ✓ Effective and Ineffective Leaders
- ✓ Active Listening and Mentoring
- ✓ Leadership styles
- ✓ Values and Emotional Intelligence

Reference: D. W. Hess, Leadership by Engineers and Scientists, Wiley, 2018

# Technical Leadership Fundamentals: *Examples of Leadership Lessons*

## *Some Leadership Lessons to Consider:*

*Joseph Jaworski*  
(Founder, Generon  
International)

- ✓ *The fundamental choice that enables true leadership in all situations, is the choice to serve life.*

*Brené Brown*  
(Professor, University of  
Houston)

- ✓ *I define a leader as anyone who takes responsibility for finding the potential in people and processes, and who has the courage to develop that potential.*

*Satya Nadella*  
(CEO of Microsoft)

- ✓ *Listening was the most important thing I accomplished in each day. It is impossible to be an empathetic leader sitting in an office behind a computer screen all day. An empathetic leader needs to be out in the world, meeting people where they live and seeing how the technology we create affects their daily activities.*

*Bob Iger*  
(CEO of The Walt Disney  
Company)

- ✓ *At its essence, good leadership isn't about being indispensable; it's about helping others be prepared to possibly step into your shoes – giving them access to your own decision making, identifying the skills they need to develop and helping them improve.*

*Indra Nooyi*  
(Former CEO of PepsiCo)

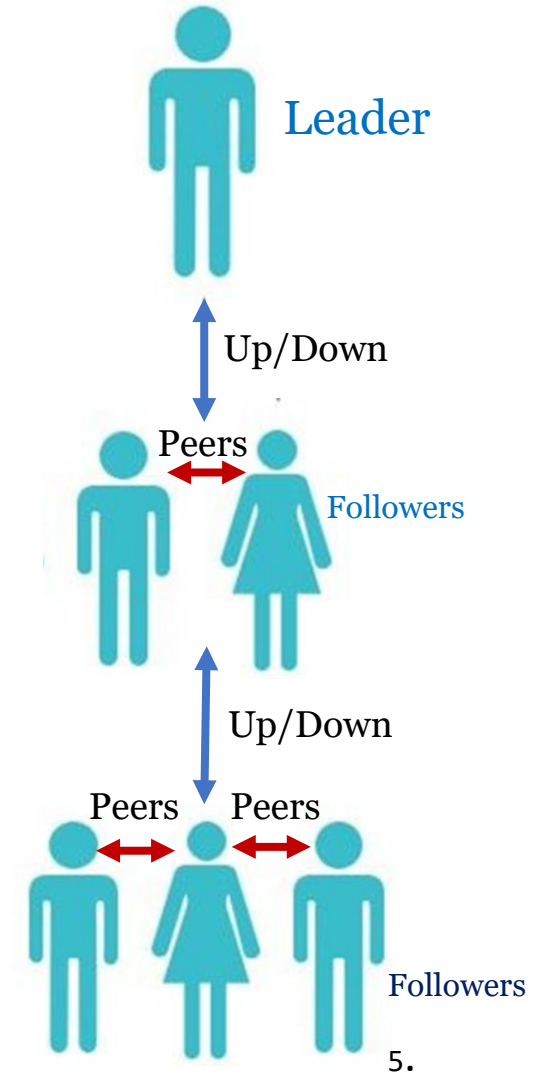
- ✓ *Just because you are the CEO, don't think you have landed. You must continually increase your learning, the way you think, and the way you approach the organisation.*

*Sheryl Sandberg*  
(COO Facebook)

- ✓ *Leadership is about making others better as a result of your presence and making sure that impact lasts in your absence.*

# Technical Leadership Fundamentals: *Influencing Others*

- ✓ Leaders have different styles and personalities - why are some leaders more effective than others?
- ✓ Let us look at two descriptions of influence:
  - A leader **influences** others to accomplish an objective and directs the organisation in a way that makes it more cohesive
  - An individual **influences** a group of individuals to achieve a common goal
- ✓ The common term between the above two descriptions is **influence**. Influence is very different from force, tell, order, control, dictate, or instruct.
- ✓ In addition, it is important to recognise that influence takes place in all levels of an organisation. **It is important to remember that influence is not the same as power or control.**
- ✓ In fact, an effective leader influences everyone around them in an attempt to improve all aspects of the organisation.



5.

If your actions inspire others to dream more, learn more, do more, and become more, you are a **leader**.

# Technical Leadership Fundamentals: *Leaders vs Managers*

## *Leaders vs Managers*

- ✓ Effective leaders and managers share some of the same characteristics and deal with similar issues. However, their duties, responsibilities, and attitudes are not the same.

## *Leaders*

- ✓ Leaders have a **vision**, they **inspire** others, and **encourage** appropriate risk-taking. They look for visionary problems to solve. They use creativity, insight, and resilience to develop new approaches and directions for their teams and organisations.
- ✓ Leaders mentor and develop people who are reporting to them. They also learn quickly from their mistakes.
- ✓ An effective leader influences everyone around them in order to improve all aspects of the organisation.

## *Managers*

- ✓ Managers **oversee** current activities and processes, and ensure that **tasks** are completed, that standards are met, and that **projects are operating** on the appropriate timeline.
- ✓ They generally avoid taking risks.



