

Management principles in the construction industry



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Task 1 – Management Techniques (1. 1, 1. 2, 1. 3)

Define and attribute three established definitions of management

Fredrick Taylor observed that workers were often working beneath their potential and he designed a four stage method to overcome this problem;

Break the job into its smallest elements

Select the most qualified employees to do the job and train them to do it.

Monitor the employees to ensure that they follow the prescribed methods.

Continue in this way, but only use the employees that perform the work well.

In 1911, Taylor published principles of scientific management in which he described methods of work designed to increase productivity. Many studies were performed at the Bethlehem steel company in Pittsburgh where he examined the time and motion details of work operations. He developed better methods for performing specific tasks and trained the workers to perform them.

In one experiment he increased the output of a worker loading pig iron onto a rail car. He broke the task down into its smallest operations, timing each one with a stopwatch. The task was then redesigned, reducing the number of movements as well as the effort required and the potential sources of error.

Work breaks were introduced at specific intervals for a specified duration and a differential pay scale was also used to improve the production rate.

The workers output rate increased from 12 to 47 tons per day!

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Taylor was known as the father of scientific management.

Frank (1868 to 1924) and Lillian (1878-1972) Gilbreth

The Gilbreths, a husband and wife team, developed ways to increase workers output. They believed that it was possible to design work methods whose durations could be estimated in advance, rather than using time studies based on observation.

One of his studies related to bricklaying. He filmed all of the required movements to perform the task. This enabled him to determine the tasks that made up each stage of the process.

As a result, he designed and patented special scaffolding to reduce the amount of bending and reaching. This changed an 18 stage process into a five stage process, increasing productivity by around 200%.

The Gilbreths defined motion study as breaking work down into its fundamental elements, studying the elements both separately and both in relation to each other so as to minimise waste.

They defined time study as a scientific analysis of methods and equipment used for a task, development of the best way of doing it and determination of the time required to perform it.

Frank Gilbreth is known as the father of time and motion studies.

Administrative Management

Administrative management considers the running of the total organisation.

Some of the major contributors are:

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Henri Fayol (1841 to 1925) was a French engineer.

Fayol was the first to distinguish the four management functions:

- Planning
- Organising
- Leading
- Controlling

Fayol was known as the father of modern management

His principles of management included, division of work, authority and responsibility, discipline and order, unity of command and direction, subordination of individual interests to general goals, job security and remuneration of personnel.

Max Weber (1864 to 1920) was a German sociologist and economist

Weber outlined the concept of bureaucracy. He saw bureaucracy as the most logical and appropriate structure for large organisations. Bureaucracies are based on authority which comes from law, procedures, rules, etc.

He believed that efficiency in bureaucracies comes from:

Hierarchical structure

Clearly defined and specialised job functions

Use of strict and systematic rules and procedures

Appointment of employees to job based on technical expertise

Promotions of employees based on competence

Clearly defined career paths

His work is the foundation of contemporary organisation theory.

Mary parker Follett (1868 to 1933) was an American lecturer and management consultant

Follet's concepts included:

The universal goal

The universal goal of organisations is an integration of individual effort into that of the whole company.

The universal principle

The universal principle involves reciprocal response emphasising feedback to the sender, (the concept of two way communication).

The law situation

The law of the situation emphasises that there is not a single best way of doing anything, but that it all depends on the situation.

Behavioural or human relations Management, which appeared in the 1920s, dealt with the human aspects of the organisations. Initially, it was a reaction to the shortcomings of the classical theories of management.

Behavioural research began with the Hawthorne studies which were conducted between 1924 and 1933 at the Hawthorne plant of the western electric company in Cicero, Illinois by Elton Mayo and his colleagues.

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Elton Mayo (1880 to 1949)

Mayo believed that work satisfaction depends more on working conditions and attitudes than on the level of remuneration. He rejected 'Taylorism' and that work should be considered as a group activity.

He proposed that workers needed recognition of their efforts and that a sense of belonging was more important than the physical working conditions.

Mayo identified the Hawthorne effect. This is the bias that occurs when people know that they are being observed.

The Hawthorne studies

The Hawthorne studies included the 'Illumination experiments'.

The aim of these studies was to investigate the effect of operating conditions on productivity. Illumination experiments were carried out to establish whether better lighting conditions would lead to increased productivity.

It was found that employees productivity increased whether the light were turned up or down. However, the increased productivity was found to be a result of the attention received by the group, not the working conditions.

