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1ai) The 6m’s of management refers to the components that need to be managed for any function or operation - manpower, money, machinery, material, market and method.

Manpower: Manpower planning is a very important tool and technique of human resource management. It basically aims at maintaining and improving the ability of an organization to attain the goals of an organization by developing and utilizing properly its human resources.

Money: Money management broadly refers to the process of budgeting, investing, saving, and spending with one's finances. Financial advisors and personal finance apps are increasingly common in helping individuals manage their money better. Sometimes money management refers more narrowly to investment or portfolio management.

Machinery: Effective machinery management implies effective decision making and implementation in all aspects of selecting operation, making right choice on equipment, ownership, appropriate power-implement match, operation financing and controls on machinery utilization for optimum output.

Material: Materials Management is simply the process by which an organization is supplied with the goods and services that it needs to achieve its objectives of buying, storage and movement of materials.

Market: Marketing management is defined as the process of overseeing and planning new product development, advertising, promotions and sales. An example of marketing management is creating an advertising plan and implementing that plan.

Method: A popular method of management is what is referred to as 'management by objectives'. This involves setting objectives and targets for different aspects of the organization. The manager’s job is then to make sure that these objectives are achieved given an allocated amount of resources.

1a)ii) Information can be defined as the resolution of uncertainty; it is that which answers the question of "what an entity is" and thus defines both its essence and nature of its characteristics. The concept of information has different meanings in different contexts. Thus the concept becomes related to notions of constraint, communication, control, data, form, education, knowledge, meaning, understanding, mental stimuli, pattern, perception, representation, and entropy.

Information is associated with data, as data represents values attributed to parameters, and information is data in context and with meaning attached. Information also relates to knowledge, as knowledge signifies understanding of an abstract or concrete concept.

1a)iii) System can be defined as a group of interacting or interrelated entities that form a unified whole. A system is described by its spatial and temporal boundaries, surrounded and influenced by its environment, described by its structure and purpose and expressed in its functioning. Systems are the subjects of study of systems theory.

1a)iv) Management Information System can be defined as an information system used for decision-making, and for the coordination, control, analysis, and visualization of information in an organization. The study of the management information systems testing people, processes and technology in an organizational context.

1b) 5 area in which management information system is used are: 1) computer system design. 2) finance 3) Government 4) sales and marketing 5) human resources.

1c.) **5 characterisics of Management information system**:

1. System approach: MIS follows the system approach, which implies a step by step approach to the study of system and its performance in the light of the objective for which it has been constituted. It means taking an inclusive view at sub-systems to operate within an organization.

2. Management-oriented: The management-oriented characteristic of MIS implies that top-down approach needs to be followed for designing MIS. A top-down method says the initiation of system development determines management requirements as well as business goals. MIS implies the management dynamically to the system development towards the completion of management decision.

3. As per requirements: The design and development of MIS should be as per the information required by the managers. The required design and development information is at different levels, viz., strategic planning, management control and operational control. It means MIS should cater to the specific needs of managers in the hierarchy of an organization.

4. Future-oriented: The design and development of MIS should also be future purpose so that the system is not restricted to provide only the past information.

5. Common data flows: This concept supports numerous basic views of system analysis such as avoiding duplication, combining similar functions and simplifying operations. The expansion of common data flow is a cost-effectively and logical concept.

2a.)



Planning:

A business must plan for success. What does it mean to plan? It is about deciding on a course of action to reach a desired outcome. Planning must occur at all levels. First, it occurs at the high level of setting strategy. It then moves to broad-based thought about how to establish an optimum “position” to maximize the potential for realization of goals. Finally, planning must give thoughtful consideration to financial realities/constraints and anticipated monetary outcomes (budgets).

Control:

Magnify Illustration Things rarely go exactly as planned, and management must make a concerted effort to monitor and adjust for deviations. The managerial accountant is a major facilitator of this control process, including exploration of alternative corrective strategies to remedy unfavorable situations.

In addition, a recent trend is for enhanced internal controls and mandatory certifications by CEOs and CFOs as to the accuracy of financial reports. These certifications carry penalties of perjury, and have gotten the attention of corporate executives. This has led to greatly expanded emphasis on controls of the various internal and external reporting mechanisms.

Decision Making:

Good decision making is rarely done by intuition. Consistently good decisions result from diligent accumulation and evaluation of information. Managerial accounting provides the information needed to fuel the decision-making process. Managerial decisions can be categorized according to three interrelated business processes: planning, directing, and controlling. Correct execution of each of these activities culminates in the creation of business value. Conversely, failure to plan, direct, or control is a road map to failure. The central theme is this: (1) business value results from good decisions, (2) decisions must occur across a spectrum of planning, directing, and controlling activities, and (3) quality decision making can only consistently occur by reliance on information.

