

College of Humanities Master of Financial Technology- FinTech

Business Analysis

FNT613

4th Lecture

**Prepared By:
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مجموعة جامعة
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Investigation Techniques of business situation

4th lecture

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Investigation Techniques of business situation

Week5
Chapter5

Learning objectives

- Understand the importance of investigation techniques in analyzing business situations.
- Learn the different types of investigation techniques used in business analysis.
- Gain knowledge of how to gather and analyze data effectively.
- Develop skills in conducting interviews and surveys to gather information.
- Learn how to use observation techniques to gather insights about business situations.

Learning objectives Cont.

- Learn how to use scenario analysis to assess potential outcomes and make informed business decisions.
- Understand the importance of ethical considerations in conducting investigations and gathering information.
- Develop skills in presenting investigation findings and recommendations effectively.
- Learn how to use visual aids and data visualization techniques to present complex information in a clear and concise manner.

Learning objectives Cont.

- Gain knowledge of how to write comprehensive investigation reports that provide a thorough analysis of the business situation.
- Understand the role of critical thinking and problem-solving skills in conducting effective investigations.
- Develop skills in working collaboratively and communicating effectively with stakeholders during the investigation process.
- Develop skills in presenting investigation findings and recommendations in a clear and concise manner.

Chapter outline

Introduction

- Prior research
- Investigation techniques; Interviews, Observation, Workshops, scenarios
- User analysis
- Prototyping
- Quantitative approaches
- Suitability of techniques
- Documenting the current situation

INTRODUCTION

When business analysts first enter an area of study, they need a range of tools and techniques to help them understand the breadth and depth of issues.

While they will be making use of background research, workshops, one-to-one interviews and quantitative methods of verification of data, they must also use diagnostic tools for understanding a problem area, and different approaches to documenting their findings, according to the focus.

INTRODUCTION

The assumption behind this chapter is that the analyst will be responsible for performing a broad study that begins with a general understanding of the situation, then produces a diagnosis of the underlying causes and subsequently understands the requirements for a solution.

1. Prior Research

When an analyst first approaches their client organization, (or division or department), they should first spend time gathering as much background information as they can. There are various sources available, but the internet has made access to such background information much simpler than before.

- **Study website**
- **Study company reports**
- **Study procedure manuals and documentation**
- **Study the organization chart**



1. Prior Research

1. Prior Research

- **Study website**

This is the quickest and simplest way to get a view of what the organization does, what its values are, how it brands itself and how it wants to be perceived.

Depending upon the nature of the organization the website should provide access to information about the products and services, opportunities to interact with the site and give feedback, and offer details about the company.

One useful inference from the design of the website is how the company views its place strategically, in terms of the balance between the cost and the perceived quality of its products.

1. Prior Research

- **Study website**

The design of the website will often give an indication of the level of quality it aims at: primary colors, flashing icons, liberal use of exclamation marks and free use of suggestive words like 'Bargain!' imply a more populist approach, while a quieter background, carefully composed photographs, moderated colors, all imply a concern for a perception of quality.

Interpreting a website in this way can provide an early insight into the business imperatives for the organization.

These things will give an idea of the level of professionalism of the site and expected standards of technology presentation and achievement.

This in turn can provide clues about the technological maturity of the company – is the technology aligned to the business intention, or are the developers showing off their skills at the expense of the company's message?

1. Prior Research

- **Study company reports**

If we are approaching a commercial company in the role of an external consultant, it is useful to look at company reports to confirm the health of the company.

For example, UK companies are required to file the Income Statement (Profit and Loss Account) and Balance Sheet with Companies House, from where they may be accessed by the public.

These documents can provide much rich information about the levels of debt, liquidity, gearing, trends in growth or stagnation over the previous years, and a first insight into where there may be problems.

As an example, following an invitation to carry out consultancy work for a new client, an examination of the company's entry at Companies House revealed that it was about to be suspended for non-submission of accounts over the previous two years.

1. Prior Research

- **Study procedure manuals and documentation**

Many business analysis projects will have a scope that is more local than those suggested above, and more focused on specific sets of processes. The prior research for such projects will include studying current system documentation and any procedures manuals.

These are to give an idea of the expected 'as-is' process, but another note of caution – over time such documentation will naturally become unrepresentative of the actual course of the process.

Studying the documentation is never a substitute for proper investigation and analysis; rather it enables preparation, a prior understanding of the domain in question that gives the analyst an entry point for various lines of investigation.

1. Prior Research

- **Study the organization chart**

The organization chart sets out the management structure of the organization and can offer insights into the style and culture of the organization. Understanding the job roles and reporting lines are a valuable preparation for the more detailed investigation to follow.

2. Investigation Techniques

There are many reasons that business analysis is required. For example, For example, a study might be to investigate an area of concern, diagnose a weakness in the business processes or compile the requirements for a new system.

There will be a variety of techniques available, depending upon the size of the domain in question, its location, the numbers of stakeholders to be consulted, and the nature of the information to be ascertained.

Qualitative techniques can be further broken down into one-to-one sessions and collaborative sessions.

The most common of the qualitative one-to-one approaches to investigation are the interview, a meeting with individual stakeholders and shadowing sessions. Collaborative approaches include workshops and focus groups.

- **INTERVIEWS**
- **OBSERVATION**
- **WORKSHOPS- focus Group**
- **SCENARIOS**
- **USER ANALYSIS**
- **PROTOTYPING**
- **QUANTITATIVE APPROACHES**



2. Investigation Techniques

2. Investigation Techniques

1. INTERVIEWS

The interview is a key tool in the business analyst's toolkit. A well-run interview can be vital in achieving a number of objectives. These include:

- making an initial contact with key stakeholders and establishing a basis for the business analysis work;
- building and developing rapport with different business users and managers;
- acquiring information about the business situation, including any issues and problems;
- discovering different stakeholder perspectives and priorities.

2. Investigation Techniques

1. INTERVIEWS

Interviews tend to take place on a one-to-one basis, which is a key reason why they can be invaluable in obtaining personal concerns. They focus on the views of an individual and provide an environment where the interviewee has an opportunity to discuss their concerns and feel that they are given individual attention.

However, interviewing can be quite time consuming so the analyst has a responsibility to ensure that the interviewee's time is not wasted, the required information is acquired and a good degree of understanding and rapport is achieved.

2. Investigation Techniques

1. INTERVIEWS

There are three areas that are considered during fact-finding or requirements interviews:

- current functions that need to be fulfilled in any new business system;
- problems with the current operations or performance that need to be addressed;
- additional features required from the new business system.

Interviews may offer vaguely worded suggestions and so the skill of the interviewer is needed to assess the implications of the initial suggestions and draw out more detailed information.

2.1 INTERVIEWS

- ❑ Advantages and Disadvantages of interviewing
- ❑ Preparation for interviewing
- ❑ Conducting the interview
- ❑ Following up the interview



2. Investigation Techniques

2. Investigation Techniques- Interviews

❑ Advantages of interviewing

One of the major benefits of conducting an interview is that it provides an opportunity to build a relationship with the users or clients. Whether we are helping the business to improve operations, solve a specific issue or replace a legacy IT system, it is critical that we understand the perspectives of the people involved with the business system.

Taking time to form good relationships early on in the project will increase the opportunities to understand the context and details of the business users' concerns and needs.

The focus of the information will vary depending upon the needs of the project but will usually include details about the current operations, including difficulties in carrying out the work, and will help with the identification of requirements for the new business system.