Another study found that employees do not work as fast as they can when they are being paid piece rate wages. Instead, they will perform informally to a level set by the group.

The conclusion was that there was no direct cause and effect between operating conditions and productivity. Worker attitude and peer pressure was found to be more important.

1. 2 Explain the principles and processes of management: forecasting

The Principles and forecasting of Management

Principles of Management

The principles are;

To command

Maintain the activity among the personnel.

Forecasting

To be able to predict the outcomes of business behaviour or industry sector through the use of experience, qualification or with the use of statistics or other previous records.

(The go to place for management)

Forecasting is an effective practice use as a starting point for management planning and decision making. General types of forecasting include trend examination, regression analysis, Delphi technique, time series analysis, correlation, exponential smoothing, and input-output analysis.

Daily business planning

Planning is an incredibly effective way for managers to stay focused on achieving their own goals and the goals of the organization for which they represent.

Organising

Build up the structure, both material and human, of the undertaking.

Motivating

To encourage and inspire other to carry out tasks or jobs to be completed and maintain momentum or the working pace of the operatives.

Controlling

Seeing that everything occurs in conformity with established rule and expressed command.

Coordinating

Binding together, unifying and harmonizing all activity and effort.

Communicating

Henri Fayol published 14 principles of management these principles are:

(Fayol)

- Division of Work. Specialization allows the individual to build up experience, and to continuously improve his skills. Thereby he can be more productive.

- Authority. The right to issue commands, along with which must go the balanced responsibility for its function.
- Discipline. Employees must obey, but this is two-sided: employees will only obey orders if management play their part by providing good leadership.
- Unity of Command. Each worker should have only one boss with no other conflicting lines of command.
- Unity of Direction. People engaged in the same kind of activities must have the same objectives in a single plan. This is essential to ensure unity and coordination in the enterprise. Unity of command does not exist without unity of direction but does not necessarily flow from it.
- Subordination of individual interest (to the general interest). Management must see that the goals of the firms are always paramount.
- Remuneration. Payment is an important motivator although by analyzing a number of possibilities, Fayol points out that there is no such thing as a perfect system.
- Centralization (or Decentralization). This is a matter of degree depending on the condition of the business and the quality of its personnel.
- Scalar chain (Line of Authority). A hierarchy is necessary for unity of direction. But lateral communication is also fundamental, as long as superiors know that such communication is taking place. Scalar chain refers to the number of levels in the hierarchy from the ultimate authority to the lowest level in the organization. It should not be over-stretched and consist of too-many levels.

- Order. Both material order and social order are necessary. The former minimizes lost time and useless handling of materials. The latter is achieved through organization and selection.
- Equity. In running a business a ' combination of kindness and justice' is needed. Treating employees well is important to achieve equity.
- Stability of Tenure of Personnel. Employees work better if job security and career progress are assured to them. An insecure tenure and a high rate of employee turnover will affect the organization adversely.
- Initiative. Allowing all personnel to show their initiative in some way is a source of strength for the organization. Even though it may well involve a sacrifice of ' personal vanity' on the part of many managers.
- Esprit de Corps. Management must foster the morale of its employees. He further suggests that: " real talent is needed to coordinate effort, encourage keenness, use each person's abilities, and reward each one's merit without arousing possible jealousies and disturbing harmonious relations."

1. 3 Identify the motivational needs of individuals and groups, leadership styles and concepts of team working.

Motivational Needs

Organization of goals, function within addition to ideals among employees, teams and company is the generally essential part of motivation. The better the arrangement and personal union with organizational aim, the healthier the podium for incentive.

Anywhere persons find it hard to support and unite with the organizational aims, and then mainly motivational ideas and actions will have a reduced level of success.

Motivation is a difficult subject. It differentiates for each person.

Motivational receptivity and potential in everyone differs from day to day, from situation to situation. Get the alignment and values right, and motivational methods work out better. Motivational methods of every sort will not work if some people or organisations are not aligned. People are more interested or gravitate towards something they can relate to and something they can believe in. Times have changed. People want more.

Motivational and inspirational quotes, poems, posters, motivational speakers and stories, team building games and activities, all develop employee motivation for sales and business staff in all kinds of organizations.

Motivational and inspirational experiences improve employees' attitudes, confidence and performance.

Leadership styles

Charismatic Leadership

Charismatic Leaders use a wide range of methods to manage their image and, if they are not naturally charismatic, may practice assiduously at developing their skills. They may engender trust through visible self-sacrifice and taking personal risks in the name of their beliefs. They will show great confidence in their followers. They are very persuasive and make very effective use of body language as well as verbal language.

