Data Science Joint Education Program

INFO 200
Information Systems Analysis

Chapter #5

Information Gathering: Unobtrusive Methods

Keywords and Phrases

Research Methods (RM)	qualitative documents
analysts playscript	quantitative documents
Business-to-business (B2B) e-commerce	sample population
Business-to-consumer (B2C) e-commerce	sampling
cluster sampling	simple random sample
complex random sample	stratified sampling
confidence level	STROBE
corporate websites	systematic observation
external information sources	systematic sampling
office lighting and colour	text analytics
purposive sample	statistical analysis

Unobtrusive Methods to Elicit Human Information Requirements

- The acquisition of information from people working in an organisation can use two methods (research methods):
  - *Interactive* methods
  - *Unobtrusive* methods
- Chapter #4 introduces *interactive* methods
- Chapter #5 introduces *unobtrusive* methods
- Unobtrusive methods are:
  - Sampling
  - Investigation
  - Observation and interaction
- Unobtrusive methods will generally be used along with interactive methods

Chapter #5 Learning Objectives

- On completion of this chapter you will:
  - Recognize the value of unobtrusive methods
  - Understand the concept of sampling
  - Construct useful samples of people, documents, and events
  - Interpret managers' and customers' messages, interviews, and communications using text analysis
  - Create an analysts playscript to observe decision-makers activities
  - Apply the STROBE technique to observe and interpret a decision-makers environment and interaction technologies

Major Topics Introduced

- Sampling
  - The need for sampling
  - Sampling design
  - The sample size decision
- Document analysis
  - Systematically examining *quantitative* and *qualitative* documents
- Using text analysis
- Observation
  - Observing a decision-makers behaviour
  - Observing a typical managers decision-making activities
  - Observing the physical environment
  - Structured observation of the environment (STROBE)
  - Applying STROBE

Chapter #5 Overview

- Chapter #5 provides an understanding of research methodologies including:
  - Sampling
  - Analysis of *quantitative* documents
  - Analysis of *qualitative* documents
  - Text analysis
  - Observing a decision-makers behaviour
  - Observing the physical environment
- Unobtrusive methods:
  - Are less disruptive (but) they are insufficient when used alone
  - A multiple methods approach is required with unobtrusive methods used in conjunction with intrusive methods

Sampling

Sampling

- Sampling is a process of systematically selecting representative elements of a population
- Two key decisions are required

1. An organization (people) generate reports, documents, memos, and websites (etc)
   - *Action*: Identify the useful documents and the documents to discard in the analysis
2. Many people within an organisation (stakeholders) in an organisation will be *affected* by the proposed information system
   - *Action*: who should an analyst select for *interviews*, *questionnaires*, or *observation*

- Sampling can:
  - Accelerate information gathering by selecting relevant and significant data from a selected population
  - Avoid an analysis of data from the whole population

The Need for Sampling

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The Need for Sampling

- There and many reasons why sampling is applied in the information gathering process:
- To avoid abortive examination and analysis of irrelevant data a representative sample (the population) drawn from the whole population is selected for interview, questionnaire, or observation
- The potential benefits include:
  - Containing costs
  - Speeding up data gathering
  - Improving effectiveness
  - Reducing bias

Sampling Benefits

- Sampling Effectiveness
  - Sampling can improve effectiveness if more accurate information is obtained
  - This can be achieved talking to fewer employees but asking them questions that are more detailed
  - If less people are interviewed there is more time to follow up on missing or incomplete data
- Sampling Bias
  - Bias is potentially a serious issue
  - Data gathering bias can be reduced by sampling
  - In asking for an opinion about a permanent feature of the installed information system – for example:
    - An executive interviewed may provide a biased evaluation as the possibility change is low

Sampling Design

Sampling Design Considerations

- Good sampling design requires a structured approach which implements four essential processes (steps) as follows:
  - Determining the data to be collected or described
  - Determining the population to be sampled
  - Choosing the type of sample
  - Deciding on the sample size (a small (or) unrepresentative sample may induce bias into the analysis)
- These steps are introduced in the following slides

Determining the Data

- #

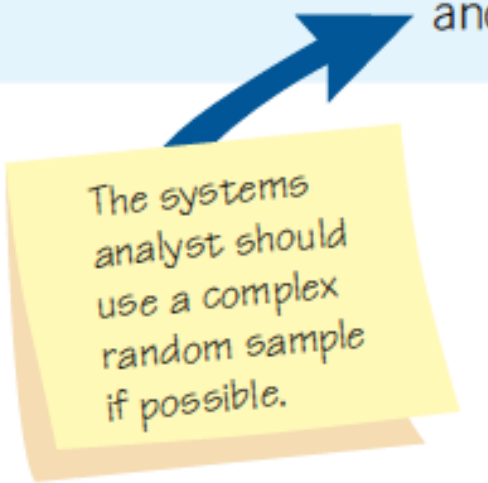
Determining the Population

- #

Choosing the Type of Sampling

- There are four main types of sample the available:
  - Convenience
  - Purposive
  - Simple random
  - Complex random

	Not Based on Probability	Based on Probability
Sample elements are selected directly without restrictions	Convenience	Simple random
Sample elements are selected according to specific criteria	Purposive	Complex random (systematic, stratified, and cluster)



- **Figure 5.1**
- Four main sample types

The Approaches to Sampling

- *Convenience* samples:
  - Are unrestricted non-probability samples
  - This sample is the easiest to arrange (but) also this method is the most unreliable
- *Purposive* sampling:
  - Is based on judgment
  - Choose a group of individuals who appear knowledgeable and are interested in the new information system
  - This approach results in a nonprobability sample and is only moderately reliable
- *Simple random* sampling:
  - Is often not practical especially where sampling involved documents or reports
- *Complex random* sampling:
  - Is the most appropriate approach and includes:
  - This approach includes: systematic sampling / stratified sampling / cluster sampling

The Sampling Size Decision

Deciding on the Sample Size

- Determining the sample size may use seven steps:
  1. Determine the attribute (in this case the type of errors to look for)
  2. Locate the database or reports in which the attribute can be found
  3. Examine the attribute (estimate the proportion of the population having the attribute)
  4. Make the subjective decision regarding the acceptable interval estimate
  5. Choose the confidence level (look up the confidence coefficient value in a table)
  6. Calculate the standard error of the proportion (see pp. 173)
  7. Determine the sample size *n* using the formula (see pp. 173)
- Details of the calculation can be found on pp. 173

Calculate the Standard Error of the Proportion

$$\sigma_p = i/z$$

where:

i = interval estimate

z = confidence coefficient found in the confidence level lookup table

Determine the Sample Size

$$n = \frac{p(1-p)}{\sigma_p^2} + 1$$

where:

