Software Development Life Cycle

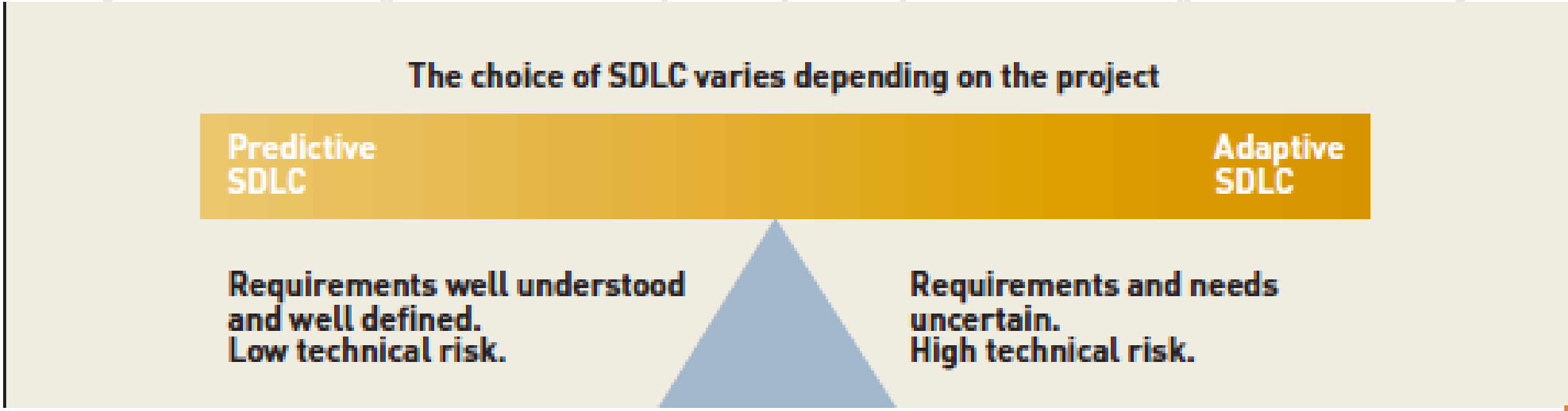
Objectives:

Explain	Explain the purpose and various phases of the traditional systems development life cycle (SDLC)
Explain	Explain when to use an adaptive approach to the SDLC in place of the more predictive traditional SDLC
Describe	Describe the two overall approaches used to develop information systems: the traditional approach and the object-oriented approach

Terms

- A **project** is a planned undertaking that has a beginning and an end and that produces a desired result or product.
- **Systems Development Life Cycle (SDLC)** refers to the entire process of building, deploying, using, and updating an information system.
- **SDLC** is a systematic process for building software that ensures the quality and correctness of the software built. SDLC process aims to produce high-quality software that meets customer expectations.

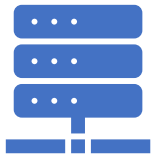
Which SDLC approach should be used?



Predictive Approach

A **predictive approach** to the SDLC is an approach that assumes that the development project can be planned and organized in advance and that the new information system can be developed according to the plan.

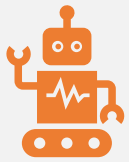
Predictive SDLCs are useful for building systems that are well understood and defined.



Predictive Approach

- For example, a company may want to convert its old, mainframe inventory system to a newer networked client/server system.
- In this type of project, the staff already understands the requirements very well, and no new processes need to be added.
- So, the project can typically be planned carefully, and the system can be built according to the specifications.

Adaptive Approach



An adaptive approach to the SDLC is used when the exact requirements of a system or the users' needs are not well understood.

In this situation, the project cannot be planned completely in advance.

Some requirements of the system may yet need to be determined, after some preliminary development work.

Developers should still be able to build the solution, but they must be flexible and adapt the project as it progresses.

THE TRADITIONAL PREDICTIVE APPROACHES TO THE SDLC

- The development of a new information system requires several different, but related, activities.
- In predictive approaches, we first have a group of activities that plan, organize, and schedule the project, usually called **project planning activities**.
- These activities map out the overall structure of the project.

