# Emerging trend in engineering management

Participate management, conflict resolution, change management, quality management, innovation management and disruption

Recent engineering management concept for managing ICT based projects and organizations

# Participative Management

- **Participative Management** is a management style where employees at all levels are actively involved in decision-making processes. It emphasizes collaboration and shared responsibility between management and employees, aiming to harness the collective expertise, creativity, and input of the workforce to improve organizational performance and foster a sense of ownership and commitment.
- Participative management emphasizes that subordinates should involve in decision making function. This develops the concept of team work and group effort. In participative management, the employee has the power to be involved in the decision-making. The whole concept of this management is run by the manager of the organization. In participative management systems, managers understand the significance of employees' perspectives because employees are the backbone of the entire organization.

- Participate management has been taken as an important tool of employee's motivational, it is a process in which subordinates involve in decision making function with their immediate supervisor in which, employees are empowered to assume greater control of the workplace.

- **Key Features of Participative Management:**

1. **Employee Involvement**: Employees are encouraged to contribute ideas, share feedback, and participate in setting goals and solving problems.
2. **Open Communication**: Transparent communication channels are maintained to facilitate the free flow of information between employees and management.
3. **Shared Decision-Making**: Decision-making responsibilities are distributed, with employees participating in choices that affect their work or the organization.
4. **Teamwork**: Emphasis is placed on teamwork and collaboration to achieve organizational objectives.
5. **Empowerment**: Employees are empowered with greater autonomy, responsibility, and trust to act in the organization's best interest.

**Benefits of Participative Management:**

1. **Improved Decision Quality**: Combining diverse perspectives often leads to better, more informed decisions.
2. **Enhanced Employee Satisfaction**: Employees feel valued and respected, which boosts morale and job satisfaction.
3. **Higher Productivity**: Engaged employees are more likely to be motivated and perform better.
4. **Fosters Innovation**: Open forums encourage creativity and innovation by leveraging the collective ideas of the workforce.
5. **Reduced Resistance to Change**: Employees are more likely to support changes when they are part of the decision-making process.

- **Challenges of Participative Management:**

1. **Time-Consuming**: Involving employees in decisions can slow down the process, especially in urgent situations.
2. **Potential for Conflict**: Differences in opinions can lead to conflicts or disagreements among team members.
3. **Requires Skilled Leadership**: Managers need strong facilitation and conflict-resolution skills to guide participative efforts effectively.
4. **Not Always Applicable**: Certain situations, such as crises, may require a more directive approach.

# Participative Management Characteristics

The following are the characteristics of participative management:

- The employee has the power to take the judgement instantly
- The employees are also part of core management
- They have opportunities to give their view on improvement
- They have the authority to give their creative ideas

- Employees have the authority to question any task running in the organization
- It is an ethical way of management because everyone is treated equally
- It helps the employees in their empowerment
- It also creates a sense of accountability for the employee
- The communication gap between the employers and management will be reduced
- Employees have the power to give feedback to their leaders
- It develops a sense of commitment in the employees

# Advantages of participative management

- The following are the advantages of participative management:
- The efficiency of the organization increases due to innovation and flexible feedback systems
- Knowledge sharing between the employee and management increases
- From the ground level to the higher authority, everyone has some power
- It helps to enhance the quality of products and lower the price of manufacturing

- Due to more frequent communication, the rate of achieving targets increases
- It develops a sense of ownership in the employee
- The quality of products and services increases because of fewer communication gaps and an improved feedback system
- The dispute between the employees decreases

- Due to an increase in contact, knowledge sharing causes more and more employees to get prepared without any organized schedule
- Goals of a participative management system
- This system acts as a driving motivation for the employees, which is very beneficial for the organization's growth. Overall growth is the main purpose of such a type of management system.
- The following are the goals of this management system:

# Improving job satisfaction

- Making the best use of employees’ potential
- Extending the possibilities of additional ways for the employees
- Increasing the interaction between the different employees
- Increasing productivity and efficiency
- Improving the association between the employees
- Improving the sense of pride in the employees
- Highlighting the skills of the employees
- Growing a more competitive environment
- Maintaining discipline in the community

# Drawbacks of the participative management system

- For some work, employees need to be supervised. This creates a sense of favoritism in the system:
- Due to freedom in decision-making, some of the employees make incorrect decisions, due to which the performance of the organization could be reduced
- Some employees may misuse the information and power given to them because of which the environment of the organization gets affected
- Labor unions are a major problem with such a type of management system
- Some of the less-knowledgeable workers may get manipulated by the other employees
- Organization politics is also the most prominent problem faced by employees
- Sometimes, decisions may be biased due to the management system getting confused about the decision

# Meaning of conflict

- Conflict is the process that begins when one party perceives that another party has negatively affected, or is about to negatively affects, something that the first party cares about.
- Conflict refers to all kinds of opposition or antagonistic interaction among individuals and group. It exists whenever one party perceives that another party has hampered or is about to hamper in the process of the accomplishment of goals. It also indicates the scarcity of various things, such as understanding, agreement and compatibility among people in a sharing environment. Such conflict can bring emotions and anxiety, lower satisfaction and decrease performance. Conflict is disagreement among two or more individuals, groups or organizations.