# Technical Leadership Fundamentals: *Leaders vs Managers*

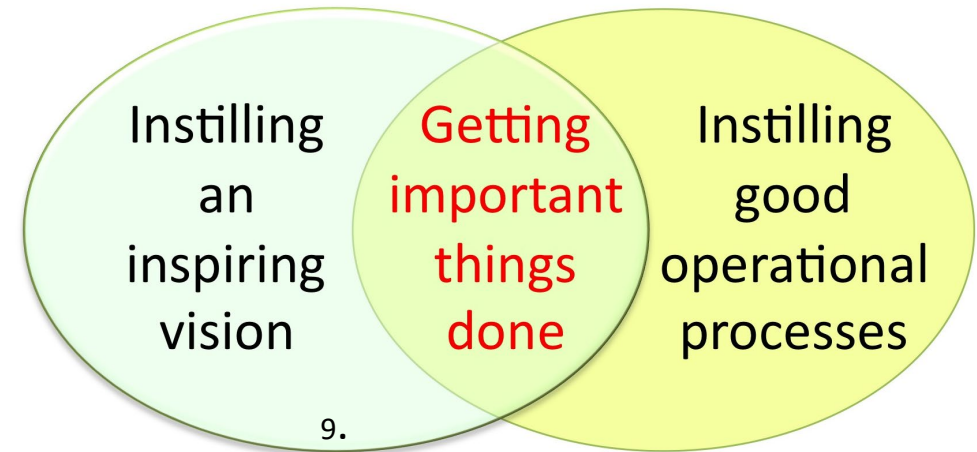
## Leaders vs Managers

- ✓ A leader can be, and sometimes does function as a manager and vice versa, but this is rarely the case, the personality traits and characteristics that make them successful as either a leader or a manager are very different.
- ✓ Although both roles are necessary in an organisation, they are often assigned to **different individuals**.

Managers Vs Leaders	
<u>Managers</u>	<u>Leaders</u>
➤ Focus on things	✓ Focus on People
➤ Do things right	✓ Do the Right Things
➤ Plan	✓ Inspire
➤ Organize	✓ Influence
➤ Direct	✓ Motivate
➤ Control	✓ Build
➤ Follow Rules	✓ Shape entities

8.

## Leadership & Management



# Multiple – Choice and Short Answer Questions

## MCQ

Which of the following is a desirable feature of *leadership* (select one only)?

- (i) One-directional influence from the leader to the follower
- (ii) Coercive power and authority
- (iii) Lack of freedom
- (iv) Coexistence of leaders and managers

## Short Answer Question

What are three primary personal traits/characteristics exhibited by:

- (a) Leaders
- (b) Managers

# 1.1 Technical Leadership Fundamentals:

- ✓ Examples of Leadership Quotes
- ✓ Influencing Others
- ✓ Leaders vs Managers
- ✓ **Engineers as Leaders**
- ✓ Effective and Ineffective Leaders
- ✓ Active Listening and Mentoring
- ✓ Leadership styles
- ✓ Values and Emotional Intelligence

# Technical Leadership Fundamentals: *Engineers as Leaders*

## Engineers

- ✓ Engineers are known for their technical competency and their analytical ability to solve problems.
  - This allows them to bring an impressive skill set to leadership positions.
- ✓ They know how to break complex issues into smaller parts, and how to plan and carry out activities.
- ✓ They can clearly articulate problem statements, evaluate results, draw conclusions, and quantitatively measure effects of variables.
- ✓ They are well-organised, methodical, and logical, and they question everything;
- ✓ They know how to stay up-to-date on new scientific and technical developments, through life-long learning.



Problem Solving Training

# Technical Leadership Fundamentals: *Engineers as Leaders*

## Engineers

- ✓ They have experience leading technical projects as a result of their design or laboratory courses, internships or research, development of startups etc.
- ✓ Engineers can be promoted into formal leadership or management opportunities because of the success(es) they have in technical positions.
- ✓ **Technical competency** is a **necessary requirement**, but it is **not a sufficient skill set** on its own, for technical leadership success.



# Technical Leadership Fundamentals: *Engineers as Leaders*

- ✓ What is generally **missing** in the training of engineers is vast experience in:
  - leading large or small groups,
  - communicating clearly,
  - making decisions in a timely manner,
  - building consensus,
  - establishing meaningful relationships,
  - organising others for effective action, and
  - managing conflict among people who have a wide range of viewpoints, backgrounds, experiences, emotions and opinions.

## Soft Skills

- Communication skills,
- Interpersonal skills
- Self-discipline, Self reflection
- Team work & advocating for others
- Leadership skills
- Time management
- Empathy & taking action on social & cultural issues
- Ability take criticism, Decision making
- Conflict management, managing others' stresses
- Flexibility & being open to emotion-driven views

# Technical Leadership Fundamentals: *Engineers as Leaders*

- ✓ A typical frustration for new technical leaders/managers is that they are suddenly responsible for various activities (e.g. productivity, timing of project completion) of others, and they have no direct control on these.
- ✓ Instead of depending on their own abilities, they must now depend upon others to accomplish goals or meet deadlines.
- ✓ To achieve these objective, they have to establish an environment that empowers those who report to them to accomplish their goals.
- ✓ These skills have generally not been included in their technical preparation.
- ✓ Often when a technical person steps into a new leadership role, they do not want to give up control and they don't want to delegate.
  - They prefer to do the technical tasks themselves and are often impatient with others who are assigned the task and do not perform it in the way that they expect.
  - This is not good leadership practice at all.

# Technical Leadership Fundamentals: *Engineers as Leaders*

- ✓ The technical leaders must:
  - Learn how to manage people's personalities and capabilities,
  - Promote positive and empowering environments and interactions,
  - Help with others' problems and help manage other people's stresses,
  - Listen more than they speak,
  - Find positive energy and pride in facilitating other people's development, achievements, and successes
- ✓ Technically trained leaders often find it difficult to deal with people who do not think logically.
- ✓ This is a problem when a technical leader reports to or interacts with someone who does not have a technical background. These individuals may not understand what engineers do and how they think or expect, and the technical leader feels that the non-technically trained individual is clueless. Neither viewpoint is correct or appropriate.
- ✓ **Listening** (not just hearing) is a very important skill that many engineers have not properly developed.



Keep your listening focused

# Multiple – Choice and Short Answer Questions

## MCQ

Which of the following will be the most *effective* for **technical leaders** (select one only):

1. An energetic hard-driver who expects 110% from everyone
2. One who believes people are the only important resource
3. A technical expert in the field being pursued
4. A big-picture charismatic person, who wins over everyone at meetings
5. None of the above

## Discussion Question

Do you believe people are born with leadership characteristics, or that they are developed over time, or both? Explain the reasoning behind your views.

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# Technical Leadership Fundamentals: *Leader Attributes/characteristics*

## Leader Traits

- ✓ **Effective** leaders show personal character by their actions and inspire others;
- ✓ **Ineffective** leaders display typically destructive behaviours that limit their effectiveness.

## Ineffective Leader Traits

- ✓ Some of the traits associated with **ineffective** leaders:
  - Have a lot of pride, are inflexible and unapproachable
  - Expect the impossible from their team
  - Have a negative attitude, and also seek power and control
  - Are unaware of their unconscious bias
  - Change goals and direction frequently
  - Heavily micromanage their team
  - Lack of respect for their employee's time and wellbeing
  - Ignore conflict and do not take action on people & culture issues in the workplace
  - Are convinced some people cannot be motivated or inspired
- ✓ If leaders exhibit any of these behaviours/attitudes, they are unable to lead effectively. What is the impact of this kind of behaviour?



Ineffective Meeting

# Technical Leadership Fundamentals: *Ineffective Leaders*

## Ineffective Leaders

- ✓ If leaders do not show a willingness to be curious, to learn and respect other and show fairness and equity to those around them, they cannot expect to be treated with respect
- ✓ An **ineffective leader** creates a lot of frustration, dissatisfaction and low morale as a result of their actions. If they change goals and direction frequently, this can result in team frustration. Establishing priorities and directions for teams requires significant effort, planning, and collaborative discussion
- ✓ **Micromanaging** creates the impression that the leader does not trust the employee or feels that they are not competent. It discourages creativity, initiative, and acceptance of responsibility
- ✓ In situations where micromanaging is needed, it is performed only to the extent necessary to coach the employee and help them grow to reach their goals. It rarely needs to be used

### Micromanaging



Afraid you're being micromanaged at work?



**Effective leaders** rarely micromanage. They recognise the pros and cons of dealing with risk and uncertainty. Risks must be taken if substantial advances and major successes are to be achieved.

# Technical Leadership Fundamentals: *Ineffective Leaders*

## Ineffective Leaders

- ✓ Ineffective Leaders dislike conflict, so they avoid it. Avoiding a conflict or a problem is ineffective, because decisions must be made and actions taken to move a team or situation forward with resolution.
- ✓ Not making a decision or ignoring conflict increases the likelihood that the problem or conflict will increase until a breaking point is reached. It also promote unconscious biases.
- ✓ It also suggests that a leader that operates in this manner is weak and unwilling to perform their duties.

**Effective leaders** regularly communicate concerns and difficulties and create the space and opportunity for others to communicate also. The honesty, courage, and confidence displayed by discussions with the team build trust and credibility for the leader and encourages team members to seek solutions.

## Summary

- ✓ Aspiring or current leaders should evaluate their behaviour and attitudes with respect to those on this list (Ineffective Leader Traits page 39) to identify which of their behaviours need modification. Being aware of areas of improvement can then be worked on and addressed.



**Ineffective Leaders**

# Technical Leadership Fundamentals: *Effective Leaders*

## Effective Leaders

- ✓ The following strategies and approaches describe ways to promote collegial interactions, earn trust and credibility, and develop a positive, empowering, inclusive culture among members of a team or organisation.
- ✓ Successful and **effective** leaders:
  - Display confidence, courage, humility, optimism, passion, responsibility, and accountability
  - Are available and approachable and helpful
  - Show kindness, consideration, respect, and appreciation for others and a willingness to learn
  - Use their insight/knowledge gained from successes and failures
  - Clearly define and communicate objectives and goals
  - Offer advice, evaluate performance, develop employees professionally and personally, and help employees work through problems



Effective Meetings

# Technical Leadership Fundamentals: *Effective Leaders*

## Effective Leaders

- Acknowledge the effort and achievements of others regularly
- Provide constructive criticism, without blame or anger
- Admit when they are wrong, and correct the situation
- Are transparent, authentic, professional, unbiased, inclusive and ethical
- Keep an open mind for alternative/creative views or approaches and collaborate with team members when making decisions,
- Are curious and ask questions to gain understanding and show involvement; they listen carefully to the responses, and reflect, to show their interest in team member opinions and ideas.

Dare to Lead Hub – Brené Brown  
<https://daretolead.brenebrown.com>

**TEDx talk: How Great Leaders Inspire Action** - Simon Sinek  
<https://www.inspiringleadershipnow.com/best-ted-talks-on-leadership/>

**TEDx talk: 5 Pillars of Effective Leadership** – Ari Zucker  
[https://www.ted.com/talks/ari\\_zucker\\_5\\_pillars\\_of\\_effective\\_leadership](https://www.ted.com/talks/ari_zucker_5_pillars_of_effective_leadership)



**Effective Leaders**



# Technical Leadership Fundamentals: Inequality, Equality, Equity, Justice

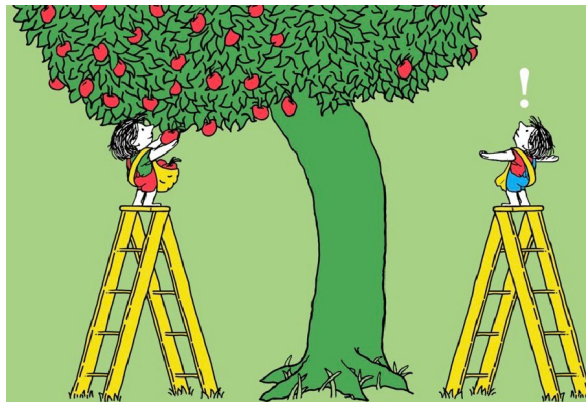
- ✓ **Effective leaders** understand the difference between inequality and equality.



**INEQUALITY**

The illustration above shows a green tree with red fruit and two people (one with red shorts and other with blue shorts). The tree is leaning towards the person in red shorts.

Two individuals have unequal access to opportunities



**EQUALITY**

Both people have ladders and shoulder bags (equal support). But only the person in red shorts is close enough to reach the fruit and the person in blue shorts gets none.

Each individual is given the same resources or opportunities

- ✓ **Effective Leaders** work towards creating equity and justice within their organisations



**EQUITY**

Equity recognizes that each person has different circumstances and allocates the resources and opportunities needed to reach an equal outcome - the tree is still leaning to the left, there are still more apples on the left yet the person on the right is being given a taller ladder than the person on the left.



**JUSTICE**

Justice can take equity one step further, by fixing the system in a way that offers equal access to both tools and opportunities - both people standing in the same position with the same ladder, both receiving the same amount of apples. But, notice that the tree has been straightened by the leader.

**Equality vs. Equity: What's the difference?**

<https://onlinepublichealth.gwu.edu/resources/equity-vs-equality/>

# Multiple – Choice and Short Answer Questions

## MCQ

Good *communication* skills and *motivation* techniques (select one only):

1. Are the only absolutely necessary skills for leadership
2. Are helpful to your leadership
3. Will earn you respect from people
4. None of the above

## Discussion Question

Think about the various people (e.g. students, academics, industry partners, tutors, university leaders, family, friends, co-workers, sports coaches etc) that you have interacted closely with while you have been at university or during work experience:

1. Who is the single most effective leader or manager that you have known personally and that you have learned a lot from?
2. What was the path that led them to become a leader?
3. What characteristics do they have that really stand out to you as an example of great leadership, and why?
4. In your opinion, do you think are the characteristics or skills that they could improve on, in order to progress further as effective leaders?

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# Technical Leadership Fundamentals: *Active Listening*

## Active Listening

- ✓ One leadership trait that is very important and often underestimated, is **active listening**.
- ✓ Listening is an important part of communicating; the message being presented must be genuinely heard, understood and reflected on, otherwise no communication has occurred.
- ✓ Effective listening is often referred to as “active” listening, a critical skill for which most technically trained individuals need to develop on an ongoing basis.



# Technical Leadership Fundamentals: *Active Listening*

## Active Listening

- ✓ An “active” listener:
  1. Pays attention and makes eye contact
  2. Is open to alternative viewpoints
  3. Listens to understand - not judge, prejudge, or reply
  4. Is able to reflect and also empathise
  5. Recognises that communication is more than words. It also includes body language, facial expressions, tone of voice and inflection
  6. Does not interrupt or correct the message or think of what to say in response
  7. Gives verbal and nonverbal feedback (asks questions for clarification and summarises to assure that what was said has been understood, offers supportive feedback or constructive criticism, and displays appropriate body language, e.g. nods head to express agreement/approval/understanding)
  8. Is not distracted by poor presentation skills, but focuses on the message being conveyed.
- ✓ Evaluating oneself against the above criteria during presentations and conversations will identify areas where improvement is needed.

# Technical Leadership Fundamentals: Mentoring

## Leaders serve as mentors

- ✓ Technical leaders should identify mentors to assist their development and obtain advice throughout their careers. Mentors provide feedback and insight to help an individual grow.
- ✓ In a mentor role, the leader supplies insight, perspective, encouragement, and reason and offers constructive criticism when needed.
- ✓ A mentor should be supportive; calm; a good listener; and display integrity, confidence, accountability, and a positive attitude and maintain confidentiality of their discussions with mentees.
- ✓ They should be a role model and inspiration for the person being mentored and facilitate their professional and personal development, providing insight and expertise.



# Technical Leadership Fundamentals: Mentoring

## Leaders serve as mentors

- ✓ Mentors help others identify their unique abilities and limitations, and help their mentee achieve their full capabilities;
  - In this way mentors assist others in recognising what they can become.
- ✓ Sometimes, an effective way to mentor, is to first ask the individual to perform a **self-evaluation** (see next slide).
- ✓ Discussion of the responses to questions asked in the evaluation generally identifies issues of importance for professional development, and often uncovers other less obvious situations that require attention or are crucial to the individual's personal or professional development.



30.

# Technical Leadership Fundamentals: Mentoring

## Self-evaluation and Assessment

Rate yourself in the following categories and each element of the category, and explain your choice: 1 = poor; 2 = fair; 3 = average; 4 = good; 5 = outstanding

(1) *Technical skills*: e.g. experiments; modeling; reproducibility; equipment set-up, operation, maintenance; data interpretation.

(2) *Presentation skills and effectiveness*: Oral; written, listening, reflection skills.

(3) *Depth of technical knowledge*: Specific project/field; relevant literature.

(4) *Breadth of technical knowledge*: Fields outside project; science and engineering in general.

(5) *Work ethic*: Accomplishments; motivation to complete or further the effort.

(6) *Efficiency/productivity*: Time management; multitasking, wellbeing and mental health.

(7) *Independence*: Critical thinking; know when to ask for help; creativity.

(8) *Leadership*: Role model; shows vision, understanding of diversity and inclusion.

(9) *Teamwork*: Help/support team members, collaboration skills.

(10) *Areas for improvement*:

Goals for next 3, 6, 12 months: project(s); professional development; personal development.

Goals for next 18-24 months.

- ✓ An example of a self-evaluation form is shown.
- ✓ After the areas for improvement are identified, prioritisation should take place with respect to personal and professional aspirations.
- ✓ This assessment should be performed at least once a year, and preferably every 6 months.
- ✓ During these discussions, progress toward improvement and the general goals set can be assessed and any changes, corrective actions, or new opportunities examined.
- ✓ An exceptionally important leader obligation is to identify, mentor, and develop new or aspiring leaders.
- ✓ Mentors should encourage individuals whom they feel have the personality, drive, aptitude, and people skills to undertake leadership duties.
- ✓ These (potential) next generation leaders must be guided and made aware of how to further develop their existing skill set.

# Multiple – Choice and Short Answer Questions

## MCQ

What is the most likely personal benefit to a *mentor* participating in a mentoring process (select one only)?:

1. Upskilling of the workforce
2. Achievement of team goals
3. Satisfaction in helping others to improve
4. Increased profits for the organisation

## Discussion Question

In the lecture notes, there are 8 attributes of an active listener:

1. Reflect on the 8 attributes of active listening and write down which ones of them are strengths of yours, and which ones require improvement.
2. Describe why the two attributes you have chosen are a strength or an area of improvement for you (support your answer with an example of where you demonstrated each attribute you mentioned).

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# Technical Leadership Fundamentals: Leadership Styles

## Leadership Styles

- ✓ Many leadership styles exist.
- ✓ Understanding the different types of leadership styles can help make you a better leader.
- ✓ Different leadership styles produce different results, certain people are suited to different styles of leadership.
- ✓ An effective leader varies their leadership style to meet the requirements of the organisation, team, or individual at a particular point in time, for a specific project or situation.



## Leadership Styles

- ✓ **There are many leadership styles.** We explore 5 of these styles.
  1. **Democratic** (Participative)
  2. **Autocratic**
  3. **Laissez-faire** (Empowering)
  4. **Transformational**
  5. **Servant Leadership**



What is your Leadership Style?

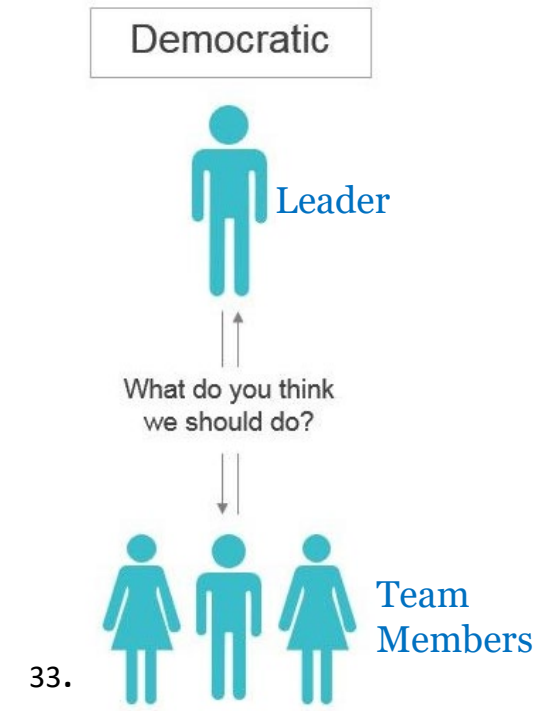
# Leadership Styles: Democratic (Participative) Leadership

## Democratic Leadership

- ✓ Democratic leaders value ideas and input from others and encourage discussion about those contributions. They take a much more collaborative approach to getting things done and decisions are communicated back to the team.
- ✓ The democratic leadership style is a very open and collegial style of running a team. Ideas move freely amongst the group and are discussed openly.
- ✓ This style is needed in dynamic and rapidly changing environments (for example, technology companies, consulting firms, educational institutions etc) where very little can be taken as static or constant.
  - In these fast moving organisations, every option for improvement has to be considered to keep the group from falling out of date.

**Pro:** Creativity and innovation are encouraged, which also improves job satisfaction among employees and team members.

**Con:** Constantly trying to achieve consensus among a group can be inefficient and, in some cases, costly.



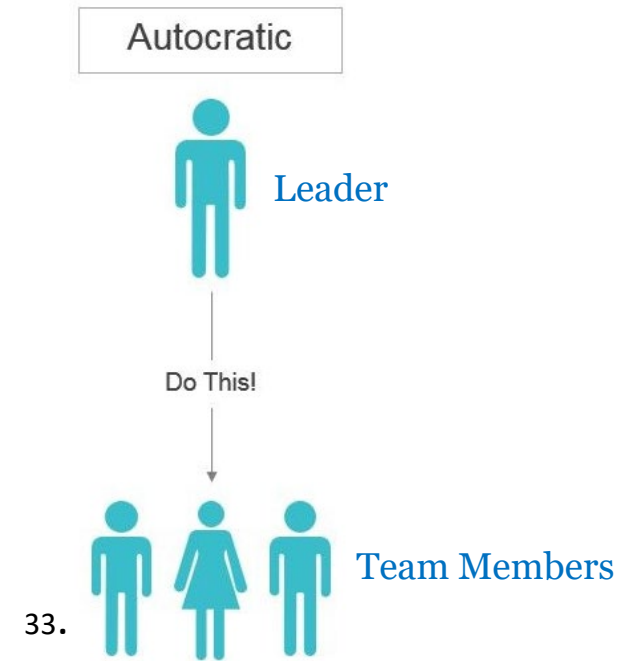
# Technical Leadership Fundamentals : Autocratic Leadership

## Autocratic Leadership

- ✓ Autocratic leadership exists on the opposite side of the spectrum from democratic leadership.
- ✓ Autocratic leaders view themselves as having absolute power and make decisions on behalf of their subordinates.
- ✓ They dictate not only what needs to be done, but also *how* those tasks should be accomplished.
- ✓ Autocratic leadership is an old style of leadership used in many workplace environments (For example, music industry, hospitality, manufacturing etc.) This style can be necessary within organisations and companies that demand error-free outcomes.
- ✓ While autocratic leadership is one of the least popular management styles, it's also among the most common.