THE TRADITIONAL PREDICTIVE APPROACHES TO THE SDLC

- Next, a group of activities must focus on understanding the business problem that needs to be solved and on defining the business requirements.
- We refer to this set of activities as **analysis activities**.
- The intent is to *understand exactly what the system must do to support the business processes.*

THE TRADITIONAL PREDICTIVE APPROACHES TO THE SDLC

- A third group of activities is focused on designing the new system.
- Those activities, called **design activities**, use the requirements that were defined earlier to develop the program structure and algorithms for the new system.

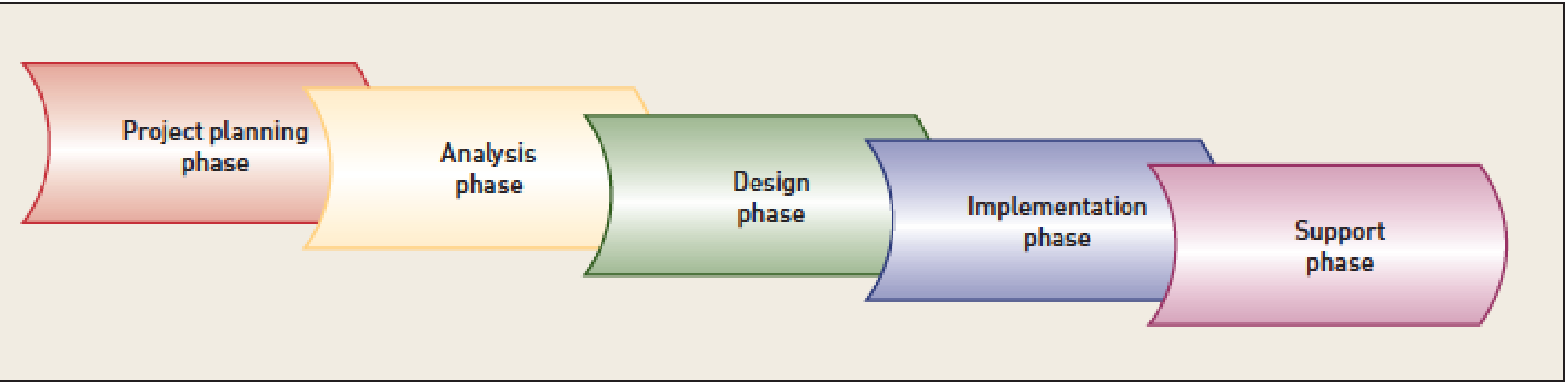
THE TRADITIONAL PREDICTIVE APPROACHES TO THE SDLC

- Another group of activities is necessary to build the system.
- We call those activities **implementation activities**, and they include programming, testing, and installing the system for the business users.
- These four groups of activities—*planning, analysis, design, and implementation*—are sometimes referred to as **phases**, and they are the elements that provide the framework for managing the project.

THE TRADITIONAL PREDICTIVE APPROACHES TO THE SDLC

- Another phase, called the **support phase**, includes *the activities needed to upgrade and maintain the system after it has been deployed.*

Information System Development Phases



General Problem-Solving Approach

1. First, the organization recognizes it has a problem to solve (project planning).
2. Next, the project team investigates and thoroughly understands the problem and the requirements for a solution (analysis).
3. After the problem is understood, a solution is specified in detail (design).
4. The system that solves the problem is then built and installed (implementation).
5. As long as the system is being used by the organization, it is maintained and enhanced to make sure it continues to provide the intended benefits (support).

SDLC Phases

SDLC phase	Objective
Project planning	To identify the scope of the new system, ensure that the project is feasible, and develop a schedule, resource plan, and budget for the remainder of the project
Analysis	To understand and document in detail the business needs and the processing requirements of the new system
Design	To design the solution system based on the requirements defined and decisions made during analysis
Implementation	To build, test, and install a reliable information system with trained users ready to benefit as expected from use of the system
Support	To keep the system running productively, both initially and during the many years of the system's lifetime

Activity: (20 mins)

Do a research on the following software development methods:

1. Extreme Programming

-Purpose: (When it is used, how it is used)

-Processes Involved:

2. Rapid Application

-Purpose:

-Processes Involved:

3. Joint Application Development

-Purpose:

-Processes Involved: