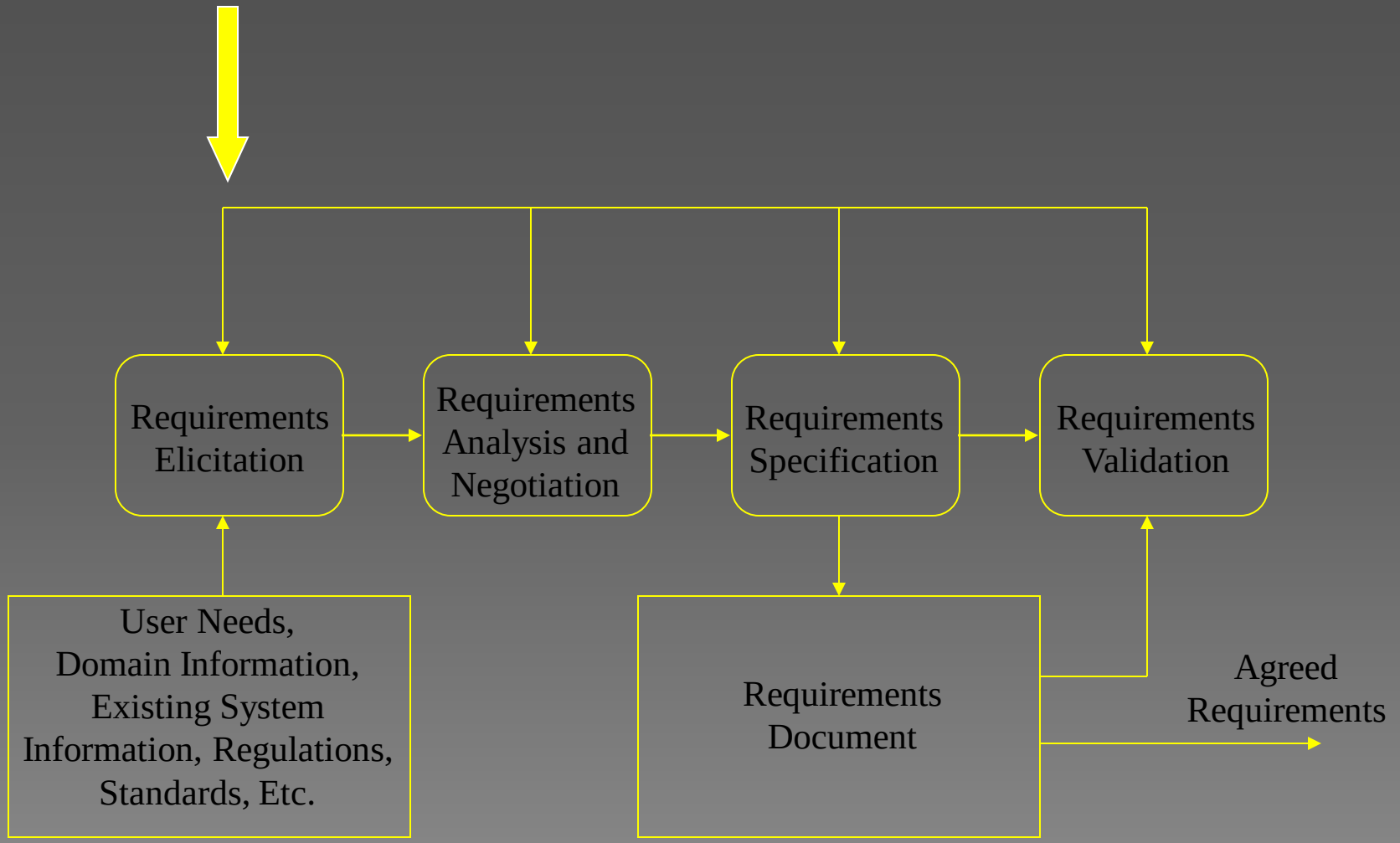
Requirements Elicitation – 2

Lecture # 10

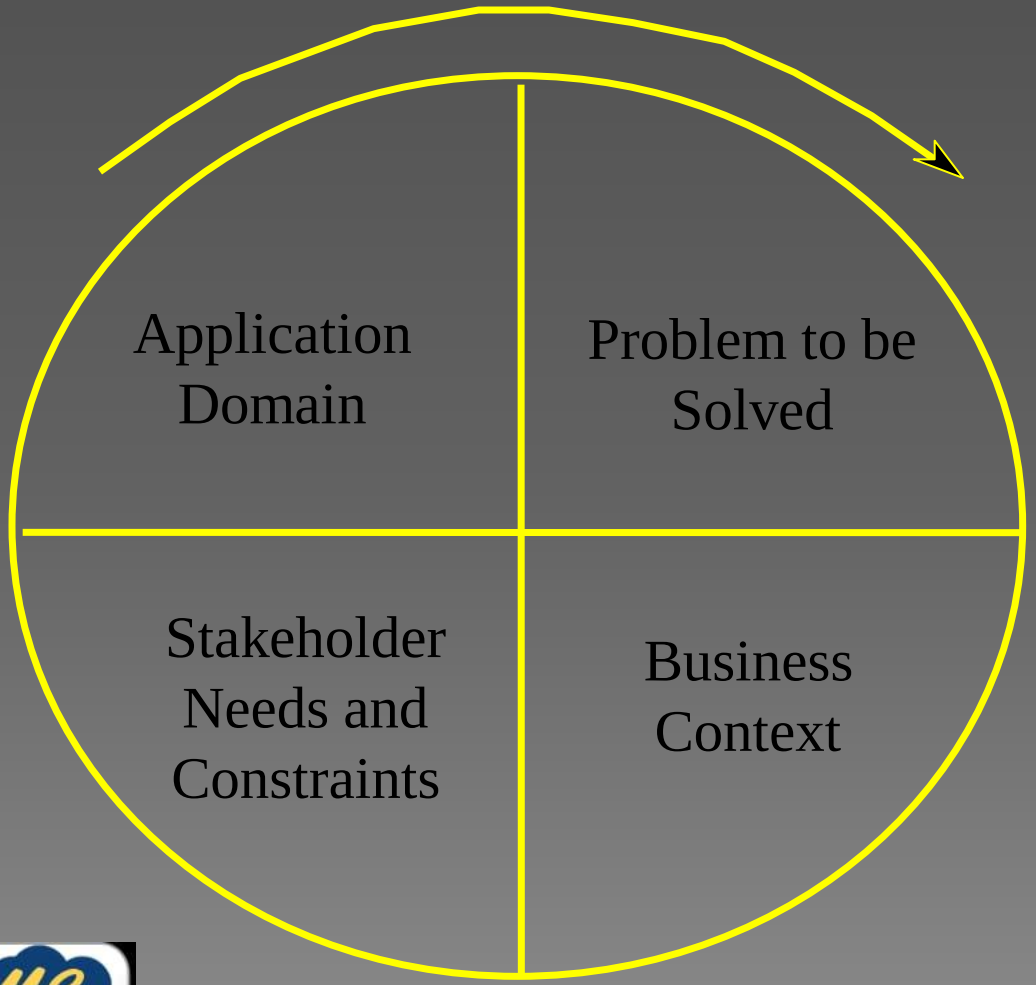
Requirements Engineering Process



Recap of Last Lecture - 1

- Introduced the concept of elicitation and requirements elicitation process
- Basics of knowledge acquisition (reading, listening, asking, & observing)
- Knowledge acquisition techniques (individual, group, modeling, cognitive)
- Elicitation problems (scope, understandability, volatility)

Components of Requirements Elicitation



Dimensions to Requirements Elicitation

- Application domain understanding
- Problem understanding
- Business understanding
- Understanding the needs and constraints of system stakeholders

Dimensions to Requirements Elicitation - 2

- Application domain understanding
  - Knowledge of the general area where the system is applied
- Problem understanding
  - The details of the specific customer problem where the system will be applied must be understood

Dimensions to Requirements Elicitation - 3

- Business understanding
  - Understand how systems interact and contribute to overall business goals
- Understanding the needs and constraints of system stakeholders
  - Understand, in detail, the specific needs of people who require system support in their work

Elicitation and Analysis Processes

- Requirements elicitation and requirements analysis are closely linked processes

Requirements Elicitation Stages

- Objective setting
- Background knowledge acquisition
- Knowledge organization
- Stakeholder requirements collection

Recap of Last Lecture - 2

- Context (organization, environment, project, constraints imposed by people)
- Guidelines for knowledge acquisition

Objective Setting

- Overall organizational objectives should be established at this stage
- These include general goals of business, an outline description of the problem to be solved and why the system may be necessary, and the constraints on the system such as budget, schedule, and interoperability constraints

Background Knowledge Acquisition

- Requirements engineers gather and understand background information
- This includes information about the organization where the system is to be installed, information about the application domain of the system, and information about any existing systems which are in use and which may be replaced