- Although there are differences in the conceptualization of conflict, organizational experts agree that conflict is an open expression of tensions between goals or concerns of one party and those of another. It arises when there is disagreement between two or more individuals or groups, with each individual or group trying to gain acceptance of its view or objectives over those of others.
- It can be concluded that conflict is a process by which a person or group feels frustrated in the chase of certain goals, plans or objectives. It is closely related to change and interpersonal dealings. There are three different views in conflict.

# The traditional view

- According to this view all conflicts are harmful and avoidable. Therefore, the conflict is viewed negatively and is associated with turbulence, agitation, destruction, irrationality and violence.
- The human relation view: behavioral scientists argue that conflict is a natural and inevitable outcome in any organization and as such should be accepted. Such conflict is bound to arise in organizations because an organization is composed of individuals having different goals, values and perceptions. So, conflict is unavoidable and need not always be harmful. Under certain conditions, it could lead to more innovative solutions to problems.
- The internationalist view : the modern view regards conflict as not only inevitable but useful. The internationalists ague that if harmony, peace and cooperativeness prevail in an organization for a long time, the organization is likely to become non responsive to innovating and change. A minimum level of conflict is required to enhance competency and make it critical and creative.

# The key elements of conflict include

- There are opposing interests between individuals or groups
- conflict is the opposite of cooperation.
- Conflicts are sources of creativity and innovation.
- Conflict is not bad all the time.
- Conflict should be addressed on time.
- Conflict is a dynamic process

# Types of conflict

- Conflict within an individual (intra personal conflict): intra personal conflict arises inside an individual due to divergent goals and multiple roles which the individual is expected to play. Here, in the one hand, goal conflict occurs when an individual faces the problem of choosing among competing goals. , this conflict arises due to incompatibility of individuals expected roles with his or her own values and beliefs. When a private business owner asks his secretary not to send any visitor into his private office, for an ethical secretary, it is difficult to tell visitors that his boss is not in the office. This is the conflict of expected role and personal values.
- Interpersonal conflict: this conflict arises when there are clashes of interest between tow or more individuals in the organizations. A manager at the same level in organization competes with the other managers to be promoted for a post of executive director. This is an example of interpersonal conflict.

- Conflict between the individual and the group: in some cases, although the individual belongs to a group, he or she may dislike the group's operation style and thus conflict arise. For an example, the manager takes disciplinary action only against a member of a group. This may cause conflict between the individual and the group.
- Inter group conflict: this is the conflict between two groups in an organizational this conflict arises due to clashes of group interests. A good example of such conflict is the conflict between labor and management.

- Inter organizational conflict:

Conflict that arises between two organizations is called inter organizational conflict. This type of conflict is the result of business competition when both of the conflicting parties generally engage in providing similar type of service or product. Both parties become barriers in each others success.

# Sources of conflict

- As indicated earlier, conflict interpersonal, intra personal, inter group) arise and increase in the organization with differences in the goals, interests and priorities. Below are presented important causes of conflict in organizational setting.

- Incompatibility of goals: in the situation of competing goals between individuals and groups, conflict may arise. Specially with increasing diversity in organizations, various groups represented may develop competing goals, which then become the basis of conflict.
- If the rules, regulations and policies of the organizations are not understood by employees than the conflicts arises.

- Different values and beliefs: Individual's values and beliefs are largely affected by their educational backgrounds, work experience and training. People representing a culture will have unique values and beliefs different from other cultures. When two companies merge together, people with different cultures come together and the situation of conflict arises due to differences in their values and beliefs systems. To take the example of privatization, even within a group some members believe that privatization is good for employees and the company future, whereas some others believes that it can cause layoffs.

- Scarce resources: perhaps the most obvious cause of conflict is scarce resources. No organization has unlimited resources available. Resources are always scarce. In our organizations, conflict arises at the time of allocating money, space, furniture; personnel etc. in every organization individuals and groups are competing for resources to achieve their goals.