2. Investigation Techniques- Interviews

❑ Advantages of interviewing

- providing an opportunity to understand different viewpoints and attitudes across the user group;
- providing an opportunity to investigate new areas previously not mentioned;
- enabling the analyst to identify and collect examples of documents, forms and reports the clients use;
- allowing an appreciation of political factors that may affect how the business performs its work;
- providing an opportunity to study the environment in which the business staff carry out their work.

2. Investigation Techniques- Interviews

❑ Disadvantages of Interviewing

- They take up the interviewee's time, which is often difficult to be spared from a busy schedule, and this may mean that they try to hurry the interview or resent the time that it takes.
- The information provided during interviews may be an opinion from just one interviewee's perspective, requiring confirmation by quantitative data before any firm conclusions can be drawn.
- The analyst will have to coordinate these views and identify any gaps and conflicts between the different interviews.

2. Investigation Techniques- Interviews

❑ Preparation for interviewing

The interviewing process is greatly improved when the interviewer has prepared thoroughly. This saves a lot of time by avoiding unnecessary explanations and also demonstrates interest and professionalism, which helps to establish a mutual respect and rapport.

The classic structure of who?, why?, what?, when? and where? provides an excellent framework for preparing for interviews.

Who?

This involves identifying which stakeholders you will interview and considering the order in which they will be interviewed. Interviews usually begin with the more senior stakeholders as this helps us to understand the context for the problem before moving to the details so it is useful to interview someone who can provide an overview.

A senior person is also able to identify the key people to see and make any necessary introductions.

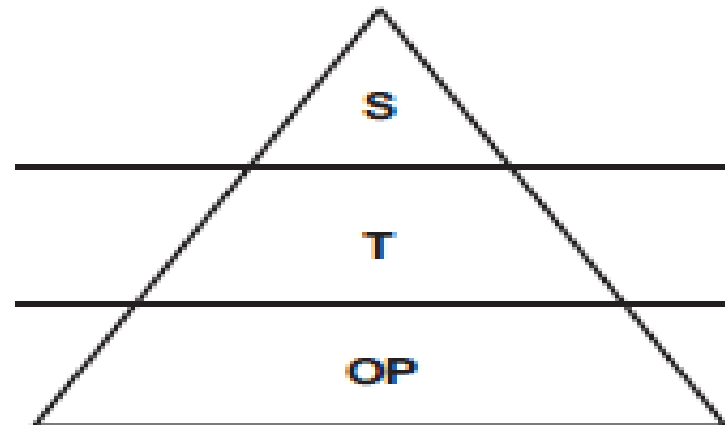
2. Investigation Techniques- Interviews

❑ Preparation for interviewing

Who?

The level of authority of the interviewee will dictate the nature of the questioning. The STOP model (Figure 5.1) illustrates a simple hierarchy.

Figure 5.1 'STOP', the organisation hierarchy



2. Investigation Techniques- Interviews

❑ Preparation for interviewing

Who?

‘S’ represents the strategic level of management. Our concerns at this level are to:

- confirm the terms of reference;
- understand any management information needs;
- agree the approach to the investigation; and
- ensure at this level that the project is aligned with the business objectives and strategy.

2. Investigation Techniques- Interviews

❑ Preparation for interviewing

- **Who?**

‘OP’ level represents the operational level, the people who perform the actual tasks of the department.

➤ These are the people who can describe accurately the existing business situation, and can identify problems and workarounds to deal with the current procedures.

➤ They have information about source documents, bottlenecks and the flow of the work, and are likely to provide ideas about the volumes of work (although these need to be treated with caution and should be analyzed using quantitative investigation techniques).

The questioning strategy for the interview will depend upon several factors, including where the prospective interviewee sits in the hierarchy, the objectives for the project and the nature of the issues to be discussed.

2. Investigation Techniques- Interviews

❑ Preparation for interviewing

- *Why?*

This involves considering why a particular interviewee is to be interviewed and the place of the interviewee in the organization, as described above. The objectives of the interview may range from the detailed elicitation of business needs to just establishing a good rapport and working relationship with a key stakeholder.

The forms of questioning and of note-taking will differ significantly depending upon the objectives of the interview.

2. Investigation Techniques- Interviews

❑ Preparation for interviewing

- *What?*

- This involves considering the information that could be provided by an interviewee and the areas you might explore during the interview.
- It helps identify the items to be discussed during the interview;
- Provides the foundation for the agenda.

Issuing an agenda two days or so before the interview helps to focus the mind of the interviewer and enables the interviewee to prepare by considering in advance the information required.

2. Investigation Techniques- Interviews

❑ Preparation for interviewing

- *When? and where?*

These questions involve considering the venue, timing and duration of the interview. Typically, the interviewee will dictate the exact timing and duration, as this will depend upon availability. **Limiting interviews to a maximum length of one hour is a good idea since:**

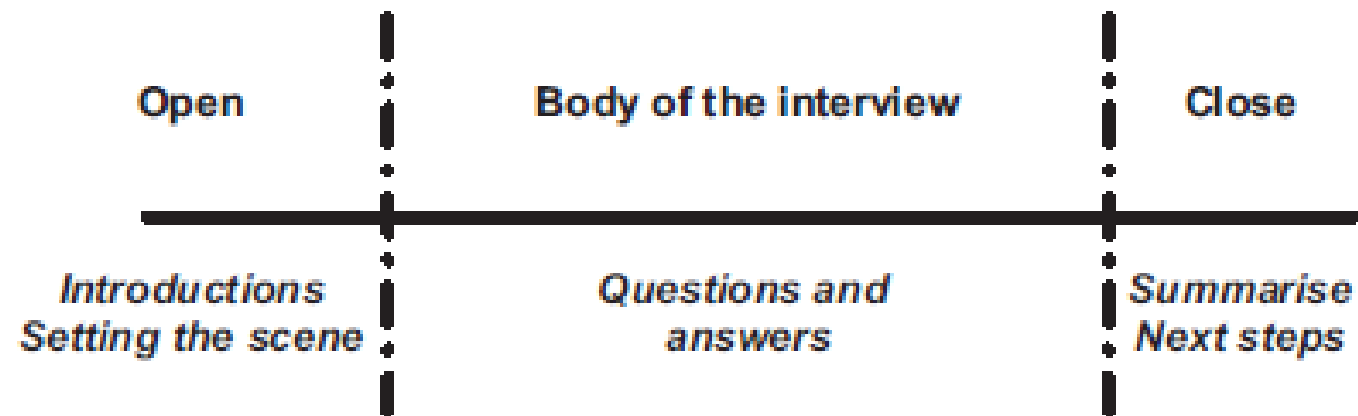
- The majority of interviewees will be busy with numerous work commitments.
- It can be very difficult to concentrate for more than an hour so longer interviews are often unproductive. This applies to both interviewer and interviewee.
- The longer the interview the harder it is to write up the notes accurately.

2. Investigation Techniques- Interviews

□ Conducting the interview

It is important to structure interviews if the maximum amount of information is to be elicited using a basic structure of introduction, body of interview and close, as shown in **Figure 5.2**

Figure 5.2 The structure of an interview



2. Investigation Techniques- Interviews

❑ Conducting the interview

➤ *The introduction*

In addition to making personal introductions, it is also important that the analyst makes sure the interviewee understands the purpose of the project in general and the interview in particular.

It is important to make sure that the interviewee has received the agenda and that any points they wish to raise are clarified.

2. Investigation Techniques- Interviews

❑ Conducting the interview

➤ *Body of the interview*

This context will usually cover the responsibilities of the interviewee, and their range of responsibilities.

Once we have a context, we can structure the interview by examining each relevant area separately and in detail.

This will enable us to consider the issues, and the impact of those issues, in each area and to uncover any specific problems and requirements.