**Pro:** Decisions are often made quickly and strategically, and teams are kept on track as a result.

**Con:** Employees can feel ignored, restricted, and—in the absolute worst of cases—even abused.



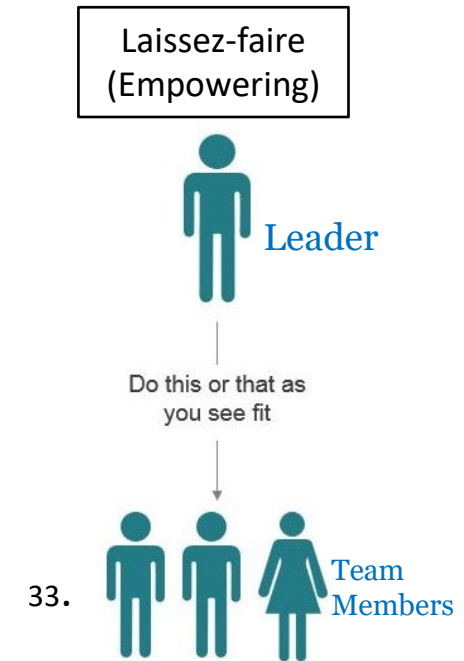
# Leadership Styles: Laissez-faire (Empowering) Leadership

## Empowering Leadership

- ✓ Laissez –faire leadership is a hands-off leadership or delegative leadership approach. It is the exact opposite of micromanagement.
- ✓ They are only involved in most tasks and projects at two key points: the beginning and the end and decisions are left to employees
- ✓ Empowering leaders provide the necessary tools and resources. But then they step back and let their team members make decisions, solve problems, and get their work accomplished—without having to worry about the leader obsessively supervising their every move.
- ✓ This approach to leadership requires a great deal of trust. Leaders need to feel confident that the members of their group possess the skills, knowledge, and follow through to complete a project without being micromanaged.
- ✓ This style is particularly effective in situations where group members are more knowledgeable than the group's leader.

**Pro:** This level of trust and independence is empowering for teams that are creative and self-motivated. It encourages innovation.

**Con:** Chaos and confusion can happen —especially if a team isn't organised or self-directed. Accountability falls to the leader.



Allowing team members to collectively make decisions

# Leadership Styles: Transformational Leadership

## Transformational Leadership

- ✓ Transformational leaders encourage, inspire and motivate employees to innovate and create change that will help grow and shape the future success of the company.
- ✓ Transformational leaders are sometimes called quiet leaders. They are the ones that lead by example. They are known to possess courage, confidence, and the willingness to make sacrifices for the greater good.
- ✓ These leaders are all about making improvements and finding better ways to get things done.
- ✓ Under transformational leaders, people have a lot of autonomy, as well as plenty of breathing room to innovate and think outside their comfort zones and push their own limits.

**Pro:** Leaders are able to establish a high level of trust with employees and rally them around a shared vision or end goal.

**Con:** In environments where existing processes are valued, this desire to change things up can ruffle some feathers.



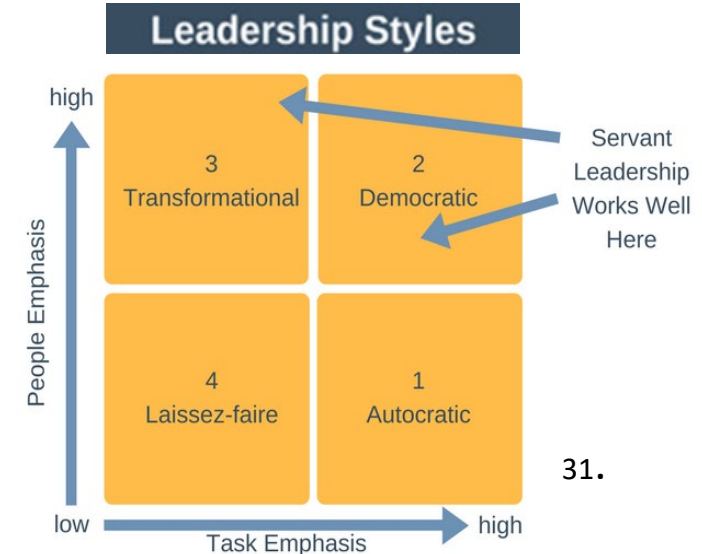
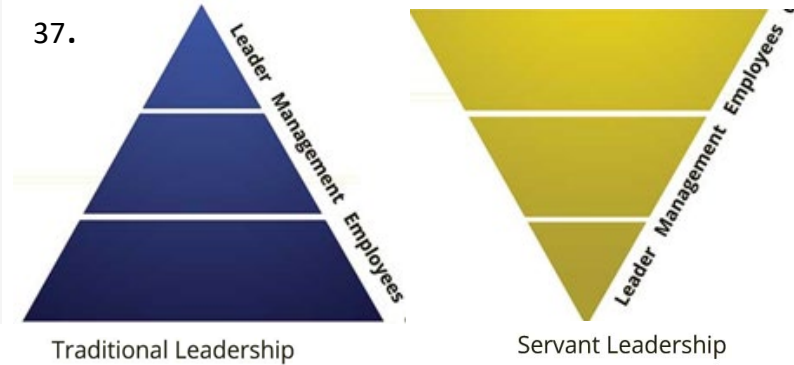
# Leadership Styles: Servant Leadership

## Servant Leadership

- ✓ Servant leaders operate with this standard motto: Serve first and lead second.
- ✓ They continually ask themselves questions such as: How can I better assist and develop the people with whom I interact?
- ✓ This approach engenders trust and loyalty, and improves performance because it focuses on the well-being of the individuals and ensures that they are engaged in their duties and organization
- ✓ Servant Leaders exercise responsibilities by delegating, empowering, offering advice, and putting others' needs before their own.
- ✓ These leaders focus on elevating and developing the people who follow them and place a high priority on removing roadblocks and helping them get things done.