Information Flow:

Information or communication flow within an organization refers to the movement of instructions and communications within an organization. There can be several directions in which it takes place within an organization such as downward, upward, horizontal, diagonal and external. The direction of information within an organization depends on the size, structure and the nature of the business. In the case of most of the traditional organizations, the flow of information occurs in a vertical motion that is in a downward and upward direction. In such situations, the managers give instructions to the subordinates and hence the flow of information travels from an upward to a downward direction.

2b.) **Capital Budgeting Process**:

Capital budgeting Process is a company’s formal process used for evaluating potential expenditures or investments that are significant in amount. It involves the decision to invest the current funds for addition, disposition, modification or replacement of fixed assets. The large expenditures include the purchase of fixed assets like land and building, new equipments, rebuilding or replacing existing equipments, research and development, etc. The large amounts spent for these types of projects are known as capital expenditures. Capital Budgeting is a tool for maximizing a company’s future profits since most companies are able to manage only a limited number of large projects at any one time.

Capital budgeting usually involves calculation of each project’s future accounting profit by period, the cash flow by period, the present value of cash flows after considering time value of money, the number of years it takes for a project’s cash flow to pay back the initial cash investment, an assessment of risk, and various other factors.

3a.) Information technology (IT) is the use of computers to store, retrieve, transmit, and manipulate data or information. IT is typically used within the context of business operations as opposed to personal or entertainment technologies. IT is considered to be a subset of information and communications technology.

3b.) **Difference Between Videoconferencing and Teleconferencing**

1) Audio or Visual:

Video conferencing, as the name suggests, allows people to see each other as well as hear each other. Teleconferencing, on the other hand, only has audio. You can pick one depending on the kind of conference you need to have. Both video conferencing and teleconferencing have their pros and cons.

2) Participation:

Teleconferencing allows you to be a part of a virtual meeting even while you’re on the move. As for Web Video Conferencing, one cannot participate in such a conference while traveling as other participants can see your surroundings. If you do participate in a video conferencing while traveling, not only is it disrespectful, it can also prove to be distracting to the people on the video call with you.

3) Number of Participants:

More people can participate in a video conference than in a teleconference. In a teleconference, if there are more than a handful of people, things become a lot more chaotic. They are more useful for smaller groups and quicker discussions. However, in a video conference, people are able to stay more disciplined. This is because of certain video meeting tools that are offered by Zoom. These tools split the screen for multiple participants, while automatically focusing on the one speaking. Participants can also mute themselves if they aren’t speaking reducing the amount of chaos that is caused.

4) Convenience:

In video conferences through zoom, participants can also be divided into Zoom rooms, where a smaller group can discuss topics effectively or even discuss different things. This creates space for lengthier, more effective discussion and brainstorming. However, this is not possible with teleconferencing as conference calls allow only for one main group.

5) Effectiveness and support

Zoom video conferencing technology also makes sharing presentations, data and reports easier through features like screen sharing and interactive whiteboards along with other collaboration tools while being on the video call. This makes it much easier for people to be on the same page, figuratively and literally. In teleconferencing, you have to be a little more old-fashioned with a separate device or a paper file with the information in front of you. While both types of virtual business meetings are effective, video conferences allow you to have visual support for your information in a more convenient manner.

3c.) **Three (3) areas of applications of Information Technology (IT) in Organization:**

1. Data Management Systems

2. Management Information Systems

3. Customer Relationship Management

4a)

i) Capital Project: A capital project is a long-term, capital-intensive investment project with a purpose to build upon, add to, or improve a capital asset. Capital projects are defined by their large scale and large cost relative to other investments that involve less planning and resources.

ii) Capital Budgeting: Capital budgeting is the process that a business uses to determine which proposed fixed asset purchases it should accept, and which should be declined. This process is used to create a quantitative view of each proposed fixed asset investment, thereby giving a rational basis for making a judgment. Ideally, businesses would pursue any and all projects and opportunities that enhance shareholder value. However, because the amount of capital any business has available for new projects is limited, management uses capital budgeting techniques to determine which projects will yield the best return over an applicable period.

iii) Budget: A budget is a microeconomic concept that shows the trade-off made when one good is exchanged for another. In terms of the bottom line – or the end result of this trade-off – a surplus budget means profits are anticipated, a balanced budget means revenues are expected to equal expenses, and a deficit budget means expenses will exceed revenues.

(iv) Capital Rationing: Capital rationing is the act of placing restrictions on the amount of new investments or projects undertaken by a company. This is accomplished by imposing a higher cost of capital for investment consideration or by setting a ceiling on specific portions of a budget. Companies may want to implement capital rationing in situations where past returns of an investment were lower than expected.

