

Lecture 12 Discovery

Discovery Phase Framework Collection

Heim, Chapters 4.1 - 4.2



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Chapter 4 Discovery

*The voyage of discovery is not in seeking new
landscapes but in having new eyes.*

(Proust, 1982)

- Discovery Phase Framework
- Collection
- Interpretation
- Documentation

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1-2

Discovery

- During the collection portion you will formally identify:
 - The people who are involved with the work
 - The things they use to do the work
 - The processes that are involved in the work
 - The information required to do the work
 - The constraints imposed on the work
 - The inputs required by the work
 - The outputs created by the work

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1-3

Discovery

- You will then interpret the information by:
 - Creating descriptions of the people who do the work
 - Describing the different goals involved in the work
 - Documenting the work step by step
 - Creating different stories about how the various aspects of the work are done
 - Creating charts and diagrams of the work flow
 - Tracing the different stories identified with the various people through the charts and diagrams

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1-4

Discovery Phase Framework

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The frame of reference must come from the observation and not be imposed on it

- During the discovery phase we must find out what we will need to know about the work that people do
 - We must understand what data is needed to create the design
 - We must create the proper tools to gather and interpret that data

Exploring the Work Domain

- Identify all stakeholders
 - The people that are involved either directly or indirectly in the work flow
 - The people who do the work
 - The people who manage the people who do the work
 - The people who are affected by the output of the work
 - The people who will benefit in some way from the work

Exploring the Work Domain

- There are four types of stakeholders:
 - **Primary**—The person who uses the design directly
 - **Secondary**—The person who either supplies input or receives output from the design
 - **Facilitator**—The person who maintains or develops the design
 - **Indirect**—The person who is affected by the use of the design but has no contact with it, such as the user's superior or coworkers and the client who is paying for the project (the client may or may not also be the primary stakeholder)

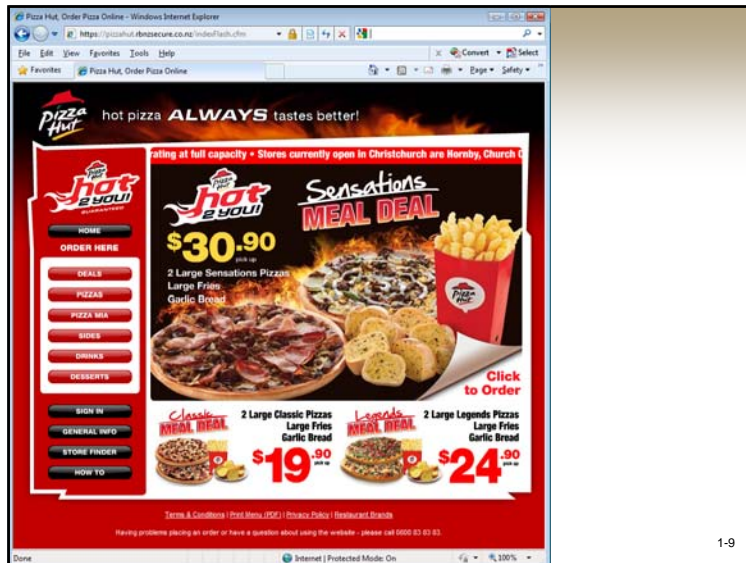
Exploring the Work Domain

- The primary stakeholders should have the most impact on the eventual design.

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All stakeholders should be considered during the design

- A new system that is not designed to be integrated with the work that other people in the company do may cause needless disruptions



1-9

Exploring the Work Domain

- Understand the competition
 - Learn from other design solutions
 - Assess both the positive and negative aspects
 - Respect copyrighted material and intellectual property

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1-10

Organizing the Discovery Process

- **Filters**
 - **Physical**—We can describe the physical aspects of the activity.
 - Where is it done?
 - What objects are involved?
 - **Cultural**—We can look at the activity in terms of the relationships among the people involved.
 - Are some people in a position to orchestrate and evaluate the performance of other people?
 - **Functional**—We can also look at these activities in terms of what actually happens.
 - Do some people create things?
 - Do other people document procedures and communications?

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1-11

Organizing the Discovery Process

- **Filters**
 - **Informational**—We can look at these activities in terms of the information that is involved.
 - What information is necessary to perform a task?
 - How does the information flow from one person to another?
 - How is the information generated?
 - How is the information consumed?

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1-12

Organizing the Discovery Process

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Interpretation means going from data to design requirements

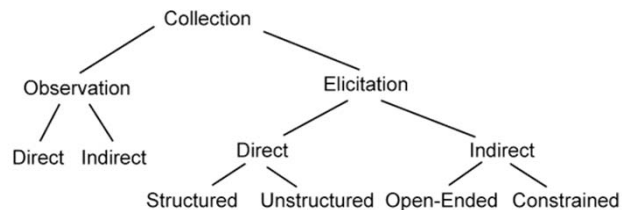
- The data collected must be organized and transformed into information
- The tools we will explore include the following:
 - Task analysis
 - Storyboarding
 - Use cases
 - Primary stakeholder profiles

Collection - *Methods of Collection*

• Methods of Collection

- **Observation:** Valuable information can be obtained by watching people perform their activities in the context of the work environment.
Observations can be made directly during the work day or indirectly using video and auditory recordings.
- **Elicitation:** Elicitation methods also involve direct and indirect methods of investigation, such as interviews, focus groups, and questionnaires.

Collection - *Methods of Collection*



Collection - *Observation*

- **Direct**—Ethnographic methods involve going to the work site and observing the people and the infrastructure that supports the work flow
- **Indirect**—You can use indirect methods of observation by setting up recording devices in the work place
 - The use of indirect methods may require a significant degree of transparency

Collection - Observation

- Concerns about Ethnographic Observations
 - Your presence will affect the people you observe (positive and negative)
 - Your presence can become annoying

Collection - Observation

- **Distributed Cognition** - the tendency to off-load cognitive tasks to objects in the environment or to distribute them among team members or coworkers
- Describe some aspects of distributed cognition in your own life

Collection - Elicitation

- Tools for eliciting information from the various stakeholders:
 - Direct
 - Interviews
 - Focus groups
 - Indirect
 - Corporate documentation
 - Logs and notes
 - Questionnaires

Collection - Elicitation – Direct - Interviews

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Be polite and courteous during interviews

- **Interviews**
 - On-site interviews: may help people remember aspects of the job
 - Away from job site interviews: not interrupted by normal work related events

Collection - Elicitation – Direct - Interviews

• Interviews

- **Open-ended questions:** can be used to explore issues and elicit rich information about complex topics
- **Closed-ended questions:** can generally be answered with a polar yes/no response or a simple description.

Collection - Elicitation – Direct - Interviews

• Interviews

- **Unstructured Interviews/Open-Ended Questions:** Early in the design process interviews are generally loosely structured.
- **Structured Interviews/Closed-Ended Questions:** As the design process proceeds, interviews can become more structured and focused on specific details and areas of the design.

Collection - Elicitation – Direct - Interviews

• Interviews

- **Predefined Scenarios:** The interviewer can use predefined scenarios to stimulate conversation and gain insight
- **Focus of Interview:** It is important that the purpose of the interview is clearly defined
- **Wrap-Up:** It is important to share your thoughts about the results of the interview
- **Advanced Organizers:** Advanced organizers can be helpful in setting the frame of the design process

Collection - Elicitation – Direct – Focus Groups

• Focus Groups

- Require a moderator/facilitator to keep discussion on track
- Maintain spontaneity
- Have clearly defined outcomes
- Provide participants with a context for the project

Collection - Elicitation – Direct – Focus Groups

- The advantages of focus groups:
 - They are relatively inexpensive and easy to set up.
 - They can be used early in the design process to help to identify and prioritize features.
 - They help you to gain insight into people’s attitudes and motivations.
- The disadvantages of focus groups:
 - They only represent the views of one particular group.
 - They are not statistically significant.
 - They do not provide information about usability.

Collection - Elicitation – Indirect

- **Corporate Documentation**—Information can be collected indirectly through corporate documents that reference policies and procedures.
- **Logs and Notes**—Indirect methods can also include user participation;
 - Ask people to keep a log of specific activities
 - Collect the notes people make to remind them of procedures and policies
 - sticky notes tacked onto a computer
 - reminders stuck on a corkboard

Collection - Elicitation – Indirect - Questionnaires

- Questionnaires are familiar
- Questionnaires can contain open and closed questions
- Questionnaires can include the following:
 - Mutually exclusive choices (radio buttons)
 - Non-mutually exclusive choices (checkboxes)
 - Ranges (overlapping, open-ended)
 - Scales (Likert scales, semantic differential scales)
 - Short-answer fill-ins
 - Comments

Collection - Elicitation – Indirect - Questionnaires

- 1 = Not Helpful 5 = Very Helpful
- How would you describe the Help files? 1 2 3 4 5
- Likert scale.
- The following are guidelines for defining scales:
 - Identify the scale and the significance of the units
 - Use the most intuitive order
 - You can use positive or negative scales or a combination of the two
 - Use odd numbers when you want to allow neutral responses.
 - Use even numbers when you want to force a choice of positive or negative.
 - Provide a not applicable (NA) response when appropriate.
 - Do not use too many degrees within the scale; seven is considered a general limit.

Survey form from www.stats.govt.nz

Page 4

9 Has the **entire** farm been sold, gifted or leased to others?

yes → go to **10**

no → go to **14**

10 What happened to the farm?

leased to others → lease end date OR ongoing lease

sold or gifted

month year

11 Does the business that previously operated the farm still operate?

yes → go to **12**

no → go to **74** on page 19

12 Mark all that apply.
What does this business do now?

it operates another farm or farms - please ensure a questionnaire is completed for each farm

it leases a farm or farms to others

it is involved in another activity

Please specify the main activity, for example accountancy, landscaping, etc.

13 If you have leased, sold or gifted the farm described in question **7**, and you are not completing this questionnaire for a new farm, mark here then go to **74** on page 19.

1-29

Collection - Elicitation – Indirect - Questionnaires

- Advantages of questionnaires:
 - They do not involve face-to-face contact and can be administered remotely.
 - They can be used to supply information for primary stakeholder profiles.
 - They can be used to ascertain whether proposed solutions will meet with acceptance as well as to elicit new ideas.
 - They can also be used to double-check the feedback obtained from one-on-one interviews.
 - They can reach a large audience with relatively little expense.

Collection - Elicitation – Indirect - Questionnaires

- Disadvantages of questionnaires:
 - Vague questions will return ambiguous responses that will serve no useful purpose or the design.
 - People do not like to fill out long questionnaires.
 - Closed-ended questions can restrict responses.
 - Open-ended questions can be hard to quantify.

Collection - Elicitation – Indirect - Questionnaires

- Guidelines for questionnaires:
 - Be consistent.
 - Phrase instructions clearly.
 - Speak the user's language.
 - Avoid jargon or technical terms.
 - Order the questions beginning with the easy or less controversial ones.
 - Use logical grouping.
 - Avoid compound questions.
 - Use appropriate form elements, for example, radio buttons, checkboxes, and so on.
 - Use an appropriate scales for questions with discrete responses.
 - Avoid overlapping ranges.
 - Include a "None of the above" when appropriate.
 - Be sensitive to the balance of positive and negative questions