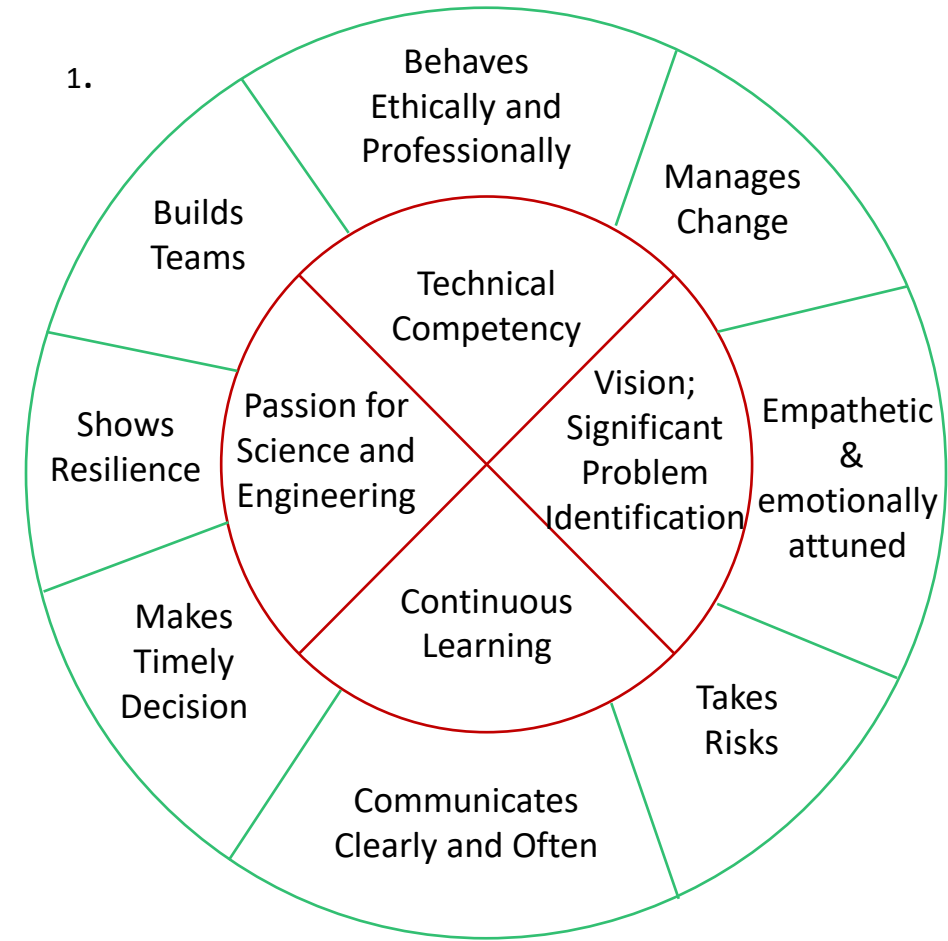
**Pro:** This approach boosts morale and leads to a high level of trust, which results in better employee performance and a more positive company culture overall.

**Con** It's challenging. Constantly putting your own needs and priorities last and prioritising others instead, isn't something that comes as second nature for most of us.



# Skill Set Possessed by successful Technical Leaders

- ✓ Irrespective of the leadership style employed, it should be clear that leaders must possess a varied skill set.
- ✓ In the diagram, the **inner ring** displays the abilities and traits that have been developed mostly during **formal education and training**.
- ✓ Without technical competency and up-to-date scientific and engineering knowledge, it will be difficult to maintain respect, trust and credibility by a team that performs technical tasks.
- ✓ The **outer ring** surrounding behaviours identify many of the activities and characteristics necessary to implement the vision and guide an effective and successful team or organization; **they represent the professional skill set required to be an effective leader**.
- ✓ Continuous learning and practice are necessary to further develop soft or professional skills.



The diagram shows the number of competencies and behaviours required for technical leaders

# Multiple – Choice and Short Answer Questions

## MCQ

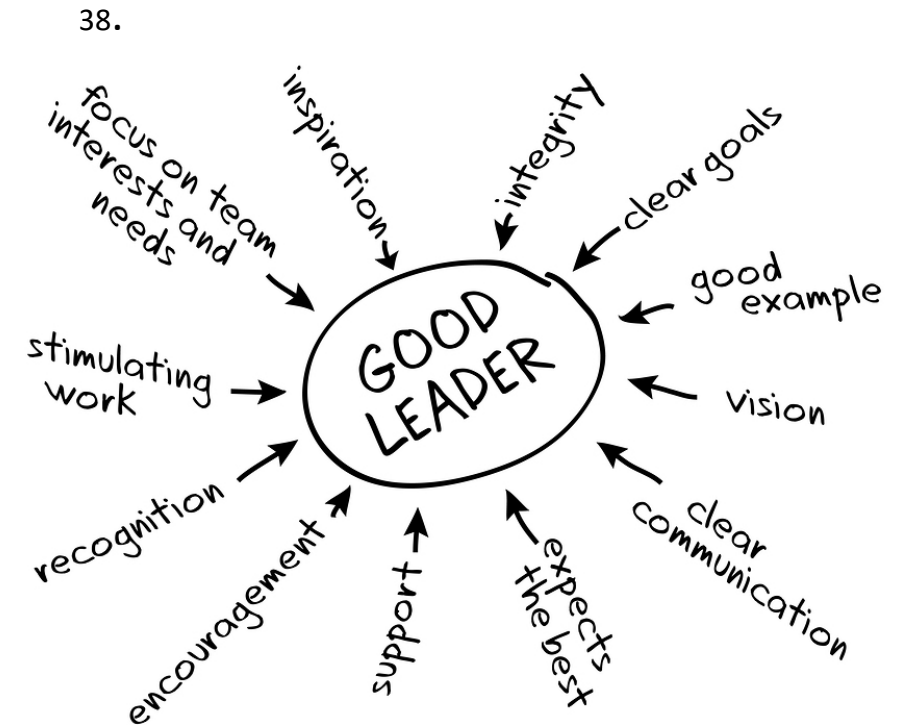
What do you call a *style of leadership* that takes into account other team members' views, opinions and ideas (select one only)?

- (i) Laissez-faire
- (ii) Democratic
- (iii) Autocratic
- (iv) Transformational

## Discussion Question

Imagine that one of your colleagues is nominating you for an award for technical leadership. Her nomination letter states that you are truly a *servant leader*.