σ_p = standard error

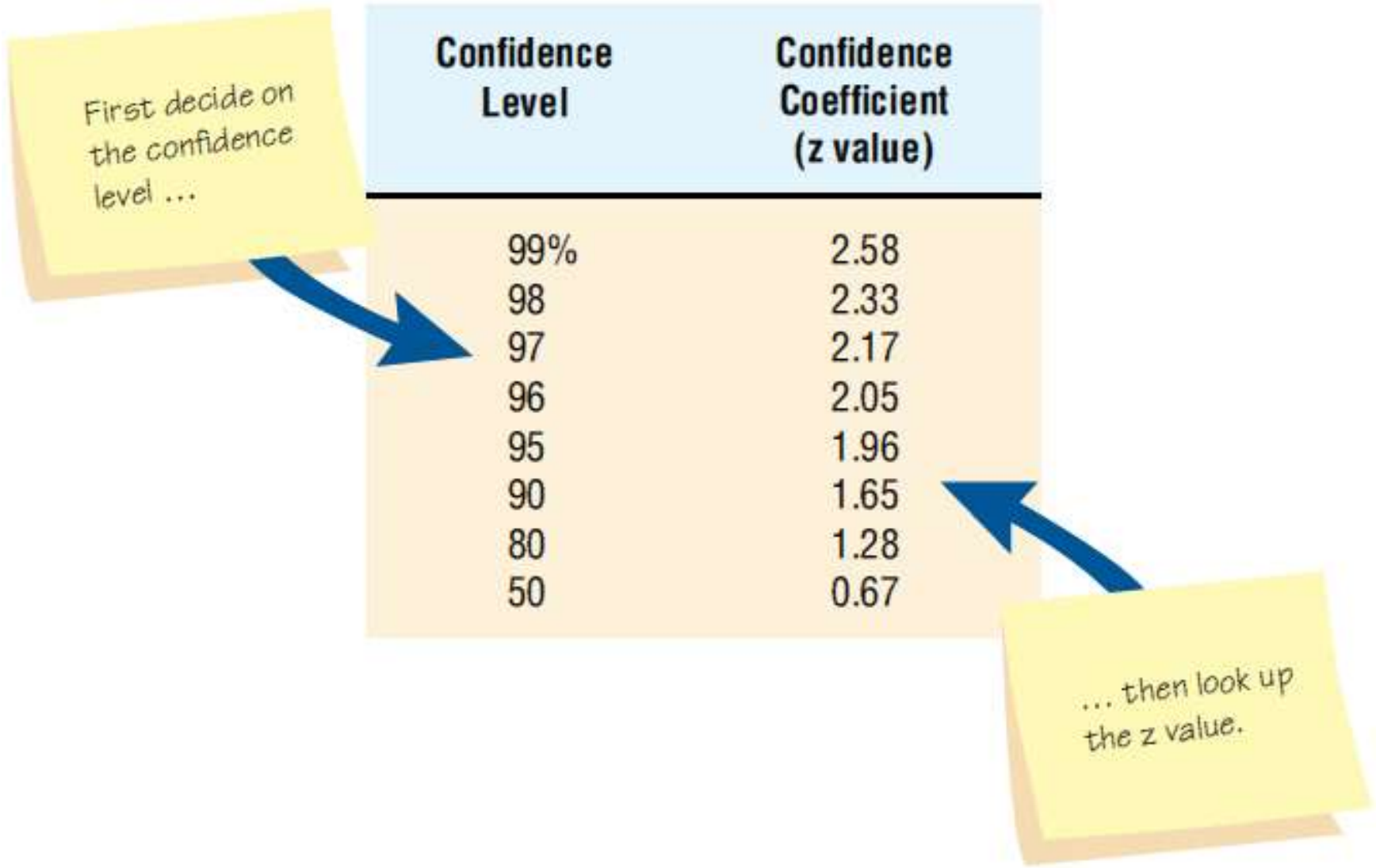
ρ = the proportion of the population having the attribute

Example: A. Sembly Company

- The seven steps identified can be demonstrated by the following example which shows:
  - A worked example where the aim is to determine the percentage (%) of orders that contain errors
- This can be achieved using the following calculation:
  - Locate order forms from the past six months
  - Examine order forms and conclude that ***p*** = 5% (0.05)
  - Subjective decision of acceptable interval ***i*** = ± 0.02
  - Look up confidence coefficient ***z*** - value = 1.96 (see Figure 5.2)
  - Calculate σ_p = i / z = 0.02/1.96 = 0.0102 (see pp. 174)
  - Determine ***n*** where n = 458 (see pp. 174)

Example: A. Sembly Company

- **Figure 5.2**
- A systems analyst can use a table of area(s) under a normal distribution curve
- To look-up a value
- When the required confidence level has been decided



Confidence Level	Confidence Coefficient (z value)
99%	2.58
98	2.33
97	2.17
96	2.05
95	1.96
90	1.65
80	1.28
50	0.67

Example Conclusion

- Set the sample size at 458
- Clearly: a greater confidence level or a smaller acceptable interval estimate would require a larger sample size
- If we:
  - Keep the acceptable interval estimate the same
  - But increase the confidence level to 99 percent
    - With a z value of 2.58
  - The necessary sample size becomes 1,827
  - A figure much larger than the 458 we originally decided to sample

Analysis Methods

- A systems analysis clearly involves analysis
- An analysis is essentially an investigation of an organisation to identify data and discover hard data related to:
  - The *culture* of an organisation
  - The *socio-technological* structure
  - The management and organisational *policies*
- This process may use two approaches to an analysis
  - *Qualitative*
  - *Quantitative*
- In practice all analyses will use a combination of both approaches

Quantitative Analysis

- An organization's documents are often paper reports showing the status of:
  - Inventories / sales / production / satisfaction (customer and employee)
  - The reports will be stored in a digital format
- Many of the reports are not complex and are designed to provide feedback and for decision-making and action
- Quantitative documents
  - Are available for interpretation
  - Include: reports / records / performance reports / a variety of forms
- All the documents are targeted for specific purposes and audiences

Systematically Examining *Quantitative* Documents

Quantitative Analysis Documents

- An organisation will generate a range of documents suitable for quantitative analysis
- The range of documents include:
  - Reports used for decision making which include:
    - Sales reports
    - Production reports
    - Summary reports
  - Performance reports
  - Records
  - Data capture forms
  - Ecommerce and other transactions

Performance Reports

- Performance reports include data such as:
  - Recent costs
  - Current inventory
  - Sales
  - Production
- Performance reports provide a basis upon which the actual performance can be measured against the intended (planned) performance
- Figure 5.3 shows a clear improvement in sales performance over two to three months

A Performance Report

- Figure 5.3 is a Performance Report Showing Improvement over time
- It is important to be able to determine whether that gap is widening or narrowing as an overall trend in whatever performance is being measured

Week	Number of Batches Produced	Number of Batches Rejected	Percentage Rejected	Amount Away from 5% Goal
2/2	245	19	7.8	2.8
2/9	229	19	8.3	3.3
2/16	219	14	6.3	1.3
2/23	252	13	5.2	0.2
3/2	245	13	5.3	0.3
3/9	260	13	5.0	***
3/16	275	14	5.1	0.1
3/23	260	13	5.0	***
3/30	260	13	5.0	***
4/6	244	12	4.9	***
4/13	242	11	4.5	***
4/20	249	11	4.4	***
4/27	249	11	4.4	***

*** indicates met or exceeded the < 5% goal

Performance reports show goals ...

... and trends.

FIGURE 5.3

A performance report showing improvement.

Manually Completed Payment Record (Figure 5.4)

- Records provide periodic updates of the business activity
- Figure 5.4: shows a payment record for an apartment rental
- In an analysis we can inspect a record in a many ways which are indicative of their usability:
  - Checking for errors in amounts and totals
  - Looking for opportunities to improve the recording form design
  - Observing the number and type of transactions
  - Watching for instances in which the computer can simplify the work through calculations and data manipulation

Payment Record

- Figure 5.4:
- A manually completed payment record for an apartment rental
- While the example shows a manually completed form we may design the form as a spreadsheet

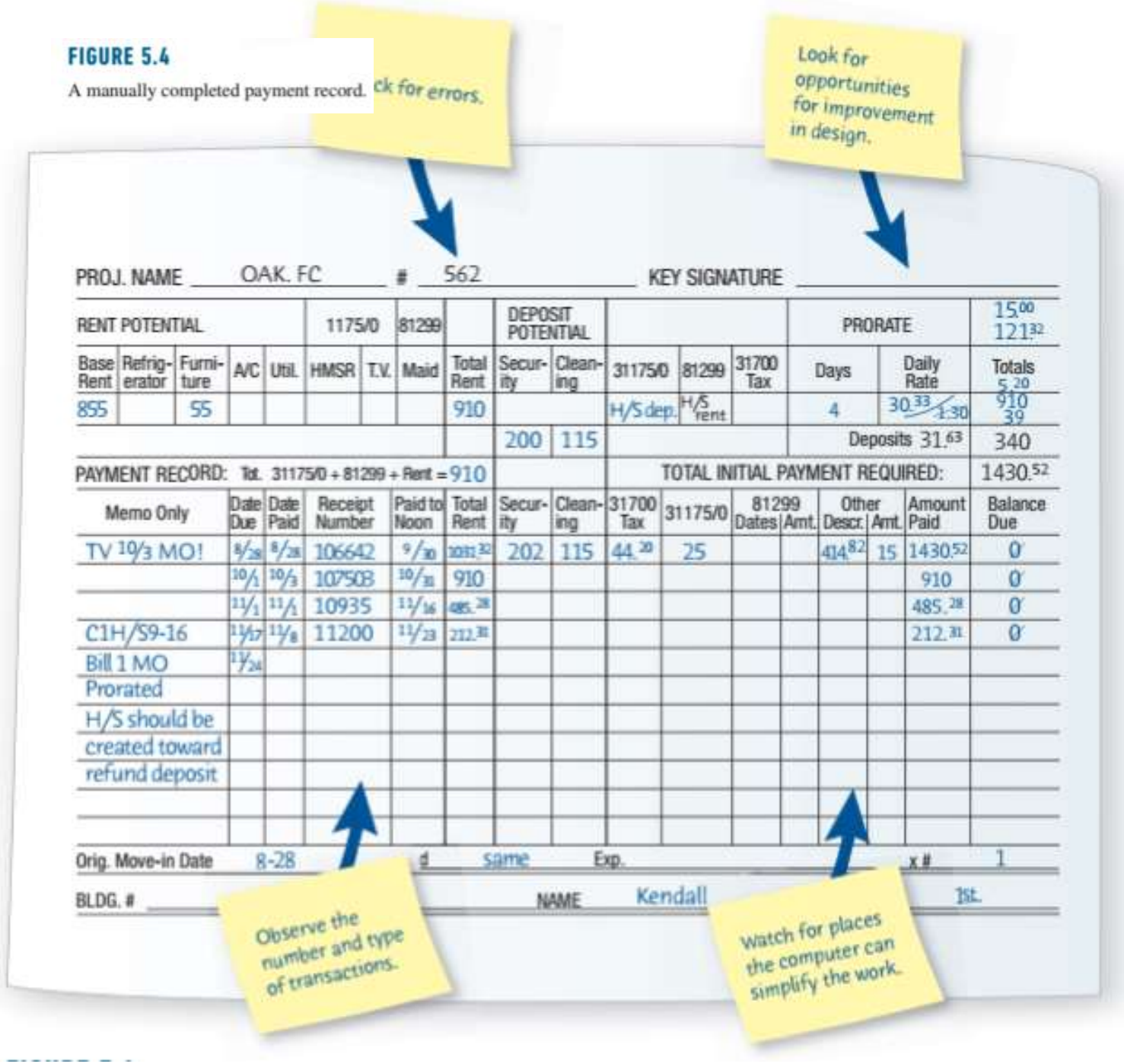


FIGURE 5.4

A manually completed payment record.

Look for errors.

Look for opportunities for improvement in design.

PROJ. NAME OAK. FC # 562 KEY SIGNATURE

RENT POTENTIAL					1175/0	81299			DEPOSIT POTENTIAL						PRORATE			15.00 / 121.32
Base Rent	Refrig-erator	Furni-ture	A/C	Util.	HMSR	T.V.	Maid	Total Rent	Secur-ity	Clean-ing	31175/0	81299	31700 Tax		Days	Daily Rate	Totals 5.20	
855		55						910			H/S dep.	H/S rent			4	30.33 / 1.30	910 / 39	
									200	115						Deposits 31.63	340	
PAYMENT RECORD: Tot. 31175/0 + 81299 + Rent = 910											TOTAL INITIAL PAYMENT REQUIRED:						1430.52	

Memo Only	Date Due	Date Paid	Receipt Number	Paid to Noon	Total Rent	Secur-ity	Clean-ing	31700 Tax	31175/0	81299 Dates	81299 Amt.	Other Descr.	Other Amt.	Amount Paid	Balance Due
TV 10/3 MO!	8/28	8/28	106642	9/30	1031.32	202	115	44.20	25			414.82	15	1430.52	0
	10/1	10/3	107503	10/31	910									910	0
	11/1	11/1	10935	11/16	485.28									485.28	0
C1H/S9-16	11/17	11/8	11200	11/23	212.31									212.31	0
Bill 1 MO	12/24														
Prorated															
H/S should be															
created toward															
refund deposit															

Orig. Move-in Date 8-28 d same Exp. x # 1

BLDG. # NAME Kendall 1st.

