UNIT 2
PLANNING

Software Analysis & Design | CSIT 5th

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Syllabus:

1. Identifying and selecting System development projects: Introduction; identifying and selecting systems development Projects; Corporate and Information system planning

2. Initiating and Planning System Development Projects: Introductions; Initiating and Planning Systems Development Projects; Process of Initiating and Planning IS Development Projects, Assessing Project Feasibility; Building and Reviewing the Baseline Project Plan.

I. Project Identification and Selection

II. Project Initiation and Planning

System Development project: Planning

I. Identification and Selection

What is project identification and selection?

- **Project Identification and selection** is a process to assess each **project** idea and **select** the **project** with the highest priority.

- **Project Identification**: The process of **identifying** a candidate idea for developing into a **project** is called **Project Identification.**

- **project identification** means a **process** of finding out the most appropriate **project** from among the several investment opportunities.

What is the importance of project identification?

- **Project identification** is a component of **project** management.

- It involves collection, compilation, and analysis of data in order to locate potential opportunities for a startup business and development of such opportunities.
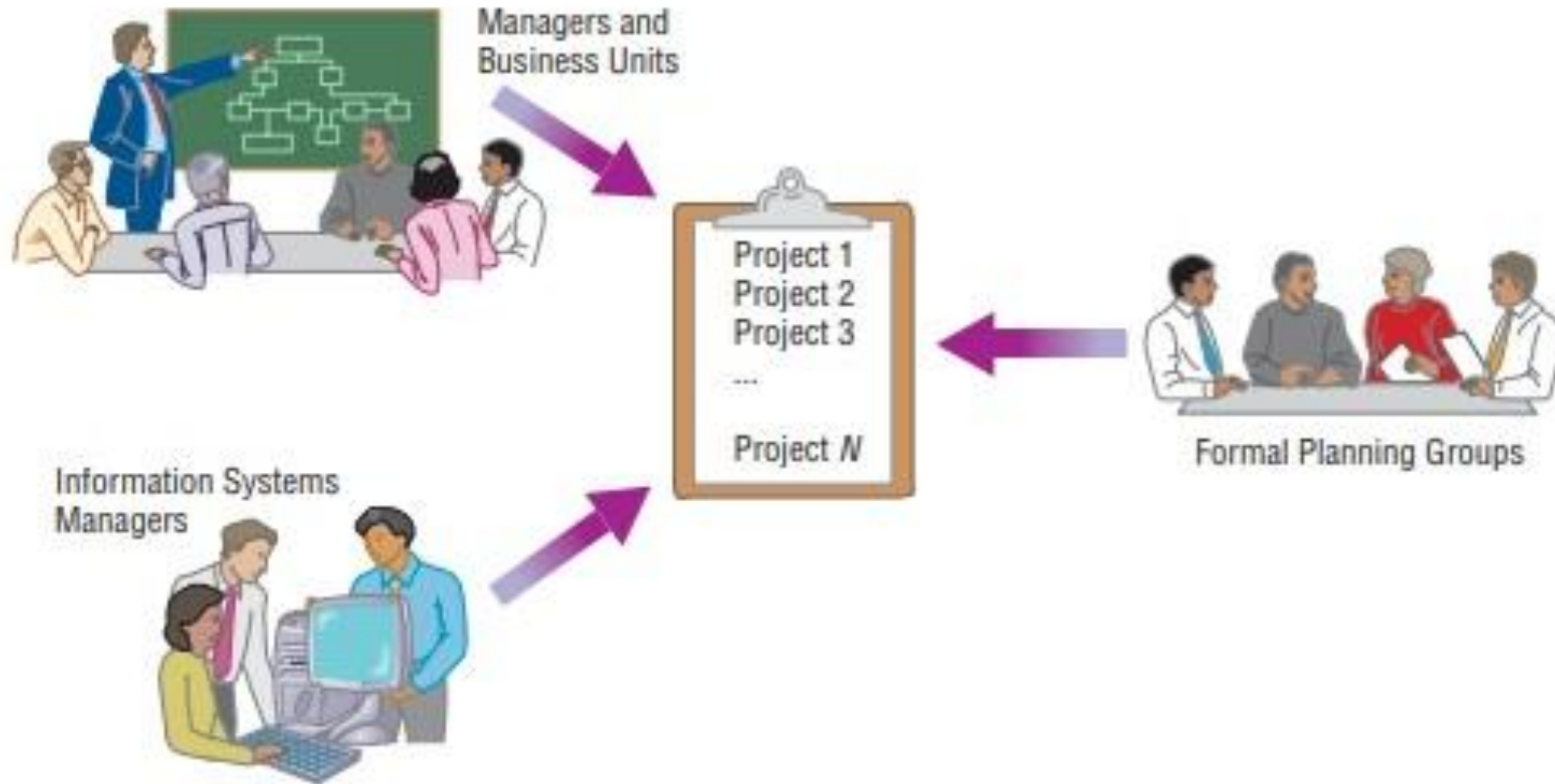
Project identification and selection

Project identification and selection consists of three primary activities:

1. Identifying potential development projects,

2. Classifying and ranking projects

3. Selecting projects for development.

Three key sources for information systems projects.