- Task interdependence: task interdependence refers to the degree of collective action required to work for the completion given tasks. In this situation groups or group members must have to share common inputs to complete tasks. When the task of one group is interdependent with the tasks of others to share inputs and when inputs are delayed or delivered in an inco0mplete or unsatisfactory form, serious conflict may result. The higher the tasks are interdependent, the greater the chance of conflict.

- Ambiguous rules: when work rules are incomplete and difficult to understand, a situation of conflict arises. Ambiguous rules mean task ambiguity and thus it becomes difficult to work on given responsibility. Conflict will obviously also increase when there is ambiguity among individuals and groups over their responsibility and jurisdiction. There will therefore be confused and thus try to reclaim their responsibility. This will be the cause of conflict.

- Communication problem: conflict in organizations may arise due to incomplete and faulty communication between group members and groups. In this situation when two groups or individuals fail to communicate properly, there will probably apply stereotypes and explain past behavior to predict future actions. This means that they recall past communication practice and merely correct their views towards rival groups. This may escalate conflict. Many people lack skills and motivation to communicate and may result in conflict.

- Unfair labor practices: nepotism, favoritism for promotions, and providing other facilities.
- Discrimination

## Causes of conflict in the workplace

Every employee has needs and certain expectations at work, and conflict could arise in the workplace when people feel that these are not being met or are being ignored.

- poor management
- unfair treatment
- unclear job roles
- inadequate training
- poor communication
- poor work environment
- lack of equal opportunities
- bullying and harassment
- significant changes to products, organizational charts, appraisals or pay systems

# More Causes

- Personality clashes - the 'personality mix' within a team can be upset when a new member of staff joins or if two colleagues suddenly fall out. Individuals may also respond to difficult or challenging situations in an unhelpful or unproductive way.
- Unrealistic needs and expectations - conflict at work can often be caused when employers ignore the needs of employees or set unrealistic expectations. For example, arranging hours that make it difficult for employees to carry out childcare responsibilities.
- Increase in workload - sometimes workplace conflict is caused because people feel they are being pushed too hard and resentment sets in if they feel their workload is unmanageable.

# Six Sources of Conflict

- Here are six common sources within an organization that may lead to interpersonal conflict:
- **1. LACK OF ROLE CLARIFICATION**
- Conflict can emerge when it is unclear who is responsible for what task or what part of a project. Clear job descriptions and expectations can reduce this contributor to conflict.
- **2. POOR PROCESSES**
- Often poorly constructed processes and procedures can create conflict. To avoid this pitfall, it is helpful to regularly review your procedures and policies to ensure they support teamwork and collaboration.
- **3. COMMUNICATION PROBLEMS**
- This is a common contributor to conflict and can occur among all levels of staff. Keeping communication channels open and having a culture where questions are welcomed will go a long way in mitigating this contributor to conflict.

- **4. LACK OF PERFORMANCE STANDARDS**
- When performance and quality standards are not clear, individuals quickly sort out their own personal expectations around work quantity and quality. This can put them at odds with others whose standards are different. Leadership and management should be fair, clear, and consistent in articulating performance standards.
- **5. LACK OF RESOURCES**
- If employees have to compete for resources, whether it's managerial support, tools, equipment, or financial resources, the stage is set for competition and conflict. Asking employees what's needed and then providing it (if possible) will build a spirit of collaboration rather than competition.
- **6. UNREASONABLE TIME CONSTRAINTS**
- Workplace conflict can occur when coworkers are not aware of the steps involved and the time others need to complete their portion of a task or project. As a result, they may expect more of each other than is reasonable. Taking time to consider job design and cross-training employees can work to mitigate this contributor to conflict.

# Modes of conflict management

The modes of conflict management can be studied on the following way.

- Resolving conflict through negotiation
- Facilitator
- Mediator
- Arbitrator
- Legal Action

# Resolving conflict through negotiation

- Negotiation is the interactive social process in which people engage, when they aim to reach an agreement with another party or parties on behalf of themselves.  Negotiation is a resolution of a disagreement using give and take within the context of a particular relationship.

- Negotiation is a communication process used to put deals together or resolve conflicts. It is a voluntary, non binding process in which the parties control the outcome as well as the procedures by which they will make an agreement.

- Negotiation is an effective conflict management process. It refers to the process by which two conflicting parties attempt to resolve their divergent goals by redefining the terms of their interdependence. While negotiating, two conflicting parties will make a joint decision to agree, even though they still have different preferences. There are two types of negotiation strategies.

# Distributive strategy

this refers to the win lose, fixed amount situations where one party's gain is another party's loss. This type of strategy is often adopted to solve economic issues such as sharing salary and other monetary benefits in organization. One example of distributive strategy is bargaining zone model of negotiation defined as the range between one party's reservation points and the other party's maximum reservation points. Using this model, parties begin negotiations by describing their initial offer point for each item on the agenda. Both parties will try to find one another's resistance point t know the gainful area which is satisfying for both in the process of negotiation.