Observe the number and type of transactions.

Watch for places the computer can simplify the work.

Data Capture Forms

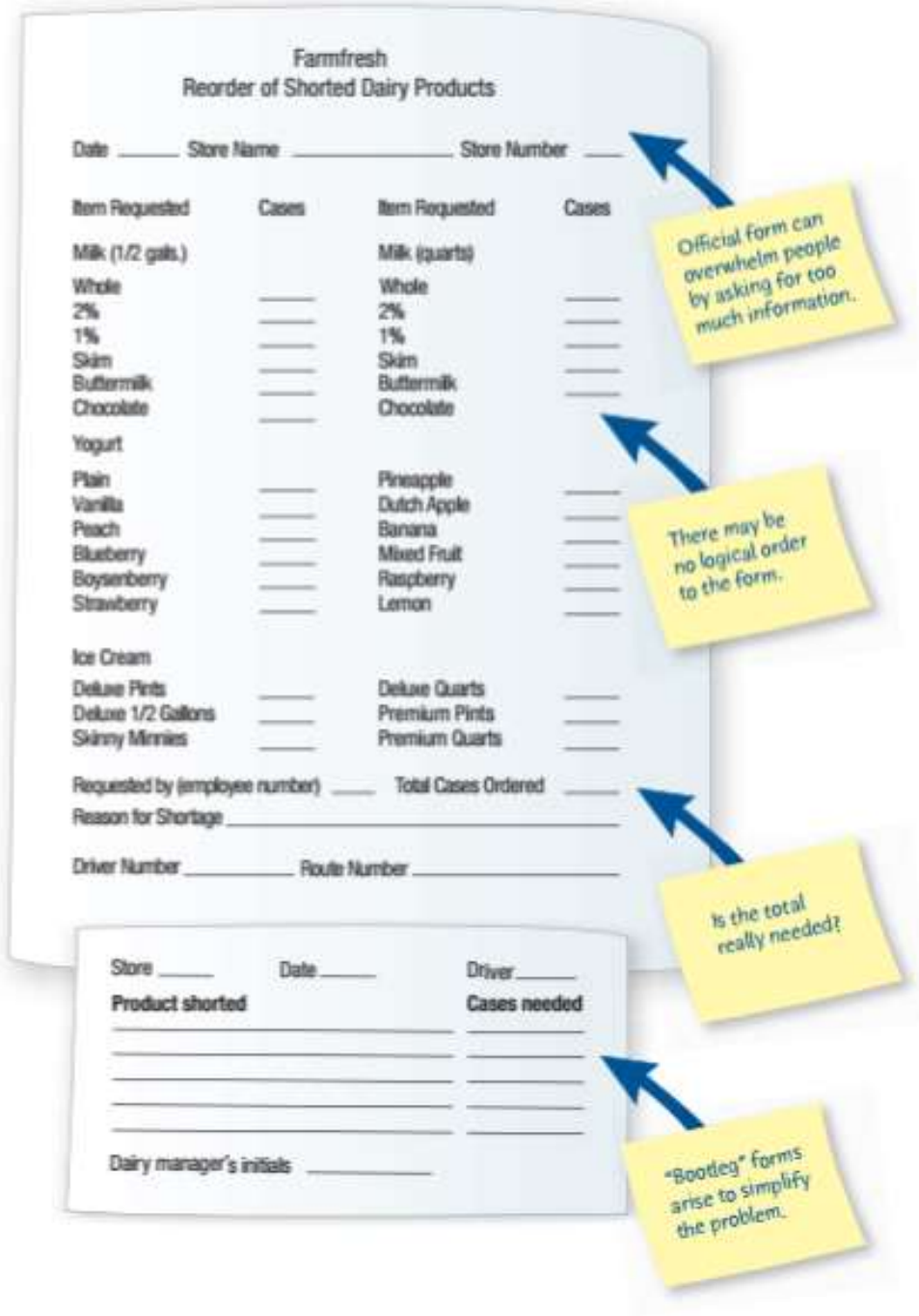
- When creating a catalogue of forms to assist in the recording and understanding the information flow currently in use in an organisation follow the following steps:
  - Collect examples of all forms currently in use (official or unofficial)
  - identify the types of form
    - Printed (in-house) / handwritten / computer generated (in-house) / inline forms / web fill-in forms / printed externally or purchased / etc
  - Document intended for distribution purposes
  - Compare the intended distribution with the actual distribution list
- While this procedure is time consuming it can be very useful

Data Capture Forms

- Figure 5.5 shows:
- Questions to ask about official and unofficial (bootleg) forms that are already filled out
- An analyst must keep in mind the questions shown in Figure 5.5
- The questions include the list on the following slide

FIGURE 5.5

Questions to ask about official and bootleg forms that are already filled out.



Data Capture Forms (1)

- Questions to be asked include:
  - Is the form filled out correctly?
    - If not what items have been omitted (are the items omitted consistently?
    - Why?
  - Are some forms never used?
    - Why?
    - Check the design and the appropriateness of each form for its designed purpose
  - Are all copies of the forms circulated to the correct people or filled out appropriately?
    - If not, why not?
    - Can people who must access online forms to do so?
    - Check on permissions needed and if links to forms and functioning properly

Data Capture Forms (2)

- Questions to be asked include:
  - If a paper form is offered as an alternative to a web-based form
    - Compare the completion rates for both
  - Are “unofficial” or bootleg forms being used on a regular basis?
    - This may indicate a problem in standard procedures (or)
    - May indicate political battles in the organisation over who is controlling the type of input and who enters data

Systematically Examining *Qualitative* Documents

Analysis of Qualitative Documents

- Documents to which qualitative analysis is applied:
  - Reports (used for decision making) and performance reports
  - Records
  - Data capture forms
  - E-commerce and other transactions including web pages
  - Manuscript and electronic documents
  - Written email messages and memos
  - Signs on bulletin boards
  - Procedural manuals and policy handbooks
- Such documents are frequently rich in detail and reveal human expectations for the behaviour of others and their interactions

Analysis of Qualitative Documents

- An analysis will for example consider:
- Memos (and email threads)
  - Check who sends and receives them
  - Memos will reveal an organizational dialogue
- Signs (or) posters on bulletin boards (or) in work areas
  - Reveal people who are ‘active’ and topics and values
- Corporate websites (B2B and B2C)
  - Reveal technical, aesthetic, and managerial features of the organization
- Manuals
  - Reveal operating procedures for organizational tasks and functions
- Policy handbooks
  - Cover broad areas of employee / customer / corporate policies

Analysis of Qualitative Documents

- *Qualitative* examination interprets interpersonal relationships in organisations by:
  - Examination documents for key or guiding metaphors (see Figure 5.6)
  - Looking for *'insiders' vs 'outsiders'* (or an "*us* against *them*" mentality
  - List terms that characterise 'good' or 'evil' and appear repeatedly in documents
  - Look for the use and meaningful messages and graphics, logos, and icons posted on common areas or on web pages
  - Recognizes a sense of humour (if present)

Analysis of Qualitative Documents

- Qualitative analysis is a difficult topic as it can be very subjective (quantitative is more certain)
- *Qualitative* analysis can address:
  - *affective* computing
  - *emotion* and *cognitive* considerations
  - *motivations*
  - *HCI* considerations
- In summary we are looking for areas which:
  - Are difficult to quantify (but)
  - Are very important in analysing the socio-technical aspects of the project

Text Analysis

- Figure 5.6
- Analysis of memos provides
  - Insight into the Metaphors that Guide the Organization's Thinking
- Note the words:
  - "they'll enjoy working here. Being together"
  - "one big happy family"
  - "Help yourself"
  - "welcome to"

MEMO

To: All Night Call Desk Staff
From: S. Leep, Night Manager
Date: 2/15/2018
Re: Get Acquainted Party Tonight

It's a pleasure to welcome two new 11-7 Call Desk staff members, Twyla Tine and Al Knight. I'm sure they'll enjoy working here. Being together in the wee hours makes us feel like one big happy family. Remember for your breaks tonight that some of the crew has brought in food. Help yourself to the spread you find in the break room, and welcome to the clan, Twyla and Al.

HYPERCASE EXPERIENCE 5.1

HYPERCASE EXPERIENCE 5.1

"We're glad you find MRE an interesting place to consult. According to the grapevine, you've been busy exploring the home office. I know, there's so much going on. We find it hard to keep track of everything ourselves. One thing we've made sure of over the years is that we try to use the methods that we believe in. Have you seen any of our reports? How about the data that were collected on one of Mr. Evan's questionnaires? He seems to favor questionnaires over any other method. Some people resent them, but I think you can learn a lot from the results. Some people have been good about cooperating on these projects. Have you met Kathy Blandford yet?"

HYPERCASE Questions

1. Use clues from the case to evaluate the Training Unit's computer experience and its staff's feeling about the PSRS. What do you think the consensus is in the Training Unit toward a computerized project tracking system?
2. What reports and statements are generated by the Training Unit during project development? List each, with a brief description.
3. According to the interview results, what are the problems with the present project tracking system in the Training Unit?
4. Describe the "project management conflict" at MRE. Who is involved? Why is there a conflict?
5. How does the Management Systems Unit keep track of project progress? Briefly describe the method or system.

Using Text Analysis

Text Analytics

- Text analytics:
  - Is a fertile field of research in computer science
  - Utilises software that can analyse qualitive data from a range of sources including:
    - Interview transcripts
    - Written reports
    - Customers communications though emit, wikis, blogs, chat rooms, and social media
- Unstructured qualitative (or *soft)* data are generated through:
  - Blogs and chat room using open question, online discussions conducted over the web
  - Exchanges over social media and other web-generated dialogues between customers and organisations

Text Analysis

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Text Analytics

- The analysis of text can provide organisations with valuable insights into:
  - The organisation's values and actions
  - Customers and vendors motivation(s) for starting, maintaining, improving, or closing a relationship
  - Chapter #13 (database design) shows that structured data is well organised and standard queries (SQL) and algorithms make searching data simpler and more certain
- There are many analytic software solutions available (proprietary and open-source)
- Figures 5.7.and 5.8 show typical software solutions

Text Analytics (Figures 5.7.and 5.8)

- Figures 5.7:
  - Shown is a concept map generated with interview data using software from an open source communities project
  - Note: how the different data points appear with the users thesaurus words
- Figure 5.8:
  - Shows the ranked concepts for the open communities source project using the *Leximancer* software
  - Note:
    - The prominence of the relationship between the category “community” and the use of the word “development”
    - The user can visually see the prominent relationship between the category “license” and the use of the word project