Managers and Business Units

Information Systems Managers

Project 1
Project 2
Project 3
...
Project N

Formal Planning Groups

1. Identifying potential development projects.

- Organizations vary as to how they identify projects. This process can be performed by:
  - ✓ A key member of top management, either the CEO of a small or medium-sized organization or a senior executive in a larger organization
  - ✓ A steering committee, composed of a cross-section of managers with an interest in systems
  - ✓ User departments, in which either the head of the requesting unit or a committee from the requesting department decides which projects to submit (as a systems analyst, you will help users prepare such requests)
  - ✓ The development group or a senior IS manager

1. Identifying potential development projects.

Project Source	Cost	Duration	Complexity	System Size	Focus
Top management	Highest	Longest	Highest	Largest	Strategic
Steering committee	High	Long	High	Large	Cross-functional
User department	Low	Short	Low	Small	Departmental
Development group	Low–high	Short–long	Low–high	Small–large	Integration with existing systems

1. Identifying potential development projects.

- Of all the possible project sources, those identified by top management and steering committees most often reflect the broader needs of the organization. These groups have a better understanding of overall business objectives and constraints. Projects identified by top management or by a diverse steering committee are therefore referred to as coming from a top-down source.

- Other factors, such as project cost, duration, complexity, and risk, also influence the people who identify a project. Table above summarizes the characteristics of each selection method.

1. Identify potential IS projects

- Projects are identified by
  - ✓ Top management
  - ✓ Steering committee
  - ✓ Functional mangers or IS staff
  - ✓ User departments

- Top-Down identification
  - ✓ Senior management or steering committee
  - ✓ Focus on global needs of organization (top management)
  - ✓ Cross-functional focus (steering committee)

- Bottom-up identification
  - ✓ User departments or functional managers
  - ✓ Don't reflect overall goals of the organization
  - ✓ Narrow on tactical focus

2. Classifying and ranking IS development projects

- As with project identification, classifying and ranking projects can be performed by top managers, a steering committee, business units, or the IS development group.

- The criteria used to assign the merit of a given project can vary based on the size of the organization. Table below summarizes the criteria commonly used to evaluate projects. In any given organization, one or several criteria might be used during the classifying and ranking process

- As with project identification, the criteria used to evaluate projects will vary by organization. If, for example, an organization uses a steering committee, it may choose to meet monthly or quarterly to review projects and use a wide variety of evaluation criteria. At these meetings, new project requests are reviewed relative to projects already identified, and ongoing projects are monitored. The relative ratings of projects are used to guide the final activity of this identification process—project selection.
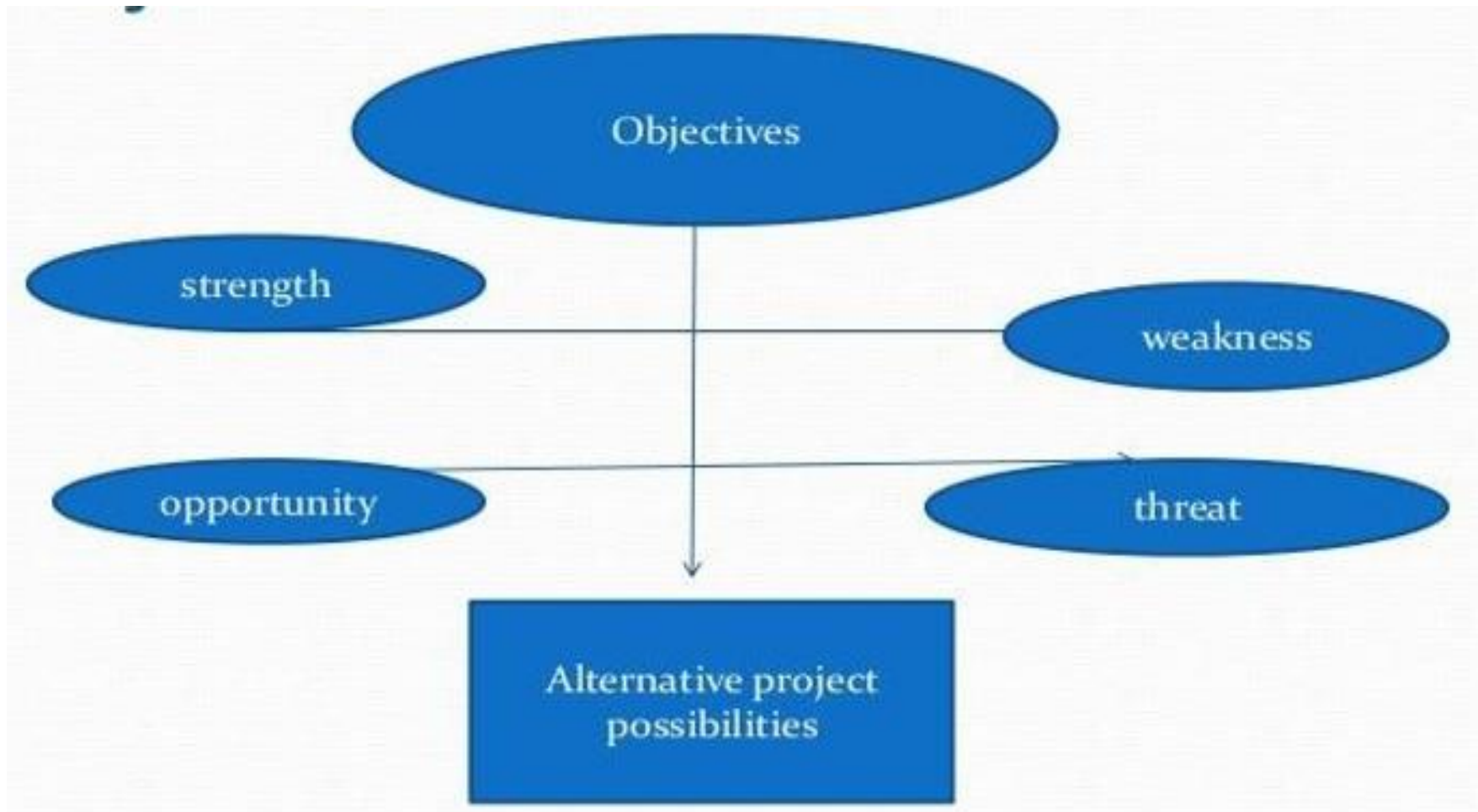
Possible Evaluation Criteria When Classifying and Ranking Projects