# Integrative strategy:

using this strategy, parties in conflict will try to find a solution of problems that will benefit both. This strategy is useful to use the resources for the benefit of all involved in the conflict process. Each party involved in conflict tries to identify issues, assess alternatives, openly expresses preferences and they jointly reach a mutually acceptable solution.

# Characteristics of negotiation

- Negotiation involves two or more parties who need each other's involvement achieving a desired outcome. There is a common interest that connects the parties.
- The parties start with different opinions or objectives.
- The parties are willing to co operate and communicate to meet their goals.

- The parties can mutually benefit or avoid harm by influencing each other.
- The parties realize that any other procedure will not produce desired outcome.
- The parties think that negotiation is the best way to resolve their differences even if they do not get their ideal outcome, both retain the hope of an acceptable outcome

# Meaning of facilitator

- "An individual who enables groups and organizations to work more effectively; to collaborate and achieve synergy. He or she is a neutral party who by not taking sides or expressing or advocating a point of view during the meeting, can advocate for fair, open, and inclusive procedures to accomplish the group's work" -

- "One who contributes *structure* and *process* to interactions so groups are able to function effectively and make high-quality decisions. A helper whose goal is to support others as they achieve exceptional performance"

- "The facilitator's job is to *support everyone to do their best thinking and practice*. To do this, the facilitator encourages full participation, promotes mutual understanding and cultivates shared responsibility. By supporting everyone to do their best thinking, a facilitator enables group members to search for inclusive solutions and build sustainable agreements" -

# Good facilitation includes

- A purpose and an agenda
- Introduce people: use name tags, if possible
- Look after physical needs: food, bathroom, room etc
- Ground rules: all ideas are valid, have your say and listen to theirs ,all participants are equal, no mobile phones, one meeting at a time, be punctual

- An open environment
- Involving all participants
- Pay attention: do not get side tracked into long discussions with individuals.
- Ask the participant to explain how their comments add value to the topic in hand.
- Reflect their comments back to the group
- Remind everyone of the time limit

# Mediation

- In mediation, two or more people come together to try to work out a solution to their problem.  A neutral third person, called the mediator, is there to help them along. Most mediators have some training in conflict resolution, although the extent of their training caries greatly. Unlike a judge or an arbitrator, the mediator does not take sides or make decisions. The mediator's job is to help the disputants evaluate their goals and options and find their own mutually satisfactory solution. In court, a judge or jury looks back to determine who was right and how was wrong, and then imposes a penalty or award based on its decision. Because the mediator has no authority to impose a decision, nothing will be decided unless both parties agree to it. It is less formal than arbitration, but there are distinct stages to the mediation process.

# Mediation process

- Stage 1.
- Mediators opening statement: the mediator introduces everyone, explains the goals and rules of the mediation, and encourages each side to work cooperatively towards a settlement.
- Step 2. Disputants: opening statements: each party is invited to describe, in his or her own words, what the dispute is about and how he or she has been affected by it her own words

- Stage 3 : joint discussion: the mediator may try to get the parties talking directly about what was said in the opening statists. This is the time to determine what issues need to be addressed.
- Stage 4: private caucuses: the private caucus is a chance for each party to meet privately with the mediator to discuss the strengths and weakness of his or her position and new ideas for settlement.

- Stage 5: joint negotiation: after caucuses, the mediator may bring the parties back together to negotiate directly
- Stage 6: closure: this is the end of the mediation. If an agreement has been reached, the mediator may put its main provisions in writing as the parties listen. The mediator may ask each side to sign the written summary of agreement or suggest they take it to lawyers for review. If the parties want to, they can write up a sign a legally binding contract. If no agreement was reached, the mediator will review whatever progress has been made and advise every one of their options, such as meeting again later, going to arbitration, or going to court.

# Arbitration,

- a form of alternative dispute resolution (ADR), is a technique for the resolution of disputes outside the courts. The parties to a dispute refer it to *arbitration* by one or more persons (the "arbitrators", "arbiters" or "arbitral tribunal"), and agree to be bound by the arbitration decision (the "award"). A third party reviews the evidence in the case and imposes a decision that is legally binding on both sides and enforceable in the courts.

- Other forms of ADR include mediation (a form of settlement negotiation facilitated by a neutral third party) and non-binding resolution by experts. Arbitration is often used for the resolution of commercial disputes, particularly in the context of international commercial transactions. In certain countries such as the United States, arbitration is also frequently employed in consumer and employment matters, where arbitration may be mandated by the terms of employment or commercial contracts.