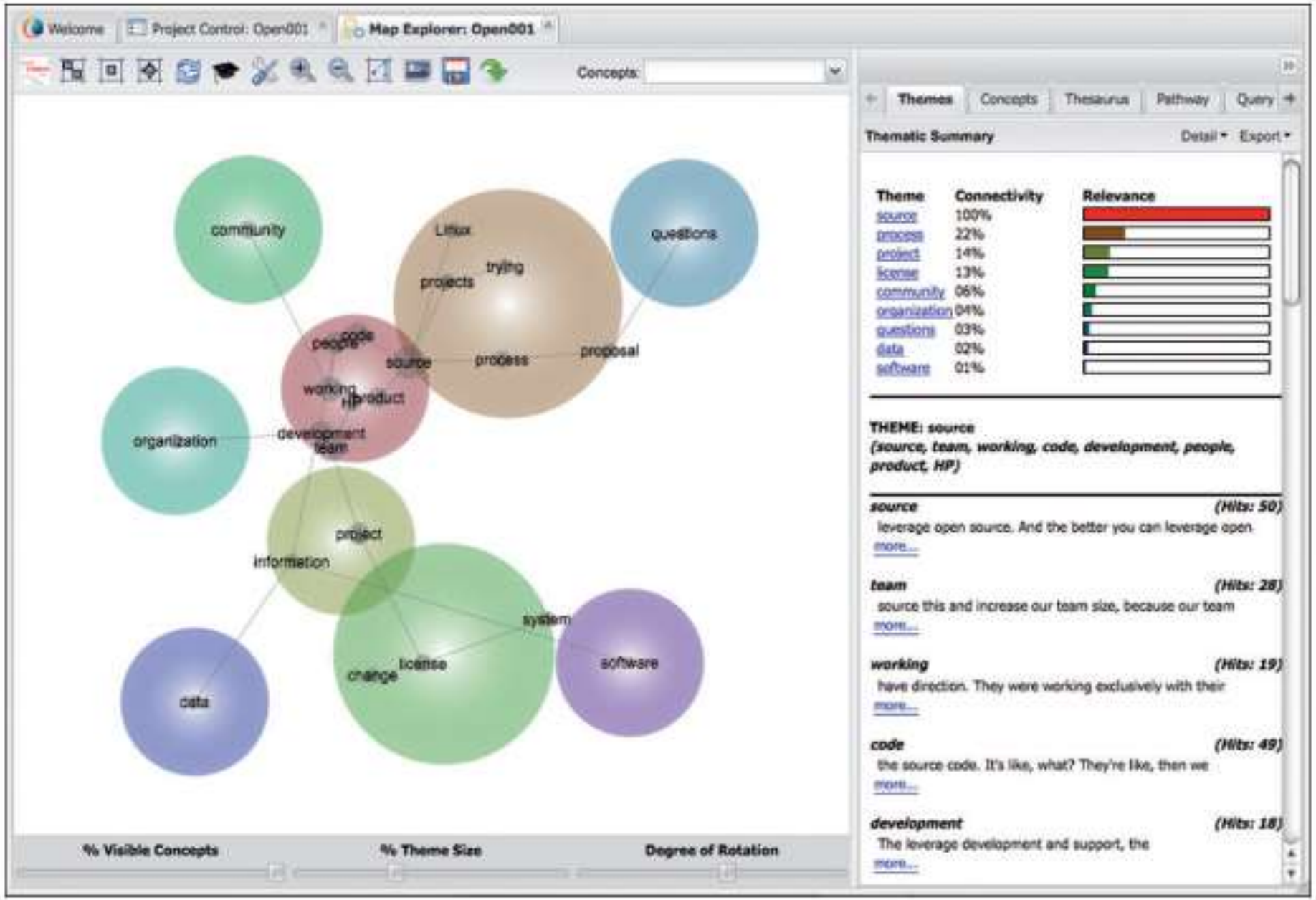


FIGURE 5.7

Concept map showing prominence and relationships of concepts in Open Source Communities project interview data.

Category: community

Concept	Rel Freq (%)	Strength (%)	Prominence
development	2	5	4.1
information	2	5	4.1
source	4	4	2.9
system	< 1	< 1	0.0
project	< 1	< 1	0.0
team	< 1	< 1	0.0
organization	< 1	< 1	0.0
product	< 1	< 1	0.0

Category: license

Concept	Rel Freq (%)	Strength (%)	Prominence
project	11	4	8.6
system	5	3	7.1
source	5	2	3.7
team	< 1	< 1	0.0
organization	< 1	< 1	0.0
development	< 1	< 1	0.0
product	< 1	< 1	0.0
information	< 1	< 1	0.0

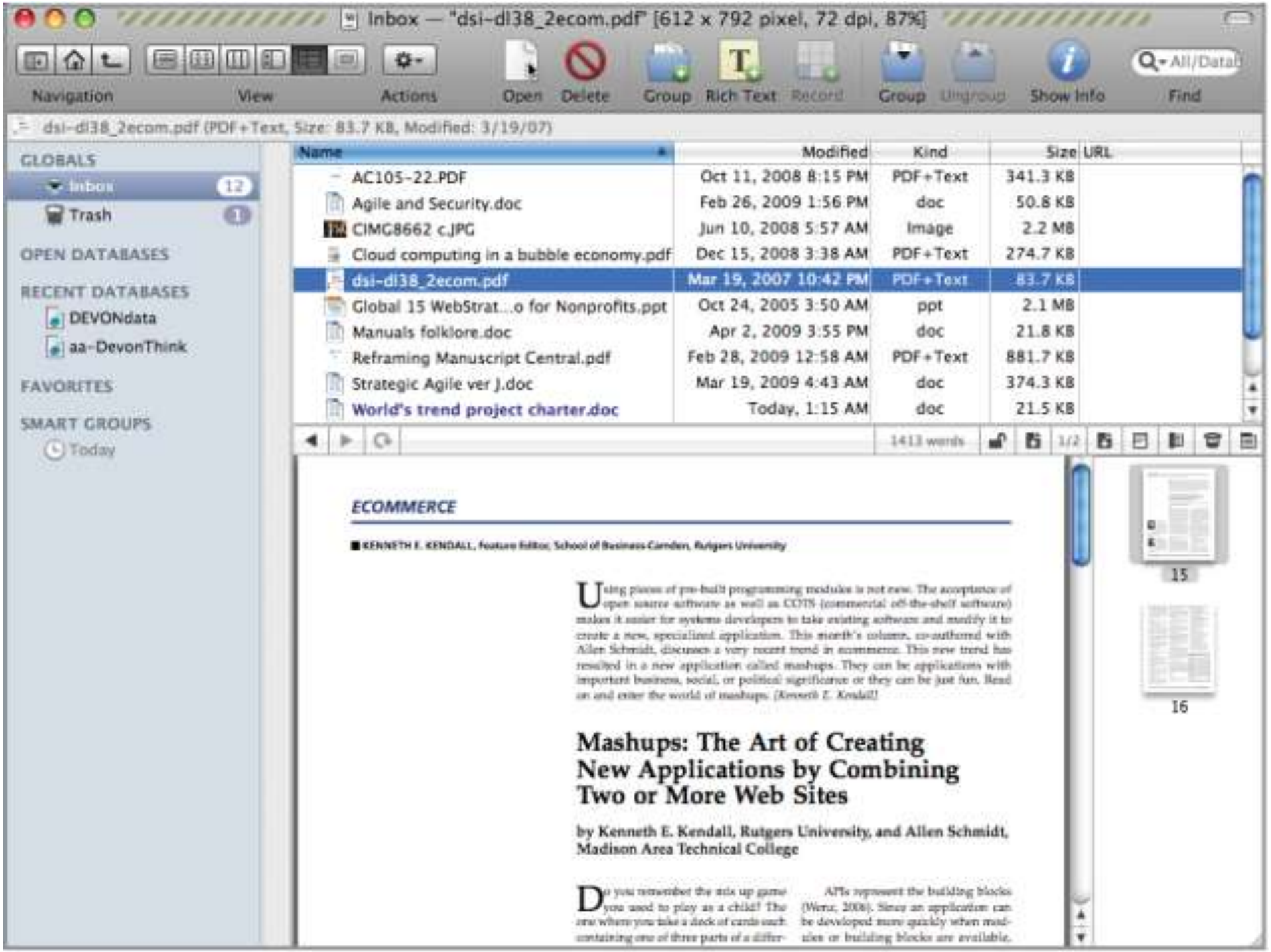
FIGURE 5.8

Ranked concepts for categories overview for the Open Source Communities project using the Leximancer Insight Dashboard. (Two screenshots from Leximancer software. Copyright © by Leximancer Pty Ltd. Reprinted with permission.)