Evaluation Criteria	Description
Value Chain Analysis	Extent to which activities add value and costs when developing products and/or services
Strategic Alignment	Extent to which the project is viewed as helping the organization achieve its strategic objectives and long-term goals
Potential Benefits	Extent to which the project is viewed as improving profits, customer service, and so forth, and the duration of these benefits
Resource Availability	Amount and type of resources the project requires and their availability
Project Size/Duration	Number of individuals and the length of time needed to complete the project
Technical Difficulty/Risks	Level of technical difficulty to successfully complete the project within given time and resource constraints

3. Selecting Information system development projects

- Project selection starts after the end of project identification . A tool used for selection is called SWOT analysis (Strength, Weakness, Opportunity and Threat analysis)
- Project selection is a process to assess each project idea and select the project with the highest priority. Projects are still just suggestion at this stage so the selection is often made based on only brief description of the project which is known as zeroing the process.
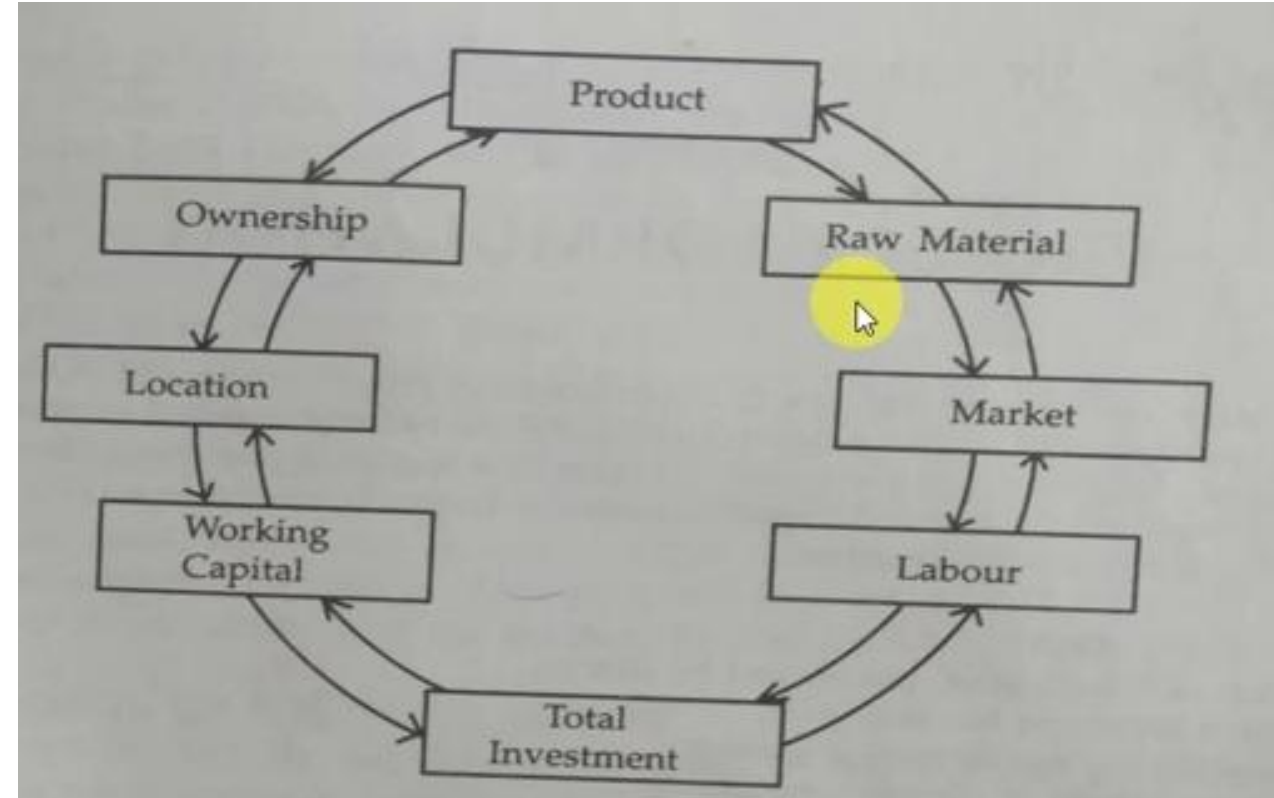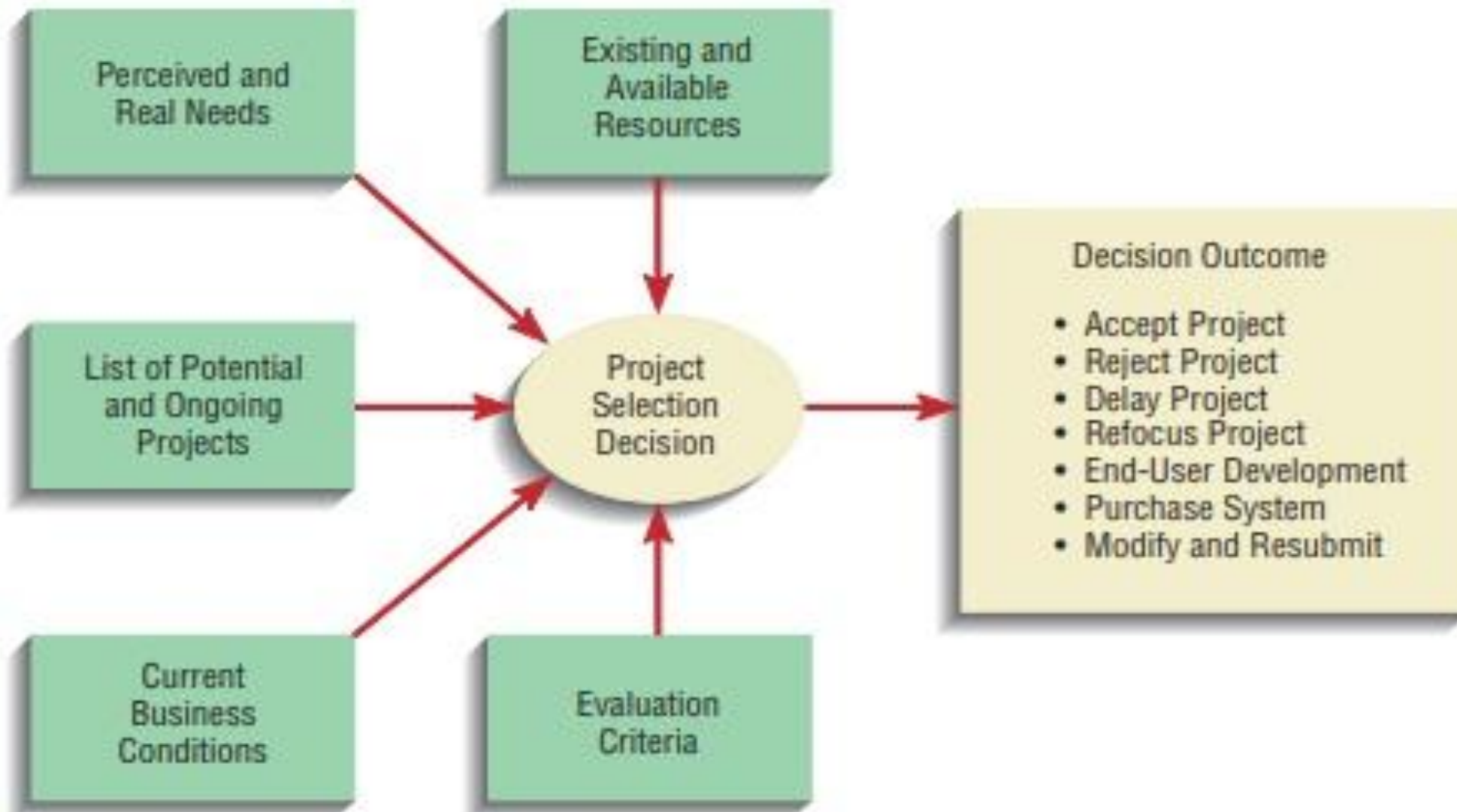- Following factors must be considered when selecting a process:

3. Selecting IS development projects

The factors must be considered when selecting a project include:

- Perceived needs of the organization

- Existing systems and ongoing projects

- Resource availability

- Current business conditions

- Perspectives of the decision makers

Perceived and Real Needs

Existing and Available Resources

List of Potential and Ongoing Projects

Current Business Conditions

Evaluation Criteria

Project Selection Decision

Decision Outcome

- Accept Project
- Reject Project
- Delay Project
- Refocus Project
- End-User Development
- Purchase System
- Modify and Resubmit

Deliverables and Outcomes From Project identification and selection

- The primary deliverables, or end product from the project identification and selection phase is a schedule of specific IS development projects.
- An outcome is the assurance that people in the organization gave careful consideration to project selection and clearly understood how each project could help the organization reach its objectives.
- Incremental commitment is a strategy in system analysis and design in which the project is reviewed after each phase and the continuation of the project is rejustified in each of these reviews.

Corporate and Information Systems Planning

Corporate Strategic Planning: A prerequisite for making effective project selection decisions is to gain a clear idea of where an organization is, its vision of where it wants to be in the future, and how to make the transition to its desired future state. Corporate strategic planning is a three-step process as represented below:

Step 1 Current Enterprise	→	Step 2 Future Enterprise	→	Step 3 Strategic Plan

- The first step focuses on gaining an understanding of the current enterprise.
- The second step focuses on where it wants the enterprise to be in the future.
- Finally, the third step focuses on a strategic plan that can be developed to guide the transition.

Corporate strategic planning is the ongoing process that defines the mission, objectives, and strategies of an organization.

Information System Planning (ISP): It is an orderly means of assessing the information needs of an organization and defining the information systems.

System Planning

What is Requirements Determination?

- A requirement is a vital feature of a new system which may include processing or capturing of data, controlling the activities of business, producing information and supporting the management.

- Requirements determination involves studying the existing system and gathering details to find out what are the requirements, how it works, and where improvements should be made.

Major Activities in Requirement Determination

1. Requirements Anticipation

• It predicts the characteristics of system based on previous experience which include certain problems or features and requirements for a new system.

• Requirements anticipation can be a mixed blessing. On the one hand, experience form previous studies can lead to investigation of areas that would otherwise go unnoticed by an inexperienced analyst. Having the background to know what to ask or which aspect to investigate can be a substantial benefit to the organization.

• On the other hand, if a bias is introduced or shortcuts are taken in conducting the investigation, requirements anticipation is a problem.

Major Activities in requirement Determination

2. Requirements Investigation

- This activity is at the heart of systems analysis.

- It is studying the current system and documenting its features for further analysis.

- Using a variety of tools and skills, analysts study the current system and document its features for further analysis. Requirements investigation relies on the fact-finding techniques and includes methods for documenting and describing system features.

Major Activities in requirement Determination

3. Requirements Specifications

- The data produced during the fact-finding investigation are analyzed to determine requirements specifications, the description of features for a new system. This activity has three interrelated parts:

- **Analysis of Factual Data   :**The data collected during the fact – finding study and included in data flow and decision analysis documentation are examined to determine how well the system is performing and whether it will meet the organization's demands.