- Arbitration can be either voluntary or mandatory (although mandatory arbitration can only come from a statute or from a contract that is voluntarily entered into, where the parties agree to hold all existing or future disputes to arbitration, without necessarily knowing, specifically, what disputes will ever occur) and can be either binding or non-binding. Non-binding arbitration is similar to mediation in that a decision cannot be imposed on the parties

- However, the principal distinction is that whereas a mediator will try to help the parties find a middle ground on which to compromise, the (non-binding) arbitrator remains totally removed from the settlement process and will only give a determination of liability and, if appropriate, an indication of the quantum of damages payable. By one definition arbitration is binding and so non-binding arbitration is technically not arbitration.

- Arbitration is a proceeding in which a dispute is resolved by an impartial adjudicator whose decision the parties to the dispute have agreed, or legislation has decreed, will be final and binding. There are limited rights of review and appeal of arbitration awards.

# Process of arbitration

- Preparation of agreement paper signing both parties of the conflict.
- Arbitrator examines the dispute through attendance of witness and investigations. The dispute is studied in detail form relevant point of view.
- The arbitrator finally makes decision to resolve the conflict. The decision is now ready to accept by the conflicting party this decision should rest on equity and justice.

# Legal action

- Legal action is the process of consulting a legal action in court. Litigation is formal way which usually presents the possibility to submit evidence and the option to appeal a judge's decision. A dispute is in litigation when it has become the subject of a formal court action or law suit.
- The term litigation encompasses the act of carrying on a legal proceeding.
- The biggest difference s between arbitration and litigation are that arbitration is private, informal and there is no possibility of an appeal to the arbitrator's decision.
- Arbitration is also much quicker and cheaper than litigation, which takes place in a public courtroom with an appointed judge presiding over the case.

# MANAGING CONFLICTS IN ORGANIZATIONS/ Conflict resolution

- Conflict management refers to the process of identifying, addressing, and resolving disagreements or disputes constructively and effectively. It involves understanding the root causes of conflict, managing emotions, and finding solutions that meet the needs of all parties involved. Proper conflict management can strengthen relationships, foster collaboration, and improve communication in both personal and professional settings.
- Conflict management includes skillful encouragement and handling of constructive conflict on one hand and resolving or limiting dysfunctional conflict on the other. So, the consequences of conflict must be determined because they may help or hurt the organization.
- Hence, constructive or functional conflict needs to be stimulated. But destructive or negative conflict must be limited through preventive or corrective measures. The manager should seek a level of conflict appropriate to the existing condition. Particularly, they are three main strategies, techniques, approaches or mechanisms to handling conflict. They are as follows.

# 1. Stimulating conflict

- Conflict is not always negative. Stimulating conflict can sometimes have a positive effect on the progress of an organization. A situation in which conflict is too low generally involves people who passively accept things the way they are rather than always trying to minimize conflict. The effective managers must determine the most effective level of conflict situation for the organization. The following methods are suggested to simulate conflict.

# a. Reorganizing

- Changing the structure of an organization is the best way of creating conflict. Breaking up old work groups and departments and reorganizing them so that they have new responsibilities. Such action will create uncertainties that call for readjustments immediately. The conflict that develops during this period may ultimately lead to improve methods of operations as members try to adjust to new circumstances.

# b. communication

- Managers can manipulate messages to stimulate conflict by ambiguous or threatening message. The rumors may be intellectually planned in the informal communication system. Sometimes a manager can also redirect messages and alter channels to encourage conflict.

# c. Encouraging competition

- The use of bonus, incentive pay and awards for excellent performance will stimulate competition. As one group is hard to break the other, constructive conflict will occur.

# d. Bringing in outsiders

- Management may shake up a stagnant organization by bringing in people whose attitudes, values and styles differ significantly from the prevailing norms. When such heterogeneous persons join an organization, the status quo is disturbed. Divergent opinions, innovative ideas and originality can be developed.

# 2. Preventing conflict

- Sometimes conflict rises to alarming levels and adversely affects the work performance in an organization. In such a case, the manager needs to prevent. The following methods may be applied to prevent conflict.

# a. Super ordinate goals.

- A super ordinate goal is a common goal that appeals to all the parties involved in the conflict and cannot be accomplished by the resources of any single party separately. Such super ordinate goals demand interdependence and cooperation between departments. For example, serve competition may force different departments to work together to ensure the survival and growth of the organization.

# b. Reducing interdependence

- The potential for conflict is very high in situations where two departments have to work in an interdependent fashion and share scare resources. As a result of this, mutual dependency, disagreement and conflict will be reduced.