If the purpose of the interview is to understand a current procedure, a good way of taking notes can be to draw a diagram, such as a flow chart.

2. Investigation Techniques- Interviews

❑ Conducting the interview

➤ *Body of the interview*

If the purpose is to discuss a number of broader issues, including needs for the future, a mind map is a useful way of noting what has been said, and also, if drawn up as part of the preparation, provides an easy visual check on what has been covered and further areas for discussion.

This can be important as however well you have structured your questions in your preparation, conversations always take unexpected loops and diversions.

In some situations it is appropriate to use a portable digital recorder to capture the interview in preference to writing notes.

It should also be remembered that using a recorder will involve a considerable overhead: it can take up to an hour to transcribe ten minutes worth of conversation.

2. Investigation Techniques- Interviews

❑ Conducting the interview

➤ *Closure*

It is important to close the interview formally. The analyst should:

- Summarize the points covered and the actions agreed.
- Explain what happens next, both with regard to the particular interview and the project. We will usually want to advise the interviewee that we will send them a copy of the written-up notes so that they can check for any errors.
- Ask the interviewee how any further contact should be made; managing the interviewee's expectations of future behavior can be extremely useful and will be invaluable if we need any additional information or clarifications at a later point. This also serves to keep the door open for a future interview session if required.

2. Investigation Techniques- Interviews

❑ Conducting the interview

➤ Following up the interview

It is always a good idea to write up the notes of the interview as soon as possible – ideally straight away and usually by the next day.

If it is not possible to write up the notes immediately you will find this task easier if you read through them immediately after the interview, and extend them where they are unclear.

2. Investigation Techniques

2. OBSERVATION

Observing the workplace, and the staff carrying out their work, especially early in an investigation, is very useful in obtaining information about the business environment and the work practices.

There are several different approaches to observation, depending upon the level and focus of interest: formal observation, shadowing, protocol analysis and ethnographic studies.

It is important that before any work is observed, the person being observed should be reassured that the objective is to understand the task not to judge their performance.

2.2 OBSERVATION

- ❑ Advantages and Disadvantages of interviewing
- ❑ Formal observation
- ❑ Protocol analysis
- ❑ Shadowing
- ❑ Ethnographic studies



2. Investigation Techniques

2. Investigation Techniques- Observations

❑ Advantages and Disadvantages of observation

The views of the stakeholders involved in a project may have been sought during interviews but, to really obtain a feel for the situation, the analyst needs to see the workplace and business practices.

This has the following advantages:

We obtain a much better understanding of the problems and difficulties faced by the business users.

Seeing a task performed will help us prepare appropriate questions for a more in-depth interview with the person responsible for that task.

It will help us to devise workable solutions that are more likely to be acceptable to the business.

Conversely, being observed can be rather unnerving and the old saying 'you change what you observe' needs to be factored into the approach taken and resultant findings.

2. Investigation Techniques- Observations

❑ Formal Observation

It is important that the staff members being observed are prepared beforehand and are aware that this is in order to understand the task not, as many will fear, in order to assess their competence and performance.

If the staff members perceive the observer as having been sent by management, they are more likely to perform the task according to the rulebook, rather than how it has evolved over time.

It is perfectly acceptable to ask people being observed about the sequence of steps they are following, so long as:

2. Investigation Techniques- Observations

□ Formal Observation

It is perfectly acceptable to ask people being observed about the sequence of steps they are following, so long as:

The question does not sound critical of the way the person is working, either in words or tone of voice.

It does not distract from their performance of the job. The analyst must position themselves in such a way that they can see clearly all that is happening, but do not get in the way or otherwise interfere with the task.

2. Investigation Techniques- Observations

❑ Formal observation

To get full value from the observation, it is beneficial to watch the staff members perform the task several times in order to understand the standard sequence, any possible exception situations and how they are handled, timings for the task and any ergonomic factors or physical working conditions that may enhance or hinder performance.

However, observing more sedentary tasks, such as manning a customer services helpline, or telesales can still provide a lot of useful information, for example, to understand where problems are arising or to elicit requirements for a new system.

2. Investigation Techniques- Observations

□ Protocol analysis

Protocol analysis involves asking the users to carry out a task and describe each step they perform.

A similar approach may be used to train a new member of staff or someone unfamiliar with a task.

For example, rather than teaching new learner drivers in a classroom before they try driving on the roads, the drivers learn by watching the task being both performed and explained simultaneously, and they then perform it for themselves.

2. Investigation Techniques- Observations

❑ Shadowing

Shadowing involves following a user for a period, such as one or two days, to find out what a particular job entails. This is a powerful way to understand a specific user role.

When shadowing, we can ask for explanations of aspects such as how the work is done, the information used, or the workflow sequence, so it is a good way of clarifying what the individual actually does to perform the role.

The longer the analyst spends shadowing a user, the greater the opportunity to build rapport and the better chance there is of capturing the additional details that may not be elicited during a single 45-minute interview.

Shadowing key staff is a useful approach during the requirements definition work, since it provides a visual context for processes described during interviews or workshops.

2. Investigation Techniques- Observations

❑ Ethnographic studies

It is derived from the discipline of anthropology and involves spending an extended period of time – from a few weeks up to several months – in the target environment.

This approach enables the analyst to gain a thorough understanding of the business system as, in a short space of time, the business community becomes used to the analyst's presence and behaves more naturally and authentically.

The main value gained from ethnography is an appreciation of intangible aspects such as the organizational culture in which any proposed change must be embedded, including recognizing where both formal and informal power and influences reside.

This approach can also be very useful when analyzing complex business systems, for example, where the staff members are highly expert in conducting their work and the business rules are difficult to assimilate.

2. Investigation Techniques

3. WORKSHOPS

Workshops provide an excellent collaborative forum in which issues can be discussed, conflicts resolved and requirements elicited.

They are also a useful forum for carrying out other activities, such as compiling process models, understanding data requirements, eliciting critical success factors and key performance indicators or analyzing the quality of a requirements set before they are formally documented.

2.3. WORKSHOPS

- ❑ Advantages and Disadvantages of interviewing
- ❑ Preparing for the workshop
- ❑ Facilitating the workshop
- ❑ Techniques
- ❑ Following the workshop
- ❑ Hothouse workshop
- ❑ Focus groups



2. Investigation Techniques

2. Investigation Techniques- Workshops

❑ Advantages of workshops

- Gain a broad view of the area under investigation: having a group of stakeholders in one room will allow the analyst to gain a more complete understanding of the issues and problems.
- Increase speed and productivity: it is less time-consuming to have one extended meeting with a group of people than interviewing them one-by-one.
- Obtain buy-in and acceptance for the project: when stakeholders are involved in such collaboration, not only will they be more open to any business changes or features that result but they are more likely to be champions of the change.
- Gain a consensus view or group agreement: if all the stakeholders are involved in the decision-making process there is a greater chance that they will take ownership of the results.

2. Investigation Techniques- Workshops

❑ Disadvantages of workshops

Workshops can be time-consuming to organize. For example it is not always easy to get all the necessary people together at the same time.

If the workshop is not carefully facilitated, it may happen that a forceful participant will dominate the discussion. In extreme cases, such a participant may be able to impose a decision because the other members of the group feel disempowered and unable to raise their objections.

It can be difficult to ensure that the participants have the required level of authority – which sometimes means that decisions are reversed after the workshop has ended.

2. Investigation Techniques- Workshops

❑ Preparing for the workshop

The success or failure of a workshop session depends in large part upon the preparatory work done by its facilitator and its business sponsor for the workshop.

They should spend time before the event planning the following areas:

- The objective of the workshop
- The people to be invited to participate in the workshop
- The structure of the workshop and the techniques to be used
- Arranging a suitable venue

2. Investigation Techniques- Workshops

❑ Facilitating the workshop

The workshop should start by discussing the objective and endeavoring to secure the participants' buy-in.

Where difficulties are anticipated, it may be useful to invite a senior manager or the project sponsor to open the workshop in order to define some ground rules and set the expectations for behavior.

During the workshop, the facilitator needs to ensure that the issues are discussed, views are aired and progress is made towards achieving the stated objective.

The discussion may range widely but the facilitator needs to ensure that it does not go completely off the track and that everyone has an opportunity to express his or her concerns and opinions.

2. Investigation Techniques- Workshops

❑ Facilitating the workshop

This is often done by the facilitator keeping a record on a flipchart, but it is better practice to appoint someone else to take the role of scribe during the workshop.

The presence of a scribe allows the facilitator to concentrate fully on the process and the attendees, watching non-verbal behavior to identify members of the group who may be feeling unhappy or unable to make their points.

2. Investigation Techniques- Workshops

□ Techniques

There are two main categories of technique required for a workshop: techniques for discovery and techniques for visualization.

Discovery techniques are those that help the facilitator to elicit information and views from the participants. It is vital that the facilitator considers which technique would be most suitable for a particular situation and group of participants. Examples of useful techniques (**shown in Figure 5.3**) are:

2. Investigation Techniques- Workshops

□ Techniques

Figure 5.3 Workshop techniques

Discovery

Round robin
Brainstorming
Brainwriting
Post-it exercise
Stepwise
refinement
Break-out groups

Workshop

Visualisation

Process models
Rich pictures
Mind maps
Context diagrams
Use case diagrams
Task scenarios
User stories

2. Investigation Techniques- Workshops

➤ **Discovery Techniques**

Brainstorming (sometimes known as idea storming), where the participants are asked to call out ideas about a given item, all of which are written on a flipchart or whiteboard.

Round robin discussions where the workshop participants are asked for their ideas in turn.

Brain-writing which has similarities with brainstorming but requires participants to write down ideas.

Sticky (post-it) note exercises also involve writing down ideas but in this case, the participants work individually or in pairs.

Stepwise refinement is where we take a statement or idea and keep asking 'why?, why?' to every answer until we think we've got to the heart of a problem, idea or situation.

Smaller 'break-out' or 'syndicate' groups, where specific aspects are considered and then reported back to the larger group.

2. Investigation Techniques- Workshops

➤ Visualization Techniques

- Many visualization techniques are suitable for use in a workshop. Visual approaches are quick to understand and to explain, and they help workshop participants to access the information being captured.
- There are several useful pictorial or diagrammatic techniques such as process models, data models, use case diagrams, rich pictures and mind maps.
- These techniques help the business users to visualize the area under discussion.
- Text-based lists may also be required to keep records of suggestions, agreed action points or issues for further discussion.

2. Investigation Techniques- Workshops

☐ Following the workshop

After the workshop any key points and actions are written up and sent to the relevant participants and stakeholders. This should be done as quickly as possible as this will help to keep up the momentum and highlight the need for quick action.

2. Investigation Techniques- Workshops

❑ Hothouse workshop

A hothouse workshop is a specific type of workshop that applies Lean and Agile principles to a business problem.

In Agile environments a project, or phase of a project, may be initiated by a hothouse workshop, bringing the business and development teams together to solve business problems and using prototypes to define the functionality and scope of the solution.

This idea derives from the work of James Martin at IBM in the 1980s, when a Joint Requirements Planning (JRP) workshop brought senior executives and analysts together to define functionality, scope and timeframes for new developments.

2. Investigation Techniques- Workshops

❑ Hothouse workshop

The workshop group is typically split into smaller teams who each develop a prototype solution during a series of iterations.

Ultimately, the outcome should be a prototype solution to a business problem accompanied by additional analyses of the corresponding metrics, processes, costs and benefits required to enable the delivery of the full solution.

2. Investigation Techniques- Workshops

❑ Focus groups

Focus groups tend to be concerned with business and market research. They bring together a group of people with a common interest to discuss a topic. While such a meeting has similarities with a workshop, it is not the same thing.

A focus group could be used to understand people's attitudes to any current shortcomings with the business system, for example, the reason why customers are unhappy with a service, or why the website is failing to turn hits into sales.

A focus group may be used to suggest ideas for future developments and directions.

A focus group will be used as part of an information-gathering exercise, but the findings will need to be evaluated and assessed against the strategy.

2. Investigation Techniques- Workshops

❑ Focus groups

Focus groups can be a cost-effective way of obtaining views and ideas, but are unlikely to offer too much in the way of design, and are not suitable for obtaining quantitative data.

As with a workshop, the success of a focus group session depends in large upon the skill of the facilitator in allowing all members to express their thoughts and opinions, and to drill down into whatever may be behind any strong feelings provided as feedback or suggestions.

2. Investigation Techniques

4. SCENARIOS

Scenarios are useful when analyzing or redesigning business processes as they help both the staff member and the analyst to work through the steps required of a business process or system.

A scenario description will include the business event that triggers the transaction, the set of actions that have to be completed in order to achieve a successful outcome and other aspects such as the actor responsible for carrying out the task, the preconditions and the post-conditions.

The preconditions are the characteristics of the business or state of the IT system that must be true for the scenario to begin.

One of the key strengths of scenarios is that they provide a framework for discovering the exceptions that require alternative paths to be followed when carrying out the task.

2. 4 SCENARIOS

- ❑ Advantages and Disadvantages of interviewing
- ❑ Process for Developing Scenarios
- ❑ Documenting Scenarios



2. Investigation Techniques

2. Investigation Techniques- Scenarios

❑ Advantages of scenarios

- They require the user to include each step and the transitions between the steps, and as a result remove the opportunity for omissions.
- The step-by-step development approach helps ensure that there are no taken-for-granted elements and the problem of tacit knowledge is addressed.
- They are developed using a 'top-down' approach, starting with an overview scenario and then refining this with further detail. This helps the business user visualise all possible situations and removes uncertainty.
- A workshop group refining a scenario will identify those paths that do not suit the corporate culture, or that are not congruent with any community of practice involved.
- They provide a basis for developing prototypes.
- They provide a tool for preparing test scripts.

2. Investigation Techniques- Scenarios

❑ Disadvantages of Scenarios

The disadvantages of scenarios are that they can be time-consuming to develop and some scenarios can become very complex, particularly where there are several alternative paths. Where this is the case, you will find it easier to analyze the scenarios if each of the alternative paths is considered as a separate scenario.

2. Investigation Techniques- Scenarios

❑ Process for Developing Scenarios

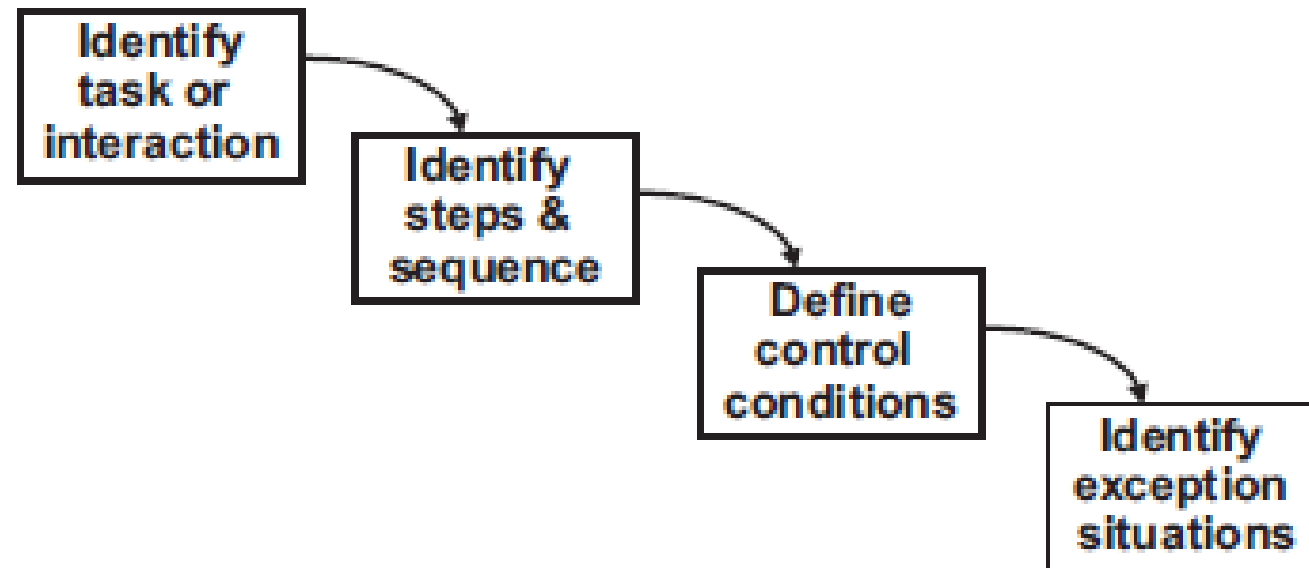
- Identify the task or interaction to be modelled as a scenario and the trigger, or event, that causes that interaction to take place.
- Identify the steps that will be carried out during the usual progress of the interaction, and the flow of these steps.
- Define the control conditions; the conditions that must be met in order to move from one step to the next, following the typical sequence of steps.
- Identify the alternative paths that would be required to handle the situations where the control conditions are not met.

Figure 5.4 shows an overview approach to developing scenarios and includes the following steps:

2. Investigation Techniques- Scenarios

□ Process for Developing Scenarios

Figure 5.4 Process for developing scenarios



2. Investigation Techniques- Scenarios

❑ Documenting Scenarios

A popular way of documenting scenario descriptions is to develop use case descriptions to support use case diagrams. This technique is part of the Unified Modeling Language (UML) and is a textual method.

However, there are a number of graphical methods for documenting a scenario, such as storyboards, activity diagrams, task models and decision tree diagrams.

3. User analysis

It will be evident from the description of scenario modelling that it is important to understand who the actual users of the proposed system are likely to be and this is also true of prototyping which we discuss next.

However, sometimes these generic titles do not tell us enough about the business users for us to envisage how and why they might want to use an information system.

‘Customer’, for example, is a very broad term that may not capture the different sets of characteristics displayed by the actual customers of an organization. A good way of understanding customers is to create ‘personas’ for them.

4. Prototyping

Prototyping is an important technique for eliciting, analyzing, demonstrating and validating requirements.

Analysts often complain that the business users do not know what they want, and that as a result it is difficult to define the requirements.

If business users are unclear about their requirements, prototypes can help them visualize the new system and provide insight into possible requirements.

4. Prototyping

Prototypes also offer a way of demonstrating how the new processes or system might work and provide a concrete basis for evaluation and discussion.

Agile software development approaches, such as DSDM and Scrum, use evolutionary prototyping as an integral part of their development lifecycle.

4. Prototyping

Prototyping involves building simulations of a process or system in order to review them with the users to increase understanding about the requirements. There is a range of approaches to building prototypes. They may be built using the organization's system development environment so that they exactly mirror the future system.

Images of the screens and navigations may be built using presentation software packages such as Microsoft PowerPoint or they may be mock-ups on paper.

A quick but effective form of prototyping is to use flipchart sheets, pens and packs of sticky notes and work with the users to develop paper prototypes.

This will enable the users to develop screens, identify navigation paths, define the data they must input or refer to, and prepare lists of specified values that they know will apply.

4. Prototyping

There is a strong link between scenarios and prototyping because scenarios can be used as the basis for developing prototypes. As well as confirming requirements, prototyping can often help the users to identify some that they had not considered previously.

4. Prototyping

❑ Advantages of Prototyping

- Clarify any uncertainty on the part of the analysts and confirm to the user that we have understood what they asked for;
- Help the user identify new requirements as they gain an understanding of what the system will be able to do to support their jobs;
- Demonstrate the look and feel of the proposed system and elicit usability requirements;
- Validate the system requirements and identify any errors;
- Provide a means of assessing the navigation paths and system performance.

4. Prototyping

❑ Disadvantages of Prototyping

Prototyping has a number of hazards, most of which can be avoided by setting clear objectives for the prototyping exercise and managing the stakeholders' expectations. **The hazards include:**

- The prototyping cycle can spin out of control with endless iterations taking place.
- If the purpose of the exercise has not been explained clearly, the users may think that when they are happy with the mock-up, the system is now complete and ready for use.

4. Prototyping

In an Agile software development environment, prototyping sessions are used to elicit and analyze requirements, and to construct and test working functionality.

The development work is conducted iteratively, with each iteration using the concept of a time-box or sprint, typically a predefined number of weeks, within which certain functionality is delivered.

The prototyping approach allows the business to receive the most critical pieces of functionality when it needs it, and the less urgent functionality will be delivered in future iterations.

5. Quantitative approaches

Quantitative approaches are used to obtain data that is needed to quantify the information that has been provided during interviews, workshops or other qualitative techniques. Examples of the quantitative data we need could be the following: we might want to know the number of workers who use a particular system, the number of complaints received during a set period or the number of orders processed each day.

- ☐ Surveys or questionnaires
- ☐ Special Purpose Record
 - Activity Sampling
 - Document Analysis



5. Quantitative approaches

5. Quantitative approaches

☐ Surveys or questionnaires

Surveys can be useful if we need to get a limited amount of information from a lot of people and interviewing them individually or running a series of workshops would not be practical or cost-effective. However, surveys are difficult to design and this has to be done with care in order to have any possibility of success.

The exact design of a survey depends upon its purpose but there are three main areas to consider: the heading, classification and data sections.

5. Quantitative approaches- Surveys or questionnaires

- ***Heading section***

This is where the purpose of the survey is explained and where instructions for returning it are given.

- ***Classification section***

This is where the details about the respondent are captured. This data provides the basis for categorizing the respondents using predefined analysis criteria, like age, gender or length of service.

- ***Data section***

This is where the main body of questions is posed. It is vital to think carefully about the phrasing of the questions. They must be unambiguous and, ideally, allow for straightforward answers such as 'yes/no', 'agree/neutral/disagree' or 'excellent/satisfactory/inadequate'.

5. Quantitative approaches

☐ Special Purpose Record

Special purpose records are data-gathering forms used by the analyst; the format is usually decided by the analyst and they are not company records. They can be completed either by the analyst during an observation session or given to the business users to complete over a period of time.

Notwithstanding this, it can still be useful sometimes to get people to keep such records as they help avoid the problems associated with observation and it can be an effective use of the analyst's time.

5. Quantitative approaches

- **Activity Sampling**

This is a further quantitative form of observation and can be used when it is necessary to know how people divide their work time among a range of activities. For example, how much time is spent on the telephone? How much time spent on reconciling payments? How much time on sorting out complaints?