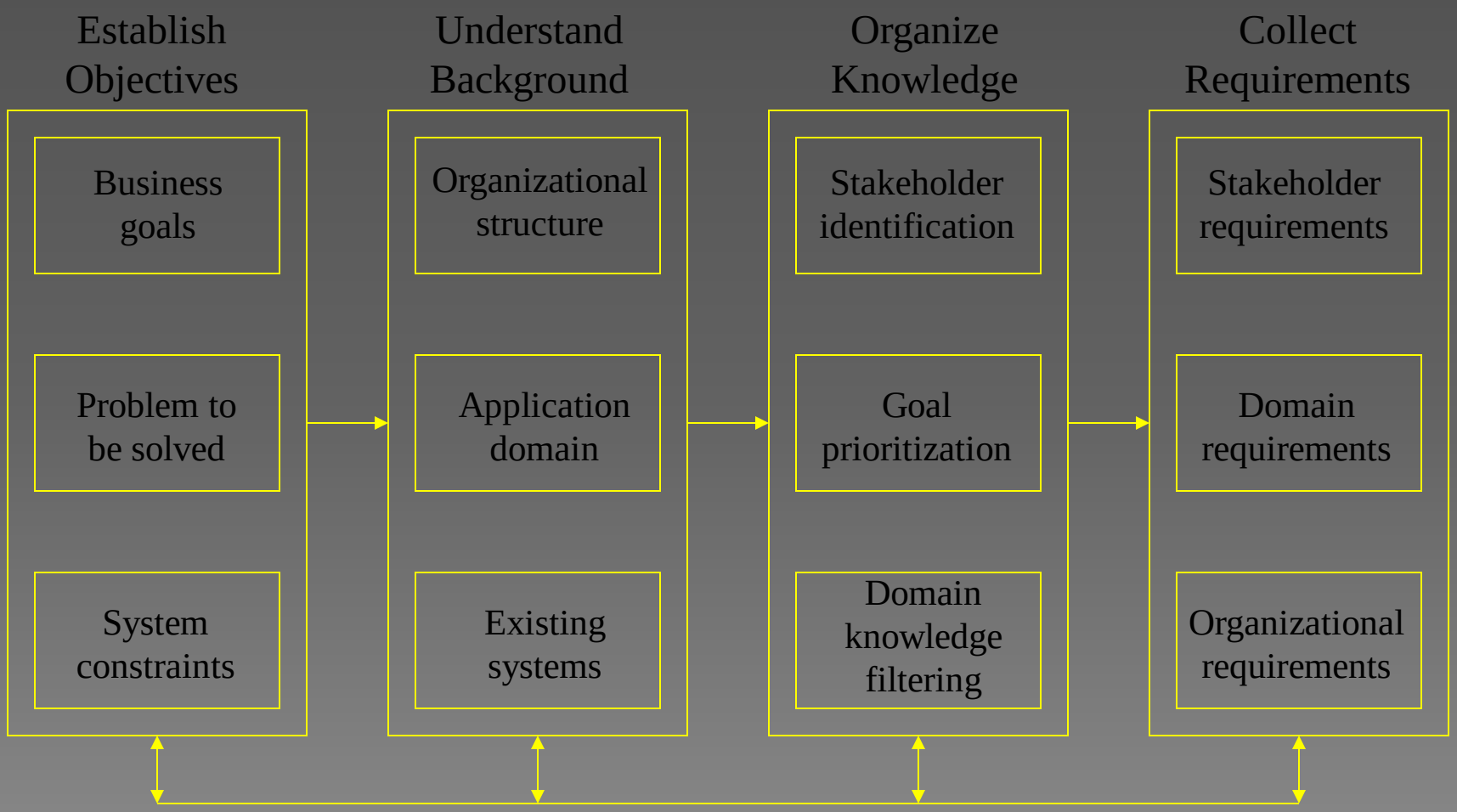
Knowledge Organization

- The large amount of knowledge which has been collected in previous stage must be organized and collated
- Identifying system stakeholders and their roles in the organization, prioritizing the goals of the organization and discarding domain knowledge which does not contribute directly to the system requirements

Stakeholder Requirements Collection

- It involves consulting system stakeholders to discover their requirements, and deriving requirements which come from the application domain and the organization which is acquiring the system

A General Requirements Elicitation Process



Comments on this Process - 1

- It is an idealized process, while the reality of requirements elicitation tends to be much messier
- The activities are usually mixed up with each other
- If objective setting activities are not carried out, significant analysis problems occur, as no objective and business goals are available to prioritize requirements

Comments on this Process - 2

- The output from the requirements elicitation process should be a draft document which describes the system requirements, which is then analyzed to discover problems and conflicts in the requirements definition
- This process is followed by the requirements analysis process, which will be discussed in another lecture

Basics of Knowledge Acquisition

- Reading
- Listening
- Asking
- Observing

- Results in large volume of information, which must be organized to make it understandable

Knowledge Structuring Techniques

- Partitioning
- Abstraction
- Projection

Partitioning

- Organization of knowledge into aggregation relationships, where requirements knowledge is described in terms of its parts
- Booking system example: a booking record may be may be defined as a flight reference, source & destination of flight, the name & address of the passenger, fare, and date of travel

Abstraction

- Organization of knowledge according to general/specific relationships. Requirement knowledge is described by relating specific instances to abstract structures
- Passenger abstraction may represent all classes of passengers (children, adults, full-fare paying, concessionary passengers, etc.)

Projection

- Organization of knowledge from several different perspectives or viewpoints
- Booking system example: travel agents, airline management, check-in desk operators, passengers, a bookings database, etc.

Next Lecture

- There are various techniques of requirements elicitation which may be used including
  - Interviewing
  - Scenarios
  - Prototyping
  - Participant observation

Summary

- Requirements elicitation involves understanding the application domain, the specific problem to be solved, the organizational needs and constraints and the specific facilities needed by system stakeholders
- The processes of requirements elicitation, analysis and negotiation are iterative, interleaved processes which must usually be repeated several times