- **Identification of Essential Requirements** Features that must be included in a new system, ranging from operational details to performance criteria, are specified.

- **Selection of Requirements Fulfillment Strategies :**The methods that will be used to achieve the stated requirements are selected. These from the basis for system design, which follows requirements specification

Information Gathering Techniques

- The main aim of fact finding techniques is to determine the information requirements of an organization used by analysts to prepare a precise SRS understood by user. Ideal SRS Document should −

  - ✓ be complete, Unambiguous, and Jargon-free.

  - ✓ specify operational, tactical, and strategic information requirements.

  - ✓ solve possible disputes between users and analyst.

  - ✓ use graphical aids which simplify understanding and design.

Information Gathering Techniques Cont.…

Interviewing

- Systems analyst collects information from individuals or groups by interviewing.

- The analyst can be formal, legalistic, play politics, or be informal; as the success of an interview depends on the skill of analyst as interviewer.

- It can be done in two ways −

Information Gathering Techniques Cont.…

1) Unstructured Interview

- An unstructured interview is a type of interview that does not make use of a set of standardized questions.

- Here, the interviewer does not generate any specific set of standardized questions for research, rather he or she asks different questions in line with the context and purpose of the systematic investigation.

Information Gathering Techniques Cont.…

2) Structured Interview

- A structured interview is a type of interview in which the researcher asks a set of premeditated questions in order to gather information about the research subjects.

- It is also known as a standardized interview or a researcher-administered interview, and it aims at investigating research variables using the same set of questions.

Information Gathering Techniques Cont…

Advantages of Interviewing

- This method is frequently the best source of gathering qualitative information.

- It is useful for them, who do not communicate effectively in writing or who may not have the time to complete questionnaire.

- Information can easily be validated and cross checked immediately.

- It can handle the complex subjects.

- It is easy to discover key problem by seeking opinions.

- It bridges the gaps in the areas of misunderstandings and minimizes future problems.

Information Gathering Techniques Cont…

Questionnaires

- This method is used by analyst to gather information about various issues of system from large number of persons.

  There are two types of questionnaires −

- **Open-ended Questionnaires** − It allow the target audience to voice their feeling & emotions freely. These questions are not based upon pre-determined responses.

- **Closed-ended Questionnaires** − Questionaries that have multiple option as answer and allows respondents to select a single option from among them are called closed ended questionnaires.

Advantages of questionnaires

- It is very effective in surveying interests, attitudes, feelings, and beliefs of users which are not co-located.

- It is useful in situation to know what proportion of a given group approves or disapproves of a particular feature of the proposed system.

- It is useful to determine the overall opinion before giving any specific direction to the system project.

- It is more reliable and provides high confidentiality of honest responses.

- It is appropriate for electing factual information and for statistical data collection which can be emailed and sent by post.

Information Gathering Techniques Cont…

Review of Records, Procedures, and Forms

- Review of existing records, procedures, and forms helps to seek insight into a system which describes the current system capabilities, its operations, or activities.

Information Gathering Techniques Cont.…

Advantages of review of Records, Procedures, and Forms

- It helps user to gain some knowledge about the organization or operations by themselves before they impose upon others.

- It helps in documenting current operations within short span of time as the procedure manuals and forms describe the format and functions of present system.

- It can provide a clear understanding about the transactions that are handled in the organization, identifying input for processing, and evaluating performance.

- It can help an analyst to understand the system in terms of the operations that must be supported.

- It describes the problem, its affected parts, and the proposed solution.

Information Gathering Techniques Cont…

Observation

- This is a method of gathering information by noticing and observing the people, events, and objects.

- The analyst visits the organization to observe the working of current system and understands the requirements of the system.

Information Gathering Techniques Cont…

Advantages

- It is a direct method for gathering information.

- It is useful in situation where authenticity of data collected is in question or when complexity of certain aspects of system prevents clear explanation by end-users.

- It produces more accurate and reliable data.

- It produces all the aspect of documentation that are incomplete and outdated.

Information Gathering Techniques Cont…

Joint Application Development (JAD)

- It is a new technique which brings owners, users, analysts, designers, and builders to define and design the system using organized and intensive workshops.

- JAD trained analyst act as facilitator for workshop who has some specialized skills.

Advantages of JAD

- It saves time and cost by replacing months of traditional interviews and follow-up meetings.

- It is useful in organizational culture which supports joint problem solving.

- Encourage formal relationships among multiple levels of employees.

- It can lead to development of design creatively.

- It allows rapid development and improves ownership of information system.

Information Gathering Techniques Cont…

Secondary Research or Background Reading

- This method is widely used for information gathering by accessing the selected information. It includes any previously gathered information used by the marketer from any internal or external source.

Advantages

- It is more openly accessed with the availability of internet.

- It provides valuable information with low cost and time.

- It act as forerunner to primary research and aligns the focus of primary research.

- It is used by the researcher to conclude if the research is worth it as it is available with procedures us and issues in collecting them.

26

Feasibility Study

- Feasibility Study can be considered as preliminary investigation that helps the management to take decision about whether study of system should be feasible for development or not.

- It identifies the possibility of improving an existing system, developing a new system, and produce refined estimates for further development of system.

- It is used to obtain the outline of the problem and decide whether feasible or appropriate solution exists or not.

- The main objective of a feasibility study is to acquire problem scope instead of solving the problem.

- The output of a feasibility study is a formal system proposal act as decision document which includes the complete nature and scope of the proposed system.

Feasibility Study

Steps Involved in Feasibility Analysis

- Form a project team and appoint a project leader.

- Develop system flowcharts.

- Identify the deficiencies of current system and set goals.

- Enumerate the alternative solution or potential candidate system to meet goals.