An activity sampling exercise is carried out in five steps:

1. Identify the activities to be recorded. This list should include a 'not working' activity as this covers breaks or times away from the desk. It might also include a 'not-related' task, such as first aid or health and safety officer duties.
2. Decide on the frequency and timings, i.e. when and how often you will record the activities being undertaken.
3. Visit the study group at the times decided upon and record what each group member is doing.
4. Record the results.
5. After a set period, analyze the results.

5. Quantitative approaches

- **Activity Sampling**

The results from an activity sampling exercise provide quantifiable data about the number of times an activity is carried out per day by the group studied. By analyzing that figure against other data, such as the total amount of time available, we are able to calculate the total length of time spent on that activity and the average time one occurrence of the activity will take. This information can be useful when developing business cases and evaluating proposed solutions. Also, it will raise other questions such as whether the average time is reasonable for this task or whether it indicates a problem somewhere else in the process.

5. Quantitative approaches

- **Document Analysis**

Document analysis involves reviewing samples of source documents to uncover information about an organization, process or system. For each document, we might analyze:

How is the document completed?

Who completes the document?

Are there any validations or controls on the document?

Who uses the completed document?

When is the document used?

How many are used or produced?

How long is the document retained by the organization, and in what form?

What are the details of the information shown on the document?

Where is the data or information obtained?

Are other names used in the organization for any of the items of data?

Are all the data items on the document still needed, or are any redundant?

Is there other data that is not entered on the document, but would be useful for this process?

5. Quantitative approaches

- **Document Analysis**

Document analysis is useful to supplement other techniques such as interviewing, workshops and observation. For example, analyzing the origin and usage of a document can prove very enlightening when investigating a process. Samples of completed documents or system printouts also help to clarify the key items of data used to carry out the work and can prove an excellent basis for modelling data (see in the future chapters).

6. Suitability of Techniques

Some of the techniques described in this chapter are suitable for general investigation of the problem situation and others more for eliciting requirements for the new system. Of those suitable for requirements, some are more suitable for a waterfall approach and others geared more towards Agile developments. Some techniques are suitable in all situations. **Table 5.1 gives a guide to the suitability of these techniques for the different situations.**

6. Suitability of Techniques

Table 5.1 Suitability of techniques for different situations

Investigation technique	Understanding the situation	Waterfall requirements elicitation	Agile requirements elicitation
Interview	Y*	Y*	Y*
Observation	Y*	Y*	Y
Shadowing	Y*	Y*	Y
Workshop	Y*	Y*	Y*
Hothousing	Y	N	Y*
Scenario analysis	Y	Y*	Y*
Prototyping	Y	Y*	Y*
Questionnaires	Y*	Y*	N
Special purpose records	Y*	Y*	N
Activity sampling	Y*	Y*	N
Document analysis	Y*	Y*	N

Key: Y* = very suitable
Y = suitable
N = not suitable

7. Documenting the Current Situation

While the investigation of the current situation is going on, the analyst will need to record the findings, in order to understand the range of issues and the business needs. Meeting reports should be produced for each interview and workshop so that they can be agreed with the participants. It is also helpful to use diagrams to document the business situation. There are five suggested diagrammatic techniques that help the analyst understand the information that has been obtained and find the root cause of any problems.

1. Rich pictures
2. Mind maps
3. Business process models
4. Spaghetti maps
5. Fishbone diagrams



7. Documenting the Current Situation

7. Documenting the Current Situation

1. Rich pictures

The rich picture technique is one of the few that provide an overview of an entire business situation.

Whereas modelling approaches such as data or process modelling provide a clear representation of a specific aspect of a business system, rich pictures show all aspects.

For this reason the rich picture can show the human characteristics of the business situation and can reflect intangible areas such as the culture of the organization.

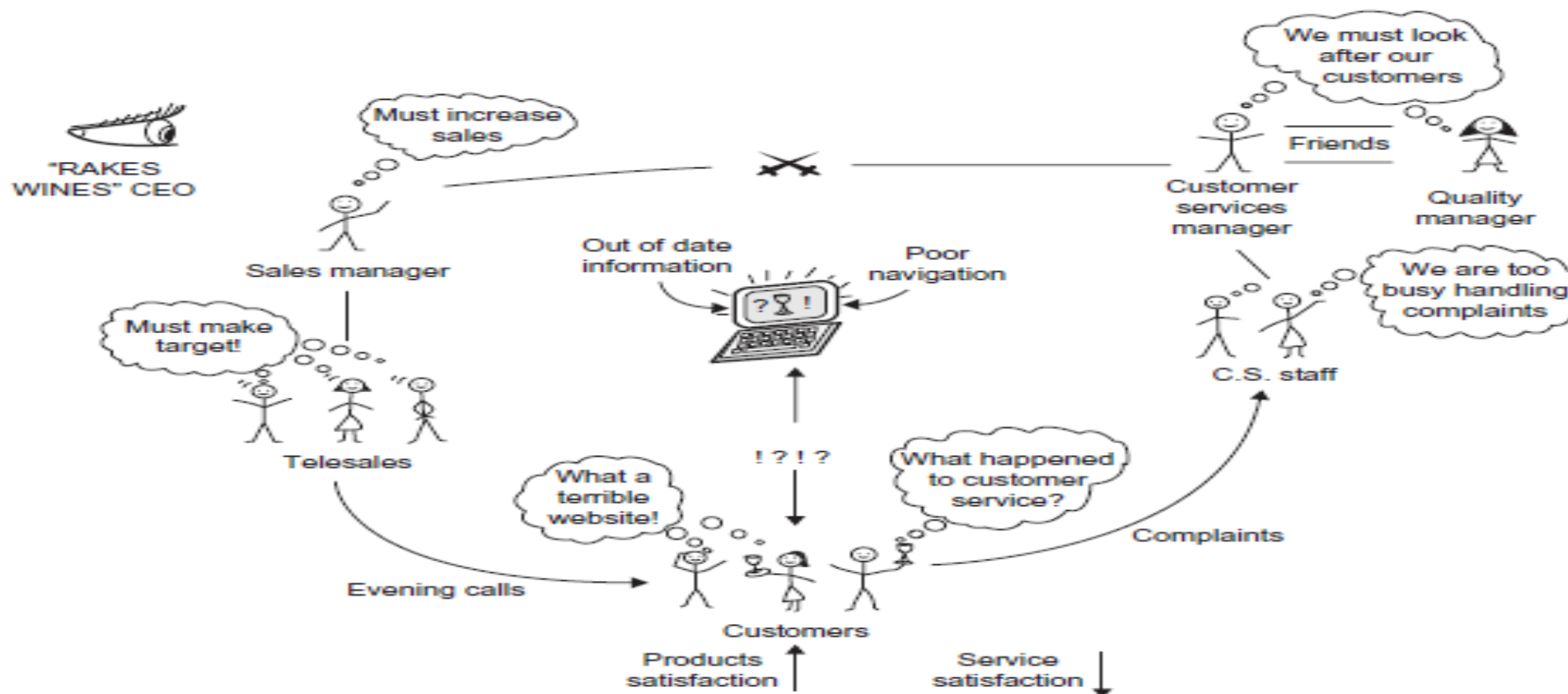
A rich picture allows the analyst to document all of the human and cultural aspects as well as information flows and information usage.

Its strength is that the process of building the rich picture helps the analyst to form a mental map of the situation and see connections between different issues.

Figure 5.5 shows an example of a rich picture for a business system called Rake's Wines.

7. Documenting the Current Situation- Rich pictures

Figure 5.5 Example of a rich picture



7. Documenting the Current Situation

2. Mind maps

Mind maps are a useful tool for summarizing a lot of information in a simple visual form that is structured to highlight connections between different ideas and topics.

