Lecture 8: Stakeholder Goals

→ Boundaries
  → Scoping the problem
→ Stakeholders
  → Identifying the problem owners
→ Goals
  → Identifying the success criteria
→ Scenarios
  → Using concrete examples to understand the problem

Where do we start?

→ Identify the problem
  → What is the objective of the project?
  → What is the “vision” of those who are pushing for it?
  → e.g. “Meeting scheduling is too costly right now”
→ Scope the problem
  → What is the vision, how do we tackle?
  → e.g. “Build a system that schedules meetings”, “or…”
  → e.g. “Build a system that maintains people’s calendars” “or…”
→ Choose a business process?
  → What is the appropriate business process for solving it?
  → e.g. “Anyone who wants to schedule a meeting goes to the secretary, gives details and the secretary handles the rest”, “or…”
  → e.g. “Anyone can submit a meeting request, participants are informed and a negotiation settles meeting details” “or…”
→ Choose among alternatives?
  → What is the appropriate business process, what parts should be automated, and how?
  → e.g. “Computer takes in scheduling request details, outputs a solution”, “or…”
  → e.g. “Solution arrived at interactively by secretary and computer”, “or…”

Requirements Elicitation

→ Starting point
  → Some notion that there is a “problem” that needs solving
  → e.g. dissatisfaction with the current state of affairs
  → e.g. a new business opportunity
  → e.g. a potential saving of cost, time, resource usage, etc.
→ Collect enough information to:
  → Identify the “problem”/“opportunity”
  → Which problem needs to be solved? (identify problem boundaries)
  → Where is the problem? (understand the Context/Problem Domain)
  → What is the problem? (identify stakeholders)
  → Why does it need solving? (identify stakeholders’ goals)
  → How does the problem manifest itself? (collect some scenarios)
  → When does it need solving? (identify development constraints)
→ W6H: The journalist’s technique
  → What?
  → Where?
  → Who?
  → Why?
  → When?
  → How? (Which?)

Identifying the Problem

→ Vague problem stated by the customer:
  → E.g. university textbook store:
  → Manager wants to computerize the book ordering forms filled out by instructors;
→ E.g. A large insurance company:
  → Claims manager wants to cut down the average time it takes to process an insurance claim from 2 months to 2 weeks
→ E.g. A telecommunications company:
  → CEO wants to integrate the billing system with customer record systems of several affiliates, so there is only one billing system…
→ E.g. Large Government Aerospace Agency:
  → The president wants to send a manned mission to Mars by the year 2020
→ Often you only see symptoms rather than causes:
  → E.g. “Ontario patients needing X-ray scans have to wait for months”
  → The long wait is the symptom, not the problem. The problem may be:
  → Shortage of X-ray machines;
  → Shortage of trained staff;
  → Shortage of doctors to process the data
  → Inefficient scheduling procedures
Stakeholders

→ Stakeholder analysis:
  % Identify all the people who must be consulted during information acquisition

→ Example stakeholders
  % Users
  > concerned with the features and functionality of the new system
  % Designers
  > want to build a perfect system, or reuse existing code
  % Systems analysts
  > want to "get the requirements right"
  % Training and user support staff
  > want to make sure the new system is usable and manageable
  % Business analysts
  > want to make sure "we are doing better than the competition"
  % Technical authors
  > will prepare user manuals and other documentation for the new system
  % The project manager
  > wants to complete the project on time, within budget, with all objectives met.
  % "The customer"
  > Wants to get best value for money invested!