# c. Exchange of personnel

- Rotation of employees between interdependent departments improves perception and understanding. Narrow perspective, department loyalties and misunderstandings created by the organizational boundaries are reduced making employees more considerate and cooperative.

# d. Liaison group or integrators

- Liaison groups or integrators are mechanisms used in organizations or group settings to facilitate communication, coordination, and collaboration between different departments, teams, or stakeholders. They act as bridges to ensure that diverse groups with potentially conflicting goals or interests work together effectively toward a common objective.

# e. Appeal to higher authority

- When conflict cannot be solved at, it may be referred to the superior . Since the superior has the authority to dictate to both the parties, he can succeed in bringing the conflicting parties.

# 3. Resolving conflict

- Conflict is an organization is inventible. Sometimes the best managers find themselves in the middle of a dysfunctional conflict. Conflict resolution means a situation in which the underlined reasons for a given conflict are eliminated. Manager can use a number of techniques to resolve conflict. Some of the common approaches are described below.

# a. Problem solving

- It involves bringing together the conflicting parties to share their problems. The focus is on sharing information to avoid misunderstanding and to find out areas of common interest. Discussion over who is right or wrong is not allowed but only discussion with regard to identification of problems and possible solution to alternatives is permitted. And at the end atmosphere of trust and openness has to be built. Thus, this method is suitable for resolving conflicts arising out of misunderstanding.

# b. Accommodating

- Accommodators set aside their own needs because they want to please others in order to keep the peace. Smoothing or harmonizing can result in a false solution to a problem and can result in feelings ranging from anger to pleasure. This style is about simply putting the other parties' needs before ones own. You allow them to win and get their way.

- Accommodating involves playing down difference among conflicting parties and highlighting similarities and areas of agreement and peaceful co existence through a recognition of common interest in the goal. Sharing of opinions removes misunderstanding and both parties realize that they are not far apart.

# c. Compromising

- This is the traditional method of conflict resolution. It is a process of bargaining where the parties negotiate on the basis of give and take principle to arrive at a mutually acceptable agreement. It is commonly used where the conflict involves difference in goals, attitudes or values. There is no distinct winner or loser because each party is expected to sacrifice something in exchange for a concession. It is the most typical ways of dealing with labor management conflict. However, compromise takes time, which the management may not be able to afford always. The amount given up by each party in conflict becomes the direct relation to its strength.

# d. avoidance

Avoiding is a deliberate decision to sidestep a conflict . In certain situation it may be appropriate to avoid a conflict. This technique is useful when issues involved in conflict are of very minor nature or when more important issues deserve attention. Avoidance strategy should be applied when one feels that people is an organization should col down so that the issue can be handled at a later date in better psychological environment.

# Change Management

- Change management is a systematic approach to dealing with the transition or transformation of an organization's goals, processes and technologies. The purpose of change management is to implement strategies for effecting and controlling change and helping people to adapt to change.
- Change management is a discipline that focuses on managing changes within an organization. Change management involves implementing approaches to prepare and support individuals, teams and leaders in making organizational change.

- Change management is a structured approach that enables individuals and organizations to transition from a current state to a desired future state. It involves preparing, supporting, and helping individuals to adopt change successfully. According to a report by McKinsey, about 70% of change initiatives fail, often due to a lack of proper change management.

- **Key Elements of Change Management:**

1. **People**: The human side of change is the primary focus, as individuals' acceptance and adaptation determine the success of any changes.
2. **Processes**: Structured methodologies and tools are used to manage the transition effectively.
3. **Outcomes**: The goal is to achieve the intended objectives of the change while minimizing disruptions and maximizing benefits.

# Types of Change in Organizations:

1. **Transformational Change**: Large-scale changes that reshape the organization, such as mergers, acquisitions, or entering new markets.
2. **Incremental Change**: Small, continuous improvements to processes, products, or services.
3. **Strategic Change**: Changes aimed at bring into line the organization with long-term goals, such as adopting a new business model.
4. **Technological Change**: Implementing new systems, tools, or technologies to improve efficiency.
5. **Cultural Change**: Modifying organizational culture to line up with new values or behaviors.

# Phases of Change Management:

1. **Preparation**:
    1. Identify the need for change and define objectives.
    2. Conduct impact assessments and stakeholder analysis.
    3. Develop a change management plan.
2. **Implementation**:
    1. Communicate the change effectively.
    2. Provide training and resources to support employees.
    3. Introduce new processes or technologies incrementally.
3. **Sustainment**:
    1. Monitor progress and measure success.
    2. Address challenges or resistance.
    3. Reinforce changes through rewards, recognition, and continued support.

# Benefits of Effective Change Management:

1. **Minimized Resistance**: Reduces pushback from employees.
2. **Increased Adoption**: Ensures smoother transitions and greater acceptance of new processes or technologies.
3. **Improved Productivity**: Limits disruptions and maintains operational efficiency.
4. **Achievement of Goals**: Enhances the likelihood of realizing the desired outcomes of change initiatives.

# Challenges in Change Management:

1. **Resistance to Change**: Employees may fear uncertainty or loss of control.
2. **Lack of Communication**: Poor communication can lead to confusion or distrust.
3. **Inadequate Resources**: Insufficient training, time, or tools can hinder the transition.
4. **Leadership Misalignment**: Inconsistent support from leadership can undermine efforts.

# Innovation management and disruption

- **Innovation Management and Disruption**
- **Innovation Management** refers to the systematic approach to fostering, planning, organizing, and implementing innovative ideas, processes, and technologies within an organization. The goal is to create value, improve efficiency, stay competitive, and respond to market needs.
- **Disruption**, on the other hand, occurs when a new innovation fundamentally changes or upends existing markets, industries, or business models, often displacing established players.

- **Innovation Management**
- Effective innovation management ensures that an organization can continuously adapt and grow in a rapidly changing world.
- **Key Elements of Innovation Management:**

1. **Idea Generation**:
    1. Foster a culture where employees and stakeholders feel encouraged to contribute ideas.
    2. Utilize brainstorming sessions, hackathons, or suggestion platforms.
2. **Evaluation and Prioritization**:
    1. Assess ideas based on feasibility, potential impact, and alignment with organizational goals.
    2. Allocate resources to the most promising initiatives.
3. **Implementation**:
    1. Develop prototypes or pilot programs to test ideas.
    2. Refine innovations based on feedback and gradually scale them.
4. **Monitoring and Improvement**:
    1. Track the progress and impact of implemented innovations.
    2. Continuously iterate to enhance results.

- **Types of Innovation:**

**1.Incremental Innovation**:

1. Small, continuous improvements to existing products, services, or processes.
2. Example: Upgrading smartphone cameras with better resolution.

**2.Disruptive Innovation**:

1. Innovations that create entirely new markets or significantly disrupt existing ones.
2. Example: Netflix disrupting traditional video rental businesses.

**3.Radical Innovation**:

1. Groundbreaking innovations that introduce completely new technologies or approaches.
2. Example: The invention of the internet.

**4.Open Innovation**:

1. Leveraging external collaborations to drive innovation.
2. Example: Partnering with universities or startups for research and development.

- **Benefits of Innovation Management:**
- Drives business growth and competitiveness.
- Encourages a culture of creativity and adaptability.
- Enhances customer satisfaction through better products and services.
- Improves operational efficiency.

- **Disruption**
- Disruption occurs when a new product, technology, or business model fundamentally changes the landscape of an industry.
- **Characteristics of Disruption:**

**1. Market Reorientation**:

1. Disruptive innovations often cater to underserved or entirely new markets.
2. Example: Low-cost airlines making air travel accessible to budget-conscious consumers.

**2. Displacement of Established Players**:

1. Traditional companies may struggle to adapt, leading to loss of market share or obsolescence.
2. Example: Digital cameras replacing film cameras.

**3. Focus on Simplicity and Accessibility**:

1. Disruptions often start with simpler, more affordable solutions before evolving.
2. Example: Smartphones replacing basic mobile phones and several standalone devices.

- **Stages of Disruption:**

**1. Emergence**:

1. A new innovation enters the market, often with limited appeal or recognition.

**2. Adoption**:

1. The innovation gains traction as it improves and becomes more accessible.

**3. Mainstreaming**:

1. The innovation becomes widely adopted, often overtaking established solutions.

- **Managing Innovation and Disruption Together**
- To thrive in an era of disruption, organizations must effectively manage innovation while anticipating and responding to potential disruptions.
- **Strategies for Success:**

1. **Foster a Culture of Agility**:
    1. Encourage continuous learning and experimentation.
    2. Adapt quickly to emerging trends and technologies.
2. **Monitor Market Trends**:
    1. Use tools like competitive analysis, customer feedback, and industry reports to identify potential disruptors.
3. **Invest in Emerging Technologies**:
    1. Dedicate resources to research and development.
    2. Partner with startups or acquire innovative companies.
4. **Diversify Offerings**:
    1. Build a portfolio of incremental and radical innovations to balance risk and reward.
5. **Empower Leadership**:
    1. Train leaders to recognize opportunities and manage disruptions effectively.
6. **Customer-Centric Approach**:
    1. Prioritize innovations that address unmet needs or pain points for customers.