- Determine the feasibility of each alternative such as technical feasibility, operational feasibility, etc.

- Weight the performance and cost effectiveness of each candidate system.

- Rank the other alternatives and select the best candidate system.

- Prepare a system proposal of final project directive to management for approval.

Types of Feasibilities

Economic Feasibility

- In economic feasibility study, cost and benefit of the project is analyzed.

- It also analyzed whether the project will be beneficial for organization or not .

- The main aim of Economic Feasibility Analysis (EFS) is to estimate the economic requirements of candidate system before investments funds are committed to proposal.

- In this study, a detail analysis is carried out to know what will be the cost of the project including hardware and software resources required, design and development cost and so on.

- The commonly used Cost-Benefit Analysis Techniques are **Net Present Value, Return on Investment** and **Break Even Analysis.**

- **NPV** uses a discount rate determined from the company's cost of capital to establish the present value of project. The discount rate is used to determine the present value of both receipts and outlays.
- **ROI** is the ratio of the net cash receipts of the project divided by the cash outlays of the project. Trade-off analysis can be made among projects competing for investment by comparing their representative ROI ratios.
- **BEA** finds the amount of time required for the cumulative cash flow from a project to equal its initial and ongoing investment.
  (**Numerical Required**)

Types of Feasibilities

Technical Feasibility

- In technical feasibility, we check whether we have required technical resources like hardware, software to develop the project.

- It analyzes and determines whether the solution can be supported by existing technology or not.

- The analyst determines whether current technical resources be upgraded or added it that fulfill the new requirements.

- It ensures that the candidate system provides appropriate responses to what extent it can support the technical enhancement.

Types of Feasibilities

Legal Feasibility

- In legal feasibility study we investigate whether the project is legal or not.

- It concerns with legal issue of the system. If the system is illegal then the system designing is meaningless.

- This includes analyzing barriers of legal implementation of project, data protection acts or social media laws, project certificate, license, copyright etc.

- Overall it can be said that Legal Feasibility Study is study to know if proposed project conform legal and ethical requirements.

Types of Feasibilities

Operational Feasibility

- It determines whether the system is operating effectively once it is developed and implemented.

- It is all about the problem that may occur during operation of the system after its development.

- It concerns with the smooth operation of the system. For the smooth operation of the system, there are different factors such as: accuracy, response time, security and efficiency of the system.

Types of Feasibilities

Behavioral Feasibility

- It concerns with behavior of the users and the society towards the new system.

- It helps in determining if the system requires special effort to educate, retrain, transfer, and changes in employee's job status on new ways of conducting business.

Schedule Feasibility

- It ensures that the project should be completed within given time constraint or schedule.

- It also verifies and validates whether the deadlines of project are reasonable or not.

What is Structured Analysis?

- Structured Analysis is a development method that allows the analyst to understand the system and its activities in a logical way.

- It is a systematic approach, which uses graphical tools that analyze and refine the objectives of an existing system and develop a new system specification which can be easily understandable by user.

- It has following attributes −

    ❖ It is graphic which specifies the presentation of application.

    ❖ It divides the processes so that it gives a clear picture of system flow.

    ❖ It is logical rather than physical i.e., the elements of system do not depend on vendor or hardware.

    ❖ It is an approach that works from high-level overviews to lower-level details.
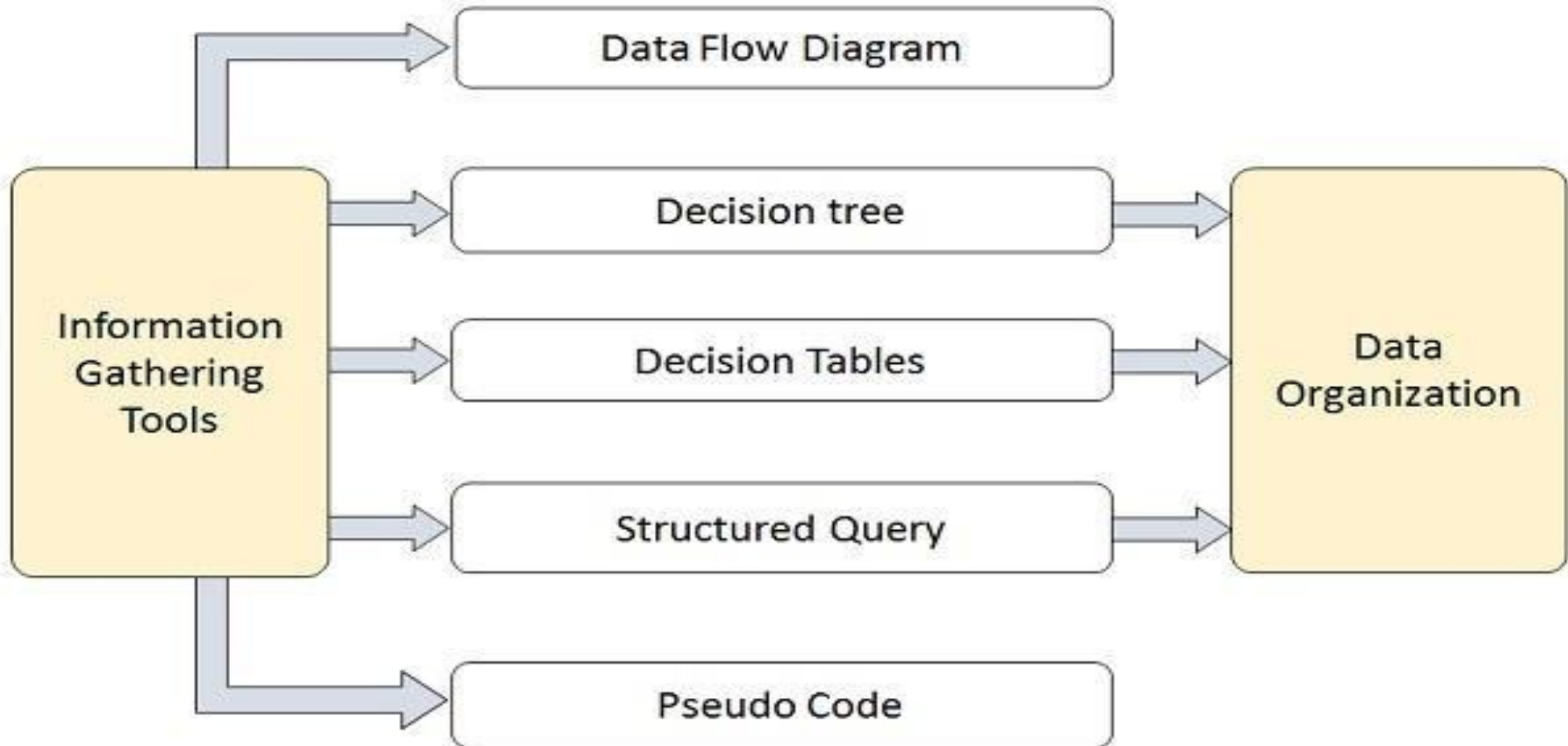
What is Structured Analysis?