The business system or problem under consideration is drawn at the center of the diagram with the main elements shown as first level of branches radiating from the central point.

The branches might represent such matters as particular processes, the equipment and systems used, relationships between the staff that do the job and so on.

For example, the branch for equipment might show problems with the printing or photocopying equipment and the branch for systems might show the key failings of the IT system.

Mind maps are extremely useful in helping analysts to order their thinking, and they work well both on their own and when used in conjunction with rich pictures.

The mind map in Figure 5.6 for Rake's Wines relates to the rich picture shown in Figure 5.5.

7. Documenting the Current Situation

Figure 5.6 Example of a mind map



7. Documenting the Current Situation

3. Business process models

In order to understand fully how a process is carried out, it is helpful to draw a **‘swimlane’ diagram**, which shows the tasks in a process, the actors responsible for carrying them out, and the process flow. These models are easy to draw and business stakeholders find them accessible, so they provide a good communication tool between the analyst and the business staff. Business process models are also invaluable as a diagnostic aid since they help identify problems such as delays, bottlenecks and duplicate tasks. They are described in greater detail in the future chapters.

7. Documenting the Current Situation

4. Spaghetti maps

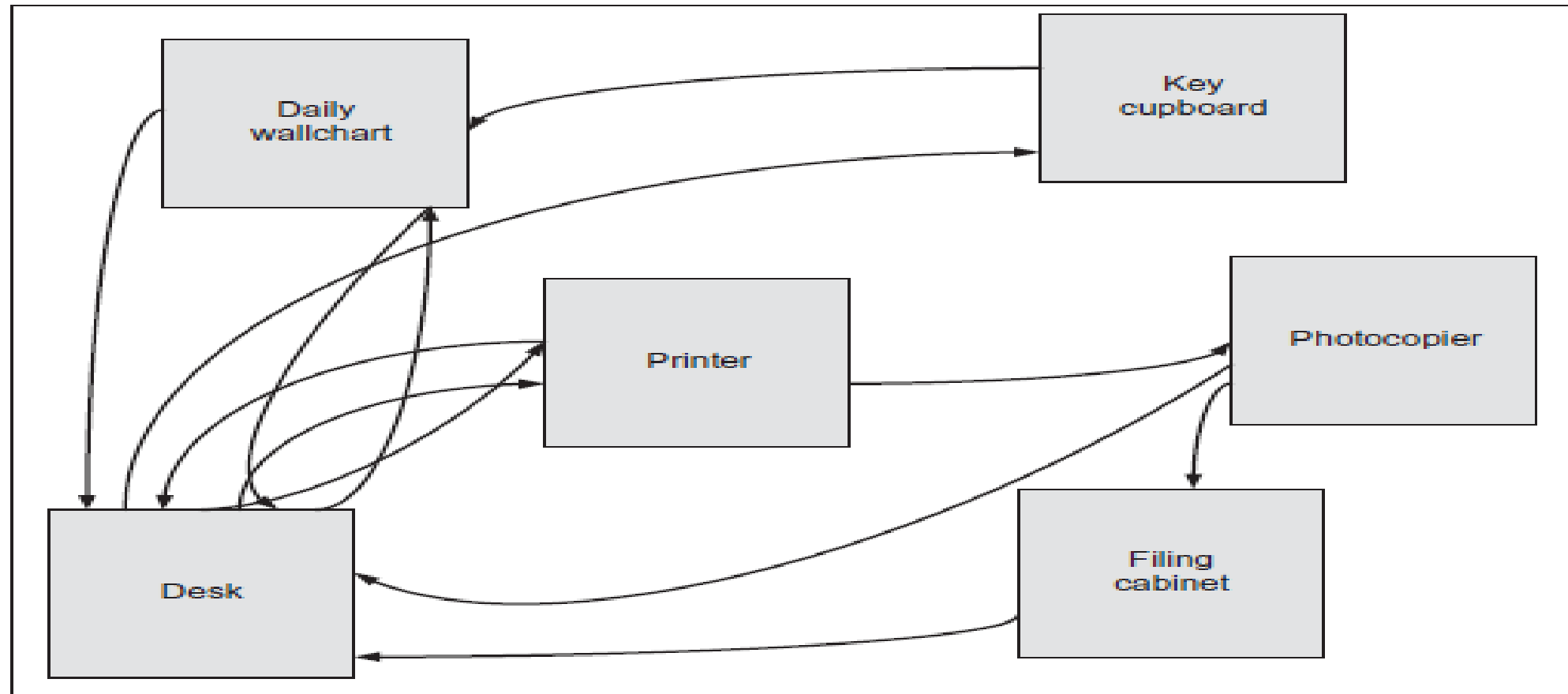
A spaghetti map is a tool to show the movement and interactions of the stakeholders in a particular environment, when performing particular tasks and processes. It is called spaghetti map simply because as the movements are drawn, the diagram created resembles a plate of spaghetti, with lines crossing back and forth without any apparent formality or design. Spaghetti maps can be drawn up during an observation session, mapping the movements of users across the room to meet different actors or to use equipment such as printers or photocopiers.

Figure 5.7 shows a spaghetti diagram drawn while observing a clerk in the service department of a garage checking in a car for repair and allocating a courtesy car to the customer.

This diagram represents one person executing one instance of a common task, and makes clear the scope for efficiency gains.

7. Documenting the Current Situation

Figure 5.7 Example of a spaghetti map



7. Documenting the Current Situation- Spaghetti maps

It is interesting to note that a swimlane diagram would not show the physical movement required for an actor to perform a task, so it would not highlight the potential for improvement. The two diagrams together help identify the scope for improvement in the process.

7. Documenting the Current Situation

5. Fishbone diagrams

One of the major objectives in investigating and modelling a business system is to identify where there are problems and discover their underlying causes.

Some of these may be obvious, or the stakeholders may be aware of the root causes of their problems.

The fishbone diagram is a problem-analysis technique, designed to help understand the underlying causes of an inefficient process or a business problem.

The technique was invented by Dr Kaoru Ishikawa (Ishikawa 1985), and the diagrams are sometimes known as Ishikawa diagrams.

Radiating up and down from this backbone are spines; the spines suggest possible areas for causes of the problem.

A number of approaches may be used when labelling the spines:

7. Documenting the Current Situation

5. Fishbone diagrams

A number of approaches may be used when labelling the spines:

The four Ms: manpower, machines, measures and methods.

An alternative four Ms: manpower, machines, *materials* and methods.

The six Ps: people, place, processes, physical evidence, product/service and performance measures.

The four Ss: surroundings, suppliers, systems and skills.

These categories help because they list areas that have been found to be the sources of inefficiencies in many business systems.

7. Documenting the Current Situation

5. Fishbone diagrams

In practice we often consider a range of categories and might combine the most relevant elements from the approaches above, or even define some categories that are particularly relevant to a given project.

Data for this analysis can be found from interviews, workshops, activity sampling, observation and special purpose records.

The categories to be used on the fishbone diagrams can also provide a structure to a workshop discussion. As with mind maps, the spines have more detailed elements associated with them.

The resultant diagram is shaped like a fishbone – hence the name fishbone diagrams.

An example of a fishbone diagram (for the Rake's Wines scenario) is shown in Figure 5.8.