Text Analytics Design

- Interface design is critical
- The interface design must:
  - Demonstrate (to the organisation) the value an analysis of unstructured data
  - Qualitative data can help to identify and predict future trends in customer, vendor, and supplier behaviours
- This process:
  - Converts *qualitative* data into *quantitative* results (but)
  - Systems that use analytic software is a useful means to an end
  - Include: guidelines and suggestions on how the results should be viewed and interpreted

FIGURE 5.MAC


Inbox — "dsi-dl38_2ecom.pdf" [612 x 792 pixel, 72 dpi, 87%]
Navigation
View
Actions
Open
Delete
Group
Rich Text
Record
Group
Ungroup
Show Info
Find
dsi-dl38_2ecom.pdf (PDF+Text, Size: 83.7 KB, Modified: 3/19/07)
GLOBALS
Inbox 12
Trash 1
OPEN DATABASES
RECENT DATABASES
DEVONdata
aa-DevonThink
FAVORITES
SMART GROUPS
Today
Name
Modified
Kind
Size
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Reframing Manuscript Central.pdf Feb 28, 2009 12:58 AM PDF+Text 881.7 KB
Strategic Agile ver J.doc Mar 19, 2009 4:43 AM doc 374.3 KB
World's trend project charter.doc Today, 1:15 AM doc 21.5 KB
1413 words
1/2
ECOMMERCE
KENNETH E. KENDALL, Feature Editor, School of Business Camden, Rutgers University
Mashups: The Art of Creating New Applications by Combining Two or More Web Sites
by Kenneth E. Kendall, Rutgers University, and Allen Schmidt, Madison Area Technical College
15
16

Observation

Observation

- What is management?
  - Management is both a *skill* and an *art* which must be both taught and learned over time (***experience***)
  - As such, management and management functions are “slippery” topics which are hard to define and measure
- A systems analyst can obtain some insights into a managers activities using interviews and questionnaires
  - This research method will identify much ***explicit*** knowledge
  - Interviews and questionnaires will however fail to collect the managers experience (***tacit*** knowledge)
- To attempt to address this an analysis can use observation

Observing a Decision-Makers Behaviour

Observing a Managers Activities

- Observation allows an analyst to see how managers:
  - Gather, process, share, and use information and technology to achieve tasks
- An analysis may use boxes and arrows to model behaviours but managers are human
  - A potential *humanist* approach is the analysts *playscript*
- In a playscript:
  - The “actor” is the decision-maker who is observed “acting” (making decisions)
  - In setting up a playlist the actor is shown in the left column with the activities shown in the right column

Observing a Managers Activities

- As shown in Figure 5.9:
  - All activities are recorded using *verbs* (e.g., “talking”, “sampling”, “corresponding”, “deciding”
- Using a playscript is:
  - An organized and systematic approach which demands that an analyst can understand and articulate the actions
  - This approach provides a basis upon which the information needed to identify the major or frequent decisions

- As shown in Figure 5.9:
  - All activities are recorded using *verbs* (e.g., “talking”, “sampling”, “corresponding”, “deciding”
- Using a playscript is:
  - An organized and systematic approach which demands that an analyst can understand and articulate the actions
  - This approach provides a basis upon which the information needed to identify the major or frequent decisions

Playscript Analysis | Company: Solid Steel Shelving | Analyst: L. Bracket | Scenario: Quality Assurance | Date: 1/3/2018

Decision Maker (Actor)	Information-Related Activity (Script)
Quality Assurance Manager	Asks shop floor supervisor for the day's production report
Shop Floor Supervisor	Prints out daily computerized production report
	Discusses recurring problems in production runs with quality assurance (QA) manager
Quality Assurance Manager	Reads production report
	Compares current report with other reports from the same week
	Inputs data from daily production run into QA model on computer
	Observes onscreen results of QA model
	Calls steel suppliers to discuss deviations from quality standards
Shop Floor Supervisor	Attends meeting on new quality specifications with quality assurance manager and vice president of production
Quality Assurance Manager	Drafts letter to inform suppliers on new quality specifications agreed on in meeting
	Sends draft to vice president via email
Vice President of Production	Reads drafted letter
	Returns corrections and comments via email
Quality Assurance Manager	Reads corrected letter on email
	Rewrites letter to reflect changes

FIGURE 5.9

A sample page from an analyst's playscript describing decision making.

Observing the Physical Environment

Observing the Physical Environment

- Observing managers (and staff) can reveal much regarding the human and physical environment (generally offices) in which they work
- Decision makers and influencers who are influenced by their:
  - Physical environments and by their
  - Interactions with the technology
- Many HCI concerns can be identified through structured observation and confirmed using other techniques (e.g., interviews or questionnaires)

Structured Observation of the Environment (STROBE)

STROBE

- A successful application of the ***STR****uctured* ***OB****servation of the* ***E****nvironment* (Strobe) technique requires the observation of seven concrete elements commonly found in offices
- The seven observable elements along with key questions which arise are listed in Figure 5.10
- The elements can reveal much about how a manager (decision-maker):
  - Gathers information
  - Processes information
  - Shares (distributes) information
  - Information on the credibility of manager in the workplace

STROBE

- Figure 5.10
- Seven concrete observable elements of STROBE
- Examples of questions an analyst may ask

Observable Element	Questions an Analyst Might Investigate
Office location	Who has the corner office? Are the key decision makers dispersed over separate floors?
Desk placement	Does the placement of the desk encourage communication? Does the placement demonstrate power?
Stationary equipment	Does the decision maker prefer to gather and store information personally? Is the storage area large or small?
Props	Is there evidence that the decision maker uses a PC, smartphone, or tablet computer in the office?
External information sources	Does the decision maker get much information from external sources such as trade journals or the Web?
Office lighting and color	Is the lighting set up to do detailed work or more appropriate for casual communication? Are the colors warm and inviting?
Clothing worn by decision makers	Does the decision maker show authority by wearing conservative suits? Are employees required to wear uniforms?

FIGURE 5.10
Seven concrete observable elements of STROBE and examples of questions an analyst may want to ask.