Structured Analysis Tools

During Structured Analysis, various tools and techniques are used for system development. They are

- ✓ Data Flow Diagrams
- ✓ Data Dictionary
- ✓ Decision Trees
- ✓ Decision Tables
- ✓ Structured English
- ✓ Pseudocode

What is Structured Analysis?

Information Gathering Tools

- Data Flow Diagram
- Decision tree
- Decision Tables
- Structured Query
- Pseudo Code

Data Organization

Planning: System Development project

II. Planning and Initiation

Planning: System Development project

- Once a potential project has been identified, an organization must determine the resources required for its completion.
- This is done by analyzing the scope of the project and determining the probability of successful completion.
- For this a good project manager with interpersonal , leadership and technical skill is required and should focus on **project management process.**
- **Project Management** is a controlled process of initiating, planning, executing, monitoring and controlling and closing down a project.it has phases.

Project Life Cycle

The 5 phases of Project Management is also called the **Project Lifecycle.** The 5 phases consist of:

1. **Project Initiation Phase**
2. **Project Planning Phase**
3. **Execution Phase**
4. **Monitoring and control Phase**
5. **Project Closeout Phase**

1. Project Initiation Phase

- The beginning phase of every project where a project manager is selected.
- The project manager will meet with the project sponsor and key stakeholders to determine the business or technical objectives of the project.
- Determine any historical information regarding the project. Begin to identify who is needed on a project team.

Key Output of this phase is:

- Develop Project Charter
- Develop preliminary scope Statement
- Identification of all stakeholders
- Divide the project into Phases

2. **Project Planning Phase**

- One of the largest and most important phase of every project. The project manager will determine the team identify roles and responsibilities and solidify a scope statement. If the project management team gets this step wrong, there could be heavy negative consequences during the next phases of the project.
- Therefore, the project management team will have to pay detailed attention to this process of the project.
- In this process, the project plan is derived in order to address the project requirements such as, requirements scope, budget and timelines. Once the project plan is derived, then the project schedule is developed.
- Depending on the budget and the schedule, the resources are then allocated to the project. This phase is the most important phase when it comes to project cost and effort.

The planning phase consist of:

- Communication Plan (how will you communicate to your team, to your stakeholders?)
- Risk Plan (hoe will risks be documented, how will they be escalated?)
- Testing Plan
- Project Schedule (Timeline)
- Develop a WBS (a work breakdown structure is a key because it break down the work into manageable work activities and/or tasks)
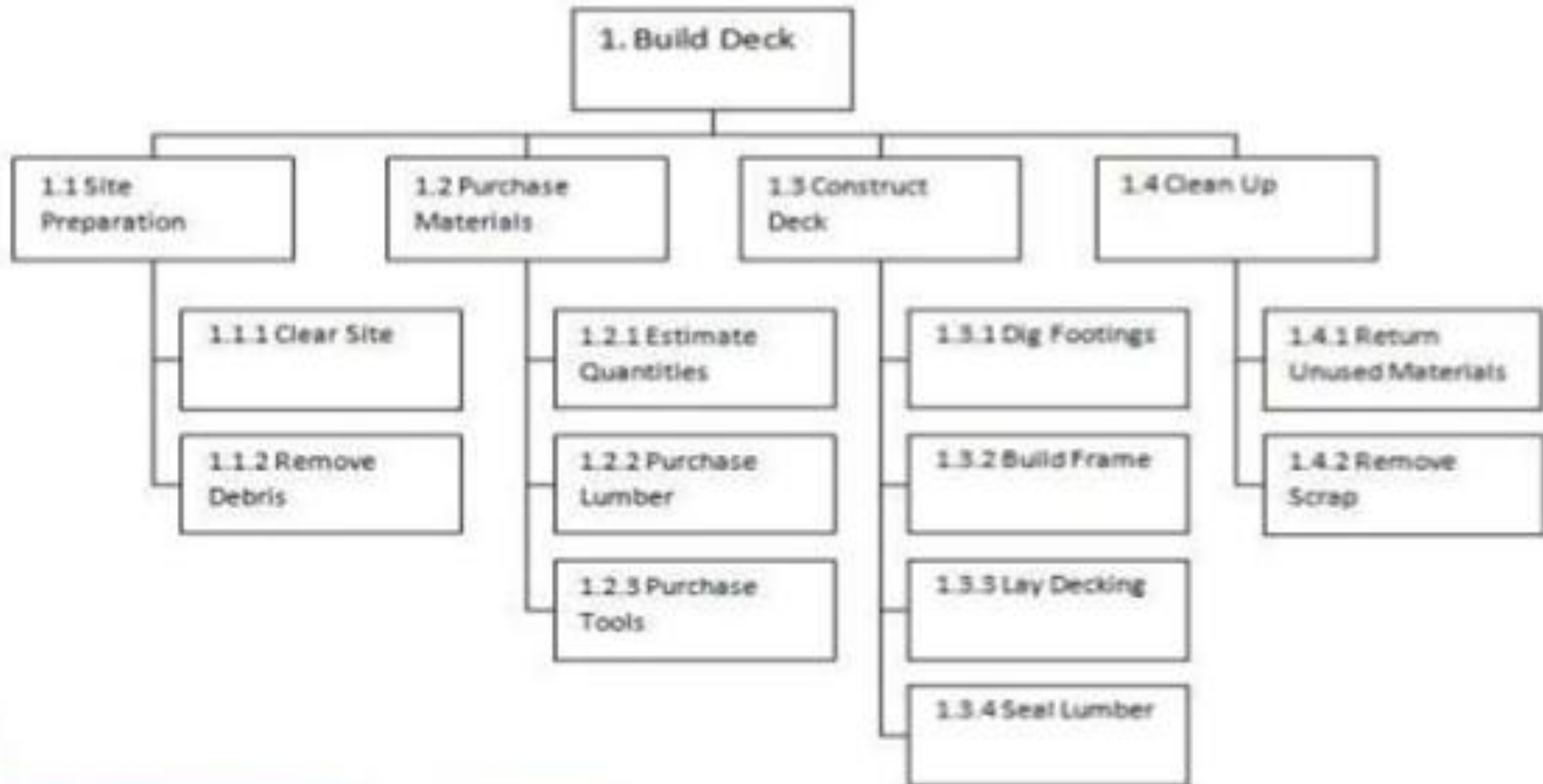
Key output of planning phase is:

- Create WBS and WBS Dictionary
- Develop Schedule
- Develop Budget
- Determine Roles and Responsibilities
- Develop Communication Plan
- Develop Risk Plan
- Create Performance Measurement baselines
- Develop Preliminary Scope Statement
- Test Plan
- Determine the Critical Path
- Prepare procurement documents
- Create Process Improvement Plan
- Gain formal Approval of all plans and key deliverables.

* After that you as the project manager are good to Launch Kickoff Meeting!

Work Break Down Structure

3 - Project Execution

- The project execution phase is often the longest and most complex stage in the project life cycle. If you're not careful, your team might get off track, run into communication problems, or stop following your carefully outlined procedures.

- After investing time and other resources into your project execution plan, you need to make sure you can deliver on your promises.

- The execution phase involves carrying out the details of your project charter in order to deliver your products or services to your clients or internal stakeholders. No matter how well you plan, your project won't be successful unless you can effectively implement your ideas.

3 - Project Execution

- The project execution phase is usually the longest phase in the project life cycle; and the most demanding. In the project execution phase:
  - Your team carries out all the planned activities, constructs deliverables, and presents them to project stakeholders
  - Your focus, as a project manager changes to performing and supervising all activities to create deliverables as outlined in the project plan
  - You'll need to continuously track the project's progress and ensure that the milestones and deliverables stick to the project schedule.

3 - Project Execution

In essence, the project manager has three main objectives during the execution phase:

- Managing people
- Managing processes
- Managing communication

The benefits of a well-executed project are threefold:

- The project can be completed on time and budget
- Team moral can be maintained
- Stakeholders are satisfied with overall project progress

4. Monitoring and Control Phase

Monitoring

- Checking actual and likely progress against planned progress.
- Tracking progress to date.

Control

- Making changes to plan if necessary.
- Altering the schedule.
- Escalating problems/ issues if necessary.
- Taking action to avoid (bigger) future problems.

Project Monitoring

- Monitoring is the regular observation and recording of activities taking place in a project or program. It is a process of routinely gathering information on all aspects of the project.

- To monitor is to check on how project activities are progressing. It is observation;- systematic and purposeful observation.

- Monitoring involve giving feedback about the progress of the project to the donors, implementers, and beneficiaries of the project.

- Reporting enables the gathered information to be used in making decisions for improving project performance.

Project Control

- Project control are the data gathering, management and analytical process used to predict, understand and constructively influence the time and cost outcomes of a project or program; through the communication of information in formats that assist effective management and decision making.
- This definition encompasses all stages of a project or program's lifecycle from the initial estimating needed to 'size' a proposed project, through to reflective learning (lessons learned) and the forensic analysis needed to understand the causes of failure (and develop claims).

Purpose of Project Monitoring & Control

- It is like watching where you are going while riding a bicycle; you can adjust as you go along and ensure that you are on the right track.
- Identifying problems facing the community or project and finding solutions.
- Ensuring all activities are carried out properly by the right people and in time.
- Using lessons from one project experience on to another
- Determining whether the way the project was planned is the most appropriate way of solving the problem at hand.

Project Closure Phase

- Every project is a temporary undertaking and therefore has a start date and a finish date, meaning that every project will eventually come to an end and that is where the close project or phase process is used.

- The Close project or phase process can be thought of as the process that performs a controlled shut down at the end of the project. As is normal within a project, there is documentation to be archived, capturing any lessons learned to be passed on for future projects, ensuring that any contracts are properly shut down, and updating any organizational process assets.

Project Closure Phase

Closing Process Group Activities

- Confirm work is done as per requirements.
- Complete procurement closure
- Gain formal acceptance
- Complete final performance reporting
- Index and archive records
- Update lessons learned

Any Queries???
Thank You !!!