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Participative Leadership

A Participative Leader, rather than taking autocratic decisions, seeks to involve other people in the process, possibly including subordinates, peers, superiors and other stakeholders. Often, however, as it is within the managers' whim to give or deny control to his or her subordinates, most participative activity is within the immediate team. The question of how much influence others are given thus may vary on the manager's preferences and beliefs, and a whole spectrum of participation is possible, as in the table below.

Situational leadership

The best action of the leader depends on a range of situational factors.

When a decision is needed, an effective leader does not just fall into a single preferred style, such as using transactional or transformational methods. In practice, as they say, things are not that simple.

Factors that affect situational decisions include motivation and capability of followers. This, in turn, is affected by factors within the particular situation. The relationship between followers and the leader may be another factor that affects leader behaviour as much as it does follower behaviour.

Transactional Leadership

The transactional leader works through creating clear structures whereby it is clear what is required of their subordinates, and the rewards that they get

for following orders. Punishments are not always mentioned, but they are also well-understood and formal systems of discipline are usually in place.

The early stage of Transactional Leadership is in negotiating the contract whereby the subordinate is given a salary and other benefits, and the company (and by implication the subordinate's manager) gets authority over the subordinate.

When the Transactional Leader allocates work to a subordinate, they are considered to be fully responsible for it, whether or not they have the resources or capability to carry it out. When things go wrong, then the subordinate is considered to be personally at fault, and is punished for their failure (just as they are rewarded for succeeding).

Transformational Leadership

Transformational Leadership starts with the development of a vision, a view of the future that will excite and convert potential followers. This vision may be developed by the leader, by the senior team or may emerge from a broad series of discussions. The important factor is the leader buys into it, hook, line and sinker.

The next step, which in fact never stops, is to constantly sell the vision. This takes energy and commitment, as few people will immediately buy into a radical vision, and some will join the show much more slowly than others.

The Transformational Leader thus takes every opportunity and will use whatever works to convince others to climb on board the bandwagon.

In order to create followers, the Transformational Leader has to be very careful in creating trust, and their personal integrity is a critical part of the package that they are selling. In effect, they are selling themselves as well as the vision.

The quiet Leader

The approach of quiet leaders is the antithesis of the classic charismatic (and often transformational) leaders in that they base their success not on ego and force of character but on their thoughts and actions. Although they are strongly task-focused, they are neither bullies nor unnecessarily unkind and may persuade people through rational argument and a form of benevolent Transactional Leadership.

Servant Leadership

It is easy to dismiss servant leadership as soft and easy, though this is not necessarily so, as individual followers may be expected to make sacrifices for the good of the whole, in the way of the servant leader.

The focus on the less privileged in society shows the servant leader as serving not just their followers but also the whole of society.

Servant leadership is a natural model for working in the public sector. It requires more careful interpretation in the private sector lest the needs of the shareholders and customers and the rigors of market competition are lost.

Task 2 – Leading by Example (2. 1, 2. 5, 4. 3, 4. 4, 4. 5)

2. 1 Describe in outline the main markets, activities and services provided by the construction and built environment sector.

The Main Markets

New build Housing

The housing market is the supply and demand for homes, normally in a particular country or county, a primary element of the housing market is the average house prices and activity in house prices.

The availability of housing and the amount of housing stock fluctuates house prices sectors include the rented sector. Buy to let investment and the requirement from tenants, government intervention controls and Influences the Housing market

Interest rates also influence the cost of erratic mortgages market conditions and mortgage activity, plays an important part in whether people are eligible for mortgages financial progress, incomes and unemployment rates population and geographic trends also have influences in this market place

The UK Housing Market is habitually unpredictable because of a variety of factors. The UK Housing market often has influence over wider economy. E. g. when house prices are decreasing, consumer spending tends to fall because the housing market always dictates for the economy and individual homeowners, it is essential to try and predict or foresee the future movements in the housing market.

Industrial & Commercial Markets

This industry consists of units generally occupied in the construction and development of commercial and industrial non-residential buildings. This category also consists of elements occupied in carrying out additions, alterations or renovations or general repairs or remodelling to commercial and industrial buildings or in organising or managing the construction. Establishments mainly engaged in the construction of institutional non-residential buildings such as schools hospitals and other government buildings.

Infrastructure Markets

The general dependable systems of a community or countries population, including utilities, water, sewage, roads, etc. These systems are considered paramount for enabling growth in an economy. Building and developing an infrastructure often requires huge investment, but the economies of scale tend to be significant.