# Quality management

- Quality management refers to the set of processes and practices used to ensure that products, services, or systems meet established standards and consistently satisfy customer requirements. It encompasses various principles, tools, and methodologies aimed at improving the quality of outcomes while optimizing processes. Quality management applies across industries and is essential for achieving organizational goals, customer satisfaction, and compliance with regulatory standards.

- **Key Components of Quality Management**

1. **Quality Planning**:
   Identifying quality standards relevant to the project, product, or service.
   Developing strategies and procedures to achieve these standards.
2. **Quality Assurance (QA)**:
   Systematic activities and procedures aimed at ensuring processes are followed correctly.
   Focuses on preventing defects and ensuring continuous improvement.
3. **Quality Control (QC)**:
   Involves inspection, testing, and verification of outputs to detect and correct defects.
   Ensures that products or services meet specific quality criteria.
4. **Continuous Improvement**:
   Strategies like Lean, Six Sigma, and Kaizen focus on incremental improvements in processes and systems.

**5.Customer Focus**:

Ensuring customer requirements are met or exceeded.

Involves gathering feedback, understanding needs, and adapting processes.

# Benefits of Quality Management

- **Increased customer satisfaction**
- **Enhanced operational efficiency**
- **Reduced waste and costs**
- **Improved compliance with regulations**
- **Stronger brand reputation**
- **Higher employee morale and engagement**

# Recent engineering management concepts for managing ICT based projects and organizations

- Recent engineering management concepts for managing ICT-based projects and organizations include:
- **Agile and DevOps:** These iterative approaches focus on collaboration, flexibility, and continuous improvement to deliver projects faster and with higher quality.
- **Cloud computing:** This technology allows organizations to access computing resources on demand, reducing costs and increasing scalability.
- **Artificial intelligence (AI) and machine learning (ML):** These technologies can be used to automate tasks, improve decision-making, and gain insights from data.
- **Internet of Things (IoT):** This technology allows devices to connect to the internet and share data, creating new opportunities for innovation and efficiency.
- **Blockchain:** This technology can be used to create secure and transparent transactions, making it ideal for managing supply chains and other complex systems.
- These concepts are all changing the way that ICT-based projects and organizations are managed. By understanding and applying these concepts, engineering managers can help their teams to be more successful.

- Managing ICT (Information and Communication Technology) projects and organizations requires a blend of traditional engineering management principles and modern approaches tailored to rapidly changing technologies, global team dynamics, and agile environments. Here are some **recent engineering management concepts** that are particularly relevant for ICT-based projects and organizations:

# Agile and Hybrid Project Management

- **Agile**: Emphasizes iterative development, flexibility, and customer collaboration. Frameworks like Scrum, Kanban, and SAFe (Scaled Agile Framework) are popular.
- **Hybrid Approaches**: Combines Agile with traditional methods (e.g., Waterfall) to handle complex ICT projects requiring both flexibility and structured phases.

## DevOps and DevSecOps

- **DevOps**: Focuses on seamless collaboration between development and operations teams to automate workflows and accelerate delivery.
- **DevSecOps**: Integrates security practices into DevOps to ensure robust security in fast-paced ICT environments.

# Digital Transformation Leadership

- ICT managers must drive digital transformation by adopting technologies like:
- **Cloud Computing**: AWS, Azure, and Google Cloud for scalability.
- **AI and ML Integration**: Automating processes and enabling data-driven decision-making.
- **IoT and Edge Computing**: Managing connected devices and real-time data processing.

# .Data-Driven Decision-Making

- Leveraging big data and analytics tools to guide decision-making.
- Using dashboards (e.g., Power BI, Tableau) for real-time insights into project and organizational performance.

# Sustainability in ICT Management

- Focus on green computing and sustainable practices by:
- Optimizing energy usage in data centers.
- Encouraging remote work and virtual collaboration to reduce carbon footprints.
- Designing energy-efficient systems and applications.

# Human-Centered Design (HCD) and User Experience (UX)

- Integrating HCD principles to ensure ICT systems meet user needs effectively.
- Using UX research and design thinking to prioritize end-user satisfaction.

# Adaptive Leadership

- Empowering teams to self-organize and take ownership of deliverables.
- Supporting continuous learning and professional development for teams working in dynamic ICT fields.

# Blockchain for Project Management

- Blockchain technology is increasingly used for transparency in managing resources, contracts, and workflows in ICT projects.
- Smart contracts can automate and secure agreements between stakeholders.

# AI-Driven Project Management Tools

- AI-powered platforms like Wrike, Asana, and Monday.com help automate routine tasks, predict risks, and allocate resources effectively.