Finding Stakeholders: Levels of authority

→ Top management
  % establishes goals
  % does long-range planning
  % determines new market & product developments
  % decides on mergers & acquisitions.
→ Middle management
  % sets objectives
  % allocates & controls resources
  % does planning
  % measures performance
→ Lower management
  % supervises day-to-day operations
  % takes corrective action when necessary.
→ Operational level
  % performs day-to-day operations

Finding stakeholders: The Org Chart

→ Organization charts show
  % Areas of responsibility (flows upwards)
  % Lines of authority (delegated downwards)
→ A useful tool for figuring out where the stakeholders are

Identifying Stakeholders' Goals

→ Approach
  % Focus on why systems are constructed
  % Express the 'why' as a set of stakeholder goals
  % Use goal refinement to arrive at specific requirements
  % Goal analysis
    > document, organize and classify goals
  % Goal evolution
    > refine, elaborate, and operationalize goals
  % Goal hierarchies show refinements and alternatives
→ Advantages
  % Reasonably intuitive
  % Explicit declaration of goals provides sound basis for conflict resolution
→ Disadvantages
  % Captures a static picture - what if goals change over time?
  % Can regress forever up (or down) the goal hierarchy
Goal Modeling

→ (Hard) Goals:
  % Describe functions that must be carried out. E.g.
  > Satisfaction goals
  > Information goals

→ Softgoals:
  % Cannot really be fully satisfied. E.g.
  > Accuracy
  > Security

→ Also classified temporally:
  % Achieve/Avoid goals
    > Reach some desired state eventually
  % Maintain/Avoid goals
    > Keep some property invariant
  % Optimize
    > A criterion for selecting behaviours

Agents:
  % Owners of goals
  % Choice of when to ascribe goals to agents:
    > Identify agents first, and then their goals
    > Identify goals first, and then allocate them to agents during operationalization

Modelling Tips:
  % Multiple sources yield better goals
  % Associate stakeholders with each goal
    > reveals viewpoints and conflict
  % Use scenarios to explore how goals can be met
  % Explicit consideration of obstacles helps to elicit exceptions

Goal Analysis

→ Goal Elaboration:
  % "Why" questions explore higher goals (context)
  % "How" questions explore lower goals (operations)
  % "How else" questions explore alternatives

→ Relationships between goals:
  % One goal helps achieve another (+)
  % One goal hurts achievement of another (-)
  % One goal makes another (++)
    > Achievement of one goal guarantees achievement of another
  % One goal breaks another (-)
    > Achievement of one goal prevents achievement of another
  % Precedence ordering - must achieve goals in a particular order

→ Obstacle Analysis:
  % Can this goal be obstructed, if so how?
  % What are the consequences of obstructing it?

Example Goal Elaboration

→ Some goals can never be fully satisfied
  % Treat these as softgoals
    > E.g. "system be easy to use": "access be secure"
    > Also known as non-functional requirements; quality requirements
  % Will look for things that contribute to satisficing the softgoals
    > E.g. for a train system:

Softgoals

- Serve more passengers
- Minimize costs
- Improve safety
- Add new tracks
- Increase train speed
- More frequent trains
- Minimize operation costs
- Minimize development costs
- Reduce staffing
- Maintain safe distance
- Clearer signaling
Example Scenario

Title: Successful meeting scheduled using messaging option

<table>
<thead>
<tr>
<th>Action</th>
<th>Goals satisfied</th>
<th>Obstacles / Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alice requests meeting, specifying participants, timeframe</td>
<td>Meeting requested; Attendee list obtained</td>
<td>What if selected timeframe is inflexible?</td>
</tr>
<tr>
<td>AS sends participant requests to Bob, Carlo and Daphne</td>
<td>?</td>
<td>Did we miss a goal?</td>
</tr>
<tr>
<td>Bob reads message</td>
<td>Participants informed</td>
<td>Can’t detect when messages are read; what happens if Bob reads the message but doesn’t reply?</td>
</tr>
<tr>
<td>Carlo reads message</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daphne reads message</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bob replies with preferences</td>
<td>Attendees preferences known</td>
<td>What if the preferences are mutually exclusive? Should we allow some to be higher priority?</td>
</tr>
<tr>
<td>Carlo replies with preferences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daphne replies with preferences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS schedules meeting</td>
<td>Room availability determined; room booked</td>
<td></td>
</tr>
<tr>
<td>AS notifies Alice, Bob, Carlo, Daphne of time and location</td>
<td>Meeting announced; Attendance Confirmed (?)</td>
<td>How do we know if they’ve all read the announcement? What if the schedule is no longer convenient for one of them?</td>
</tr>
</tbody>
</table>