2. 5 Define and explain the application of a mission statement, strategy, corporate planning, policy and objectives to the activities of a practice or firm

A mission statement is a formal short statement of the purpose of a company or organisation. The mission statement should guide the actions of the organisation, spell out its overall goal, provide a sense of direction, and guide decision making. It provides the framework or context within which the company's strategies are formulated.

Historically it is associated with Christian religious groups; indeed, for many years a missionary was assumed to be a person on a specifically religious

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mission. The word “ mission” dates from 1598, originally of Jesuits sending members abroad.

Corporate planning

Corporate planning is the continua’s process of making present risk-taking decisions systematically and with the greatest knowledge of their futurity; organising systematically the efforts needed to carry out these decisions, and measuring the results of these decisions against the expectations through organised, systematic feedback.

Planning at the highest level in an organisation, involving an analysis of the current situation, the setting of objectives, the formulation of strategies and tactics, implementation and evaluation.

4. 3 Describe what is meant by multi discipline non adversarial working in project teams (Lathem Report).

Multi discipline means a person firm or group offering multiple disciplines in which they specialize. If a task requires more than one type of specialist/function, it requires multi-disciplined group or person.

Non- adversarial means there is a spirit of co operation, a passive stance, the parties are willing to reach a mutually satisfying resolution to a problem. There is persuasion rather than coercion.

The Lathem report

The Lathem report was an influential report written by sir Michael Lathem. Commissioned by the United Kingdom Government and industry to review procurement and contractual arrangements in the construction industry. It

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tackled the most controversial issues facing the industry during a period of lapse in growth as a whole.

The Latham report of July 1994 was sponsored by UK Government and industry following several poorly performing projects. The inefficiencies identified pointed to the need for partnering and collaboration in the construction sector. The Latham report 1994 'constructing the team' a joint industry - government report was based on a simple concept that through teamwork the construction industry could delight its consumers. The report acted as a wake up with all the urgency of an emergency siren. This was a report that had to be listened to, the industry couldn't but help but hear the cries for reform. The industry was ineffective, adversarial, fragmented, and incapable of delivering for its customers` and lacking respect for its employees` more than just ringing alarm bells the Latham report set the agenda for reform and gave the industry targets. From this a raft of initiatives flowed. The report led to the establishment of the construction industry board to oversee reform and subsequent initiatives were the Egan report 1998 'Rethinking construction' the construction best practice programme, The movement for innovation` and construction excellence` all designed to drive the industry forward.

4. 4 Evaluate the concept of sharing “ best practice” and “ benchmarking” the performance of a practice/firms activities

Best practice is a method or technique, method, process, activity, incentive, or reward that is believed to be more effective at delivering a particular outcome than any other technique, method, process, etc. When applied to a

particular condition or circumstance. The idea is that with proper processes, check, and testing, a desired outcome can be delivered with fewer problems or unforeseen circumstances, best practice can also be defined as the most efficient and effective way of accomplishing a task , based upon repeatable procedures that have proven themselves over time for large numbers of people.

A given best practice is only applicable to a particular condition or circumstance and may have to be modified or adapted for similar circumstance. In addition, a best practice can evolve to become better as improvements are discovered.

Despite the need to improve on processes as the environment changes , best practice is considered by some as business buzzword used to describe the process of developing and following a standard way of doing things that multiple organisations can use for managements, policy, and software systems.

As a term becomes more popular, some organisations have begun using the term best practices to refer to what are in fact merely `rules` causing a linguistic drift in which a new term such as good idea's is needed to refer to what previously would have been called `best practice` .

4. 5 Explain how “ sustainable Construction” and environmental

Management/Conservation Issues impact on the organisation and operation of a project/organisation.

Sustainable construction & Environmental management

The strategy for sustainable construction is a joint industry and government initiative intended to promote leadership and behavioural change, as well as delivering benefits to both the construction industry and the wider economy.

The output of the construction industry has a major impact on our ability to maintain a sustainable economy overall and has a major impact on our environment, moreover, it is clear that we cannot meet our declared environmental targets without dramatically reducing the environmental impact of buildings and infrastructure construction, we have to change the way we design and build.