STROBE

- The use of the STROBE technique can provide:
  - A better understanding of how managers (and staff) gather, process, store, and use information
- Figure 5.11 shows:
  - A summary of the characteristics exhibited by managers (decision-makers)
    - There are seven characteristics identified
  - The corresponding observable elements

STROBE

FIGURE 5.11

A summary of decision maker characteristics that correspond to observable elements in the physical environment.

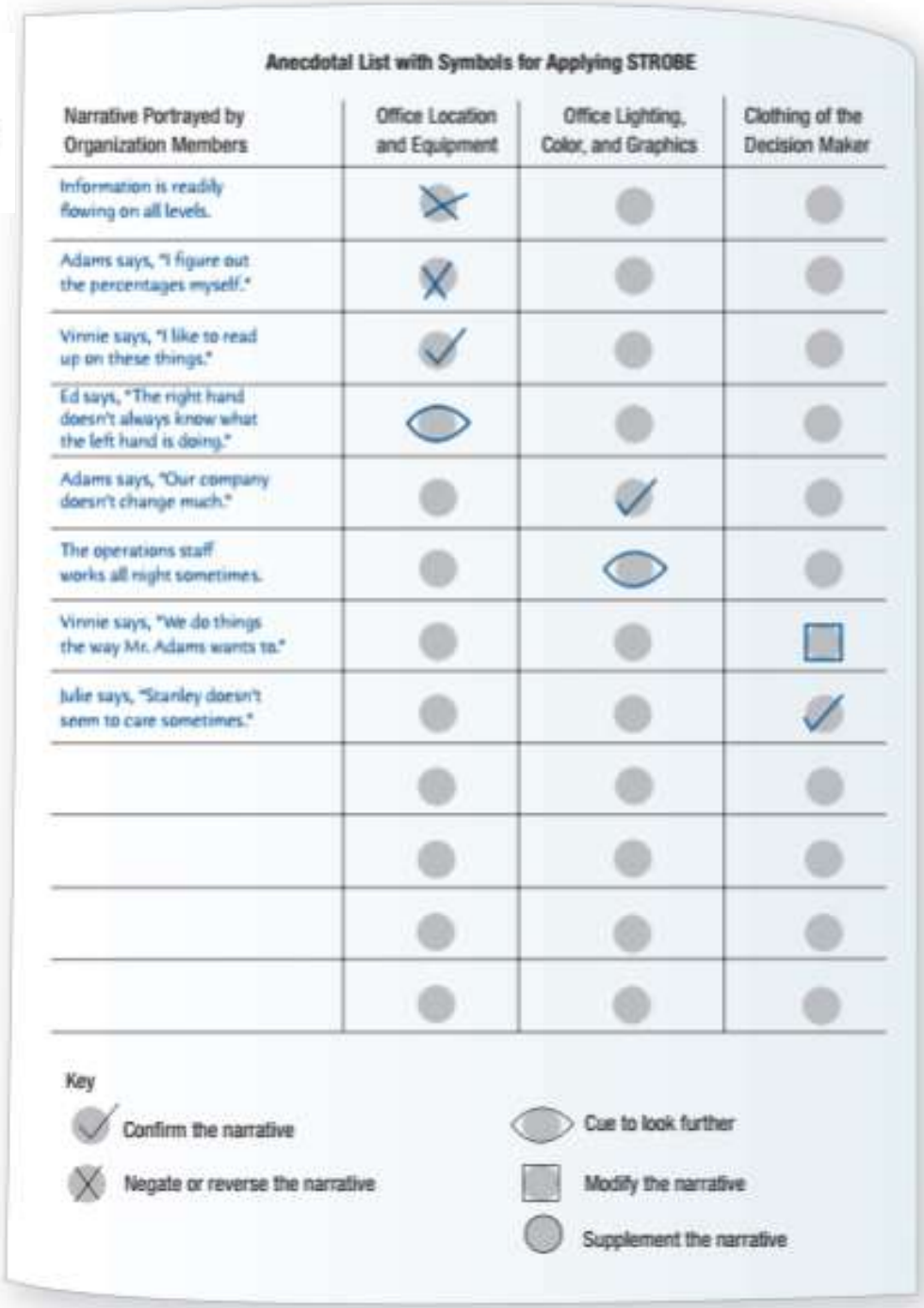
Characteristics of Decision Makers	Corresponding Elements in the Physical Environment
Gathers information informally	Warm, incandescent lighting and colors
Seeks extraorganization information	Trade journals present in office
Processes data personally	PCs, or tablet computers present in office
Stores information personally	Equipment/files present in office
Exercises power in decision making	Desk placed for power
Exhibits credibility in decision making	Wears authoritative clothing
Shares information with others	Office easily accessible

Applying STROBE

- Figure 5.12 shows the five symbols used to evaluate how observation of the elements of STROBE compared with interview results are:
  - A checkmark means the narrative is confirmed
  - An “X” means the narrative is reversed
  - An oval or eye-shaped symbol serves as a cue to look further
  - A square means observation modifies the narrative
  - A circle means narrative is supplemented by observation

FIGURE 5.12

An anecdotal list with symbols for use in applying STROBE.



Apply STROBE

- Figure 5.12 shows an anecdotal list with symbols
- When STROBE is implemented in this manner
  - The analyst first writes down key organizational themes growing out of interviews
  - Then he or she observes and records the elements of STROBE.
- The analyst then:
  - Compares the narrative and observations and uses one of the five appropriate symbols to characterize the relationship
- The analyst thus creates a table that first documents and then aids in the analysis of observations

Factors to consider in STROBE (1)

- In STROBE a number of factors may be considered which includie
- Office location
  - Who has the corner office?
  - Are the key decision makers dispersed over separate floors?
- Desk placement
  - Does the placement of the desk encourage communication?
  - Does the placement demonstrate power?
- Stationary Office Equipment
  - Does the decision maker prefer to gather and store information personally?
  - Is the storage area large or small?

Factors to consider in STROBE (2)

- Props
  - Is there evidence that the decision maker uses a PC, smart phone, or tablet computer in the office?
- External Information Sources
  - Does the decision maker get much information from external sources such as trade journals or the Web?
- Office Lighting and Color
  - Is the lighting set up to do detailed work or more appropriate for casual communication?
  - Are the colors warm and inviting?
- Clothing
  - Does the decision maker show authority by wearing conservative suits?
  - Are employees required to wear uniforms?

Summary

Summary

- In this chapter we have introduced unobtrusive research methods including:
  - Sampling which includes:
    - Sample design / types of sample / sample size
  - The analysis of data including:
    - Quantitative and qualitative document analysis
  - Observation:
    - Observing managers and staff and their physical environment

  STROBE:

  STROBE elements

  Applying STROBE using a playscript

Case Studies