7. Documenting the Current Situation

5. Fishbone diagrams

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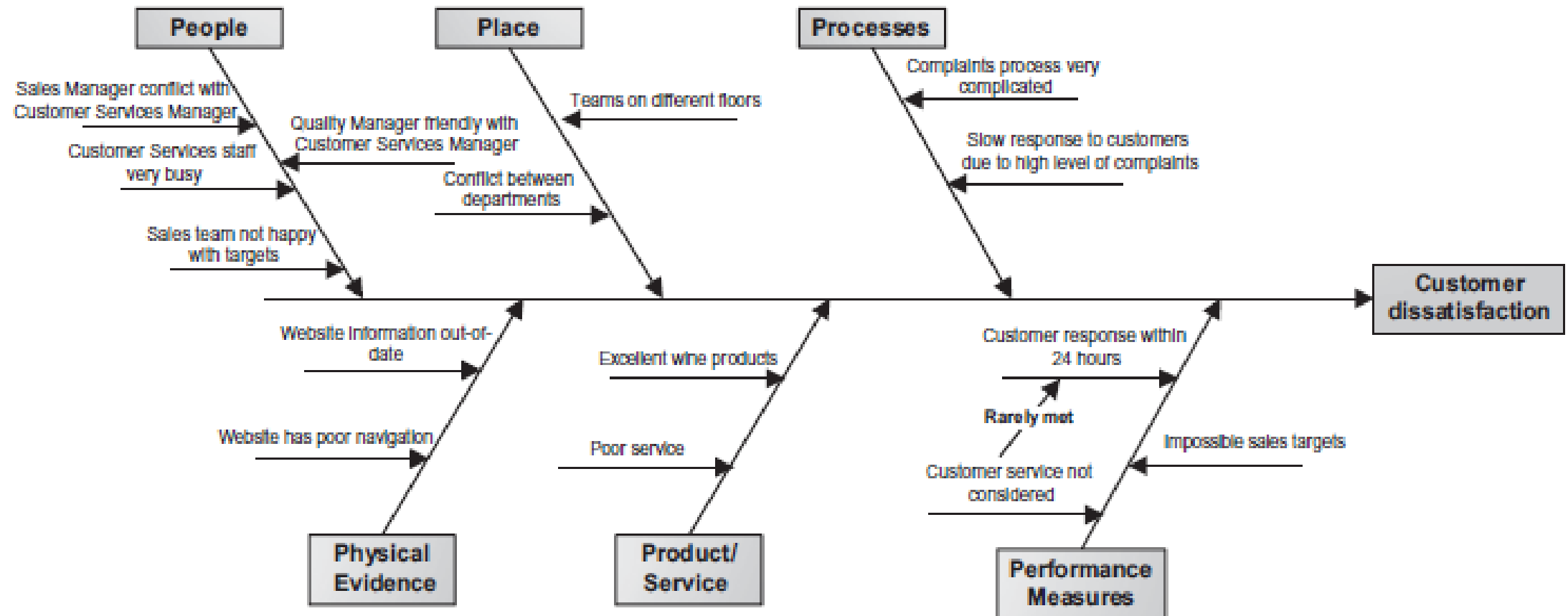
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An example of a fishbone diagram (for the Rake's Wines scenario) is shown in Figure 5.8.

7. Documenting the Current Situation- Spaghetti maps

Figure 5.8 Example of a fishbone diagram



7. Documenting the Current Situation

5. Fishbone diagrams

Once the diagram has been completed, we can analyze the results by looking for the key causes of problems. These are the items that are listed several times, since they are the ones that are likely to be having a broad impact upon the situation. They should be considered for rapid action in order to help address the issue promptly.

CONCLUSION

Any business analysis project will inevitably include investigating business situations in order to clarify the problem to be addressed. To do this effectively, the business analyst needs a toolkit containing a range of investigative and diagrammatic techniques. This toolkit provides the basis for a key competency of a business analyst which is the ability to appreciate when particular techniques are relevant and the ability to apply them effectively.

REFERENCES

- **Required Reference:**

Debra Paul and James Cadle, et al, (2020). “Business Analysis”. BCS, 4th Edition. ISBN:978-1-78017-5102

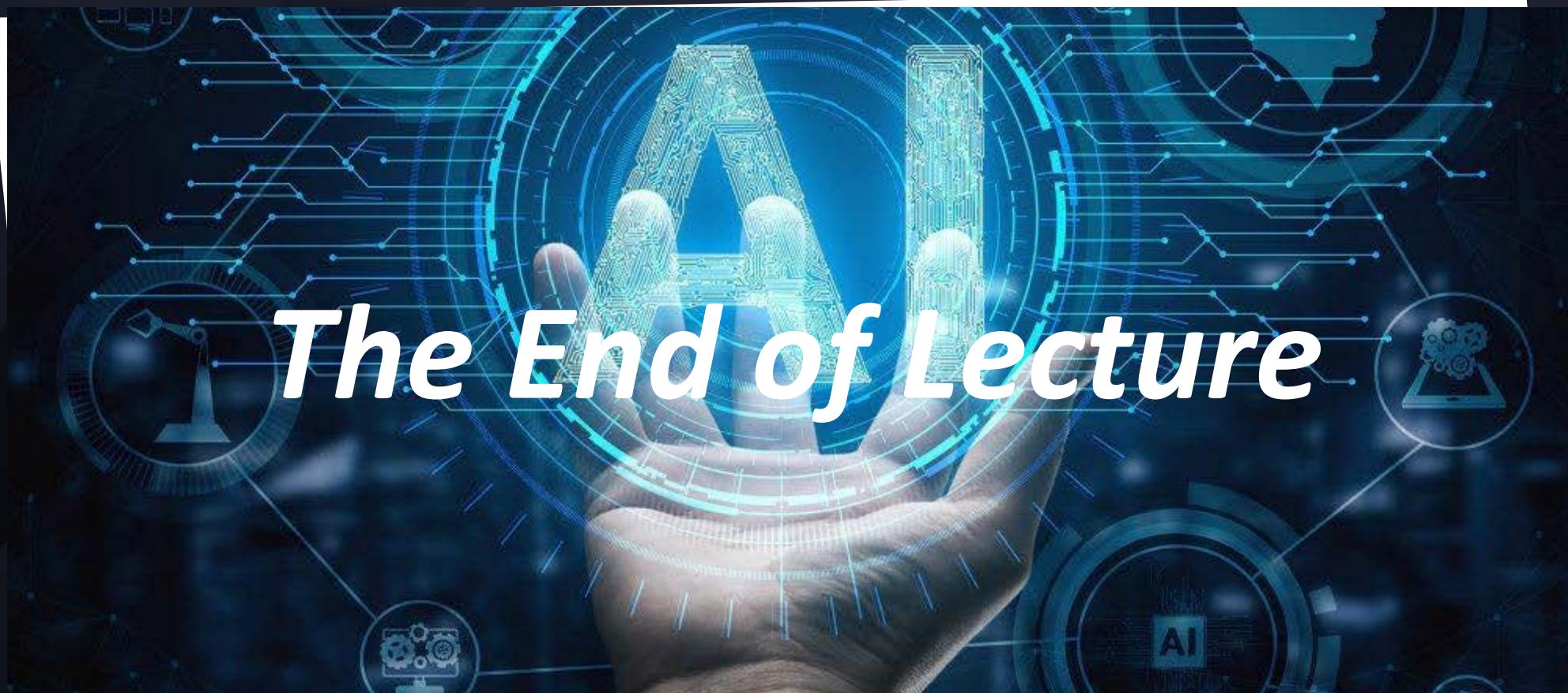
- **Recommended Reading**

James Cadle, Debra Paul, Jonathan Hunsley, Adrian Reed, David Beckham, Paul Turner (2021). “Business Analysis Techniques” 3rd Edition, BCS. ISBN:978-1-78017-5690



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The End of Lecture

Thank You