The business case for sustainable construction agenda is based upon increasing profitability by using resources more efficiently, firms who offer sustainable products and ways of working are more likely to secure building contracts, by enhancing their company image and profile in the market place by addressing issues related to corporate and social responsibility, and sustainable construction. Construction companies competing in this market place must address issues such as:

- Design quality
- Energy
- Health and safety
- Materials

- Procurement
- Skills
- Social responsibility
- Surface water management
- Waste
- Water use
- Facilities management

Task 3 – Organisation (2. 2, 2. 3, 2. 4)

2. 2 Identify the roles of the different professions/disciplines within the “ design” construction and installation team and the main cycle of work activity.

Design

Client, lead consultant, CDM coordinator, Cost consultant, Lead designer, Architect structural engineer, services engineer, contractor

Construction

Principle contractor, managing director, contracts manager, project manager , site manager, assistant site manager, foreman. Labourer.

Installation teams

Surveyor, setting out engineer, groundwork’s subcontractor, brickwork subcontractor, steel frame subcontractor, concrete slab subcontractor, floor screed subcontractor, carpentry subcontractor, mechanical and electrical subcontractor, cladding contractor roofing contractor, telecoms contractor, scaffolding contractor, dry lining subcontractor, British gas southern electric.

2. 3 Produce an organisation structure that includes examples and explanations of direct line, lateral functional and staff relationships and also explain with examples, span of control chain of command centralised versus decentralised and job design.

Directors

Managers

Managers

Section heads

Section heads

Section heads

Section heads

Section heads

Section heads

Managers

Explanations of direct line.

The director

Directors have many business responsibilities for ensuring the success of their company, in areas such as health and safety, employment law and tax.

The contracts Manager

He / she will be responsible for the successful procurement, progress and completion of several contracts at any time.

Planning and Control

Planning

Designing a methodical process for accomplishing the goals of the organisation / preparing the organisation for the future

Organising

Arranging the resources to carry out the plan / the process of creating the company structure, establishing relationships and allocating resources to achieve the organisational goals.

Directing

Guiding, leading and supervising employees to achieve the organisational goals

Controlling

Verifying that actual performance matches the plan/ if it does not match the actual plan then corrective action needs to be taken.

Lateral functions

There are also lateral functions in the job functions and personal roles in the areas of design, planning and construction there are senior manager's and operative in all areas who need to liaise and work together to achieve the goals of the organisation.

2. 4 Identify project based organisation structures.

Health & Safety Consultant

CDM Coordinator

Subcontractors Employees

Subcontractors

Subcontractors

Subcontractors

Subcontractors

Subcontractors

Subcontractors

Assistant Manager

Site Manager

Project Manager

Section heads

CDM Coordinator

The CDM co-ordinator is there to advise and assist with CDM duties on notifiable jobs. They will:

- advise on selecting competent designers and contractors;

- help identify what information will be needed by designers and contractors;
- co-ordinate the arrangements for health and safety during the planning phase;
- ensure that HSE is notified of the project;
- tell if the initial construction phase plan is suitable; and
- prepare a health and safety file (this contains useful information needed to enable future cleaning, maintenance and alterations to be carried out Safely).

The appointment of the CDM co-ordinator is better done soon as possible, but no later than the initial design/preparation stage.

Health and Safety consultant

Normally familiar with working within a construction site environment, roaming various sites to ensure that health and safety standards are being met according to statutory regulations and company and client standards.

The Project Manager

A project manager is often a client representative and has to determine and implement the exact needs of the client, based on knowledge of the firm they are representing. The ability to adapt to the various internal procedures of the contracting party, and to form close links with the nominated representatives, is essential in ensuring that the key issues of cost, time, quality and above all, client satisfaction, can be realized.

The Site Manager

He /She will be responsible for the day to day running of the site the job normally involves

- Producing the site layout plan
- Setting up the dimensional control of the works
- Interpreting the drawings and specifications
- Liaising with the architects and engineers
- Checking the quality of the work
- Ensuring a safe site environment

Planning

3. 1 Describe techniques used to organise the layout, resourcing and accommodation of the project

The techniques used to organise the layout of the project is called a site layout plan.

All construction projects of any notable size require the provision of substantial amounts of temporary facilities (TF). One of the initial tasks to be undertaken on any construction site is the construction of the temporary accommodation and associated site compound. The compound is required for safety and security whilst various types of temporary facilities are required the most common being,

Office Accommodation

(Reception, General Office, Engineers Office, Project Managers Office etc.)

Welfare Facilities Accommodation

(Canteen, Toilets, Showers, Drying Rooms etc.)

Storage Accommodation

(Valuable and Hazardous Materials storage facilities)

3. 2 Describe with examples, methods of work planning, monitoring and progress control u