4b.) **5 investment decision criteria:**

1) Net Present Value (NPV)

2) Internal Rate Of Return (IRR)

3) Profitability Index (PI)

4) Pay Back Period (PBP)

5) Benefit Cost Ratio (BCR)

5a) The challenge of General elections being postponed on the implementation of its logistics and operational plan can be mitigated by using Logistics information system as an expert system for managing logistics processes trough the following:

Working with logistics information is a continuous process of collecting, processing, preservation, analysis and presentation of information on the course of operation of the planned logistic support at all levels. All this is aimed at supporting the decision-making bodies and at the optimization of logistics management support. The duty of all authorities is to define precisely the information objects (vehicles, persons, units) and their characteristics which will be monitored in the form of reports submitted to higher levels. The periodic and additional records, reports and collected information are in accordance with the needs and the available data.

Modern working processes, modernization of institutions, influences from developed countries, emerging challenges and trends show the need for keeping up with these developments in all spheres of society, including the sphere of defense

The problems of today’s working practices (characterized by outdated methods, business techniques, technology and systems, data inconsistency, poor visibility of fixed assets and supplies, lack of accurate information and slow flow of information) have imposed the necessity of introducing an automated information system that will satisfy the following needs and requirements: compatibility with the NATO standards, the need for accurate and timely data, precision in planning, budget versus reality, better consumption control, sustainable and proactive planning, procurement and monitoring of supplies.

5b)

i.) What – if Analysis: A what-if analysis is a technique that is used to determine how projected performance is affected by changes in the assumptions that projections are based upon. What-if analysis is used to compare different scenarios and their potential outcomes based on fluctuating conditions. The purpose of a what-if analysis is to determine the effect of these outcomes in a statistical model in conjunction with risk assessment. Different methods of sensitivity analysis are available, including scenario-management tools, brainstorming techniques, and modeling and simulation techniques. What-if analysis is frequently used by researchers, analysts, scientists, and investors.

ii) Sensitivity Analysis: Sensitivity analysis is the study to measure the impacts of fluctuations in parameters of a mathematical model or system on the outputs or performance of the system. In other words, sensitivity analysis can be employed to apportion the changes in outputs of a system to different sources of uncertainty in its inputs. To this aim, one of the system parameters is changed by a certain percentage assuming all of the other parameters constant, the model is run and the percentage change of the prespecified performance indicator is observed. To obtain more reliable solutions, sensitivity analysis should be conducted in tandem with uncertainty analysis, which includes quantification and propagation of uncertainties.

iii) Goal Seeking Analysis: In computing, goal seeking is the ability to calculate backward to obtain an input that would result in a given output. This can also be called what-if analysis or back-solving. It can either be attempted through trial and improvement or more logical means. Basic goal seeking functionality is built into most modern spreadsheet packages such as Microsoft Excel.

6a.) A decision support system (DSS) is an information system that supports business or organizational decision-making activities. DSSs serve the management, operations and planning levels of an organization (usually mid and higher management) and help people make decisions about problems that may be rapidly changing and not easily specified in advance—i.e. unstructured and semi-structured decision problems.

6b.)

1) Facilitation: DSS facilitate and support specific decision-making activities and/or decision processes

2.) Interaction: DSS are computer-based systems designed for interactive use by decision makers or staff users who control the sequence of interaction and the operations performed.

3.) Task-oriented: DSS provide specific capabilities that support one or more tasks related to decision-making, including: intelligence and data analysis; identification and design of alternatives; choice among alternatives; and decision implementation.

4.) Identifiable: DSS may be independent systems that collect or replicate data from other information systems OR subsystems of a larger, more integrated information system.

5.) Decision Impact: DSS are intended to improve the accuracy, timeliness, quality and overall effectiveness of a specific decision or a set of related decisions.

6c.) 

Strategic Management: Strategic management involves setting objectives, analyzing the competitive environment, analyzing the internal organization, evaluating strategies, and ensuring that management rolls out the strategies across the organization.

Tactical Management: Strategic management involves setting objectives, analyzing the competitive environment, analyzing the internal organization, evaluating strategies, and ensuring that management rolls out the strategies across the organization.

Operational Management: Operational management is the administration of business practices to create the highest level of efficiency possible within an organization. It is concerned with converting materials and labor into goods and services as efficiently as possible to maximize the profit of an organization.

7a.) Net Present Value (NPV): the net present value applies to a series of cash flows occurring at different times. The present value of a cash flow depends on the interval of time between now and the cash flow. It also depends on the discount rate. NPV accounts for the time value of money. It provides a method for evaluating and comparing capital projects or financial products with cash flows spread over time, as in loans, investments, payouts from insurance contracts plus many other applications.

7b)i.)

NPV= $400000000.053

7b)ii.) Abuad power plant project requires an initial investment of $1billion. Consequently, the project cash flows are $400million more than the required investment. Since the project’s future cash flows are worth more than the initial cash outlay required to make the investment, the project is a feasible project.