What kinds of evidence would you expect to see in her nomination letter?



# 1.1 Technical Leadership Fundamentals:

- ✓ Examples of Leadership Quotes
- ✓ Influencing Others
- ✓ Leaders vs Managers
- ✓ Engineers as Leaders
- ✓ Effective and Ineffective Leaders
- ✓ Active Listening and Mentoring
- ✓ Leadership styles
- ✓ Values and Emotional Intelligence

# What Are Personal Values?

## Personal Values

- ✓ Personal values are the core beliefs that are important to us, the characteristics and behaviours that motivate us and guide our decisions.
- ✓ For example, maybe you value **honesty**. You believe in being honest wherever possible and you think it's important to say what you really think. When you don't speak your mind, you probably feel disappointed in yourself.
- ✓ Another example: maybe you value **kindness**. You jump at the chance to help other people, and you're generous in giving your time and resources to worthy causes or to friends and family.
- ✓ Those are just two examples of personal values, out of many.
- ✓ Everyone has their own personal values, and they can be quite different.
- ✓ Some people are competitive, while others value cooperation.
- ✓ Some people value adventure, while others prefer security.
- ✓ Values matter because you're likely to feel better if you're living according to your values and will feel worse if you don't.
- ✓ A list of personal values is shown on the right, as some examples

### List of Personal Values

1. Achievement
2. Adventure
3. Courage
4. Creativity
5. Dependability
6. Determination
7. Friendship
8. Health
9. Honesty
10. Independence
11. Integrity
12. Intelligence
13. Justice
14. Kindness
15. Learning
16. Love
17. Peace
18. Perfection
19. Security
20. Simplicity
21. Sincerity
22. Spontaneity
23. Success
24. Understanding

# Personal Values

- Use your personal values for goal setting
  - Make decisions according to your values
  - Adapt and change your values when needed
- 
- Your **personal values** are a central part of who you are – and who you want to be.
  - By becoming more aware of these important factors in your life , you can use them as a guide to make the best choice in any situation.
  - Some of life's decisions are really about determining what you **value** most.



## The Importance of Company Values

<https://elementthree.com/blog/5-examples-of-companies-with-awesome-core-values/>

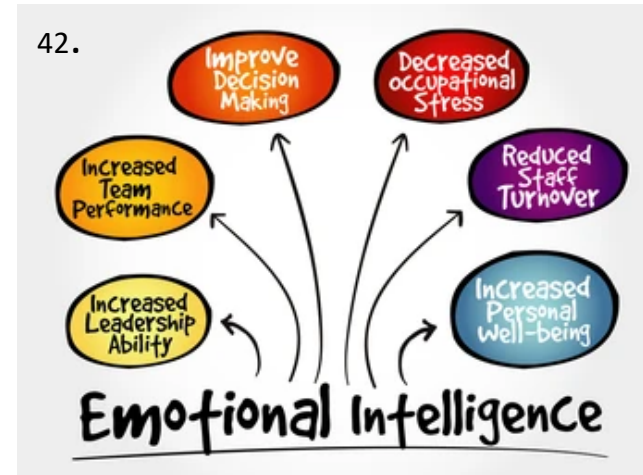


# Emotional Intelligence

- ✓ Emotional intelligence (EI) is the ability to recognise your own and other people's emotions and **manage your own emotions** in positive ways to communicate, empathise, lead, negotiate, and build relationships.
- ✓ Leaders should develop or enhance their EI to improve their ability to deal effectively with conflict and decision-making, establish trust and connection. This is a lifelong journey and requires constant unlearning and learning.

Emotional intelligence is commonly defined by **four** attributes:

- **Self-Management:** You are able to control and regulate your emotions in healthy ways, take initiative, follow through on commitments, and adapt to changing circumstances.
- **Relationship Management:** You know how to develop and maintain good relationships, communicate clearly, inspire and influence others, work well in a team, and manage conflict.
- **Self-Awareness:** You recognise your own emotions and how they affect your thoughts and behaviour. You know your strengths and weaknesses, and have self-confidence.
- **Social Awareness:** You have empathy. You can understand the emotions, needs, and concerns of other people, and foster connection among people.



43.

	What I See	What I Do
Personal Competence	<b>Self Awareness</b>	<b>Self Management</b>
Social Competence	<b>Social Awareness</b>	<b>Relationship Management</b>

Emotional Intelligence Chart

# Emotional Intelligence (EI)

- ✓ When emotional intelligence is absent in leaders, they often display lack of patience and frustration and a lack of connection.
- ✓ Such reactions lead to loss of focus on the goal(s) to be achieved and generate divisiveness and lack of respect and commitment within the team/organisation.
- ✓ Typically, such behaviour results from an inability to cope with people's personalities, unwillingness or inability to consider alternative or conflicting views, or poor interpersonal skills and stress management.
- ✓ A leader must be open-minded to views or suggestions that are different to those currently held. It is important to always have our own views challenged.

✓ Emotional intelligence can be learnt and strengthened.

## Emotional Intelligence

Different ways to practice emotional intelligence include:

- Being able to accept criticism and responsibility
- Being able to move on after making a mistake, not holding a grudge
- Being able to say no when you need to
- Being able to share your feelings with others
- Being able to solve problems in ways that work for everyone
- Having empathy for other people
- Having active listening skills
- Knowing why you do the things you do
- Being open to un-learning and learning constantly

# Multiple – Choice and Short Answer Questions

## MCQ

Emotional intelligence can be strengthened by (select one only)?

- (i) Being open to un-learning and learning constantly
- (ii) Empathising with others.
- (iii) Practising ways to maintain a positive attitude
- (iv) All of the above

## Discussion Question

Look at the list of *values* given in the previous slide:

1. Which five values are the most important to you? Why?
2. Which five values are the least important to you? Why ?
3. What other two (not listed) values are important for you personally, and especially for you in a technical career or leadership position? Why?

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