BUSINESS ANALYSIS TECHNIQUES

72 Essential Tools for Success

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2 INVESTIGATE SITUATION

INTRODUCTION

This stage of the business analyst's work is concerned with uncovering problems and issues. It involves using a range of investigative techniques, and choosing those that are most appropriate to the situation being examined. It also involves documenting what has been found.

Three aspects of this stage are considered here:

- qualitative investigation;
- quantitative investigation;
- documenting the results.

Qualitative investigation (Techniques 13–15)
The techniques here are used to discover the widest possible range of facts and opinions about the issues. Facts are clearly important, but so are opinions. They help the BA to understand the people involved in the matter, and to begin to assess how receptive they are to change, to identify their hopes and fears about the situation, and to discover who may be 'allies' or 'opponents' in implementing change. This information is invaluable in the analysis and management of stakeholders, examined in more detail in the 'Consider perspectives' chapter. The qualitative techniques we review here are:

- interviewing;
- workshops;
- observation.

Quantitative investigation (Techniques 16–19)
In addition to qualitative information, it is also useful to get quantitative data to provide further insights into the business problems and issues. For example, how many invoices are produced per day? Per month? Per annum? Is there a peak at a particular time of the month? How much time is spent dealing with complaints, as opposed to taking new orders? What information is recorded on forms and reports at the moment, and who uses this? The qualitative techniques we present are:

CONTENTS

- questionnaires;
- sampling;
- special-purpose records;
- document analysis.

Documenting the results (Techniques 20–22)

The simplest way of documenting the findings of the investigation is by writing a report of some sort. However, this is laborious and time consuming, and sometimes the real essence of a problem or issue can get lost in a great mass of text. As a supplement, or a substitute, for text we present here some more visual techniques:

- rich pictures;
- mind maps;
- context diagrams.

QUALITATIVE INVESTIGATION

Technique 13: Interviewing

Description of the technique

Interviewing is one of the main fact-finding, investigation or elicitation techniques used by BAs, and consists, usually, of one-to-one discussions with stakeholders in the business analysis assignment. Occasionally the BA may interview more than one person, and sometimes, too, more than one BA may be involved in a discussion, but one-to-one is the more usual situation.

A successful interview has three main stages, as shown in Figure 2.1.

Figure 2.1 The main stages of interviewing

Planning and preparation means answering two questions: Whom do I want to interview, and what do I want to ask them? Interviewees could be selected for a number of reasons, including these:

- They are senior managers who have commissioned the business analysis work and/or could have a significant influence on it.
- They are 'end users', the people whose jobs will be affected by the BA work and who can provide the analyst with detailed information.
- It is good politics to involve them, to keep them 'on-side' with the project.

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Whatever the reason for the interview, the BA should create an agenda that is detailed enough so the interviewees can prepare themselves, and should send this to them in plenty of time. BAs may also perhaps create a more detailed list of questions for themselves.

Another aspect of planning is deciding when and where to conduct the interview. Of course, with senior managers, the BA might not have much choice, and might be told rather than asked when and where the interview can be arranged, but, otherwise, the following should be considered:

- Seeing people on their 'home turf' helps to put them at their ease, and, in addition, they will have documents and so forth readily to hand to show the BA. On the other hand, they might work in a distracting environment, and they may want more confidentiality than the workplace can provide.

- Distractions can be avoided and confidentiality provided by using the BA's office, or a neutral meeting room, but at the risk of making the interviewee more nervous.

- Interviews held first thing on Monday or the last thing on Friday are seldom very productive; the BA should try to find a time that fits around the interviewee's work commitments.

Follow-up after the interview includes sending interviewees a copy of the notes, and asking them to confirm the BA's understanding and interpretation. Apart from being good manners, this also helps in securing buy-in from the interviewee. These notes, incidentally, should be written up as soon as possible after the interview, while the discussion is still relatively fresh in the BA's mind.

Figure 2.2 The structure of an interview
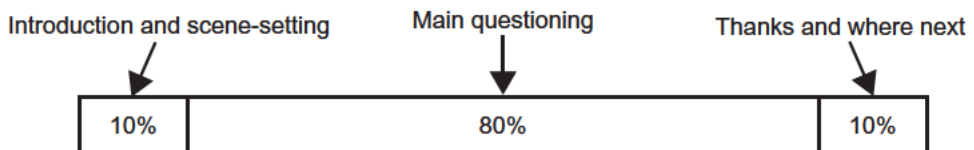
The interview itself is also divided into three parts, as shown in Figure 2.2.

During the introduction, the BA should thank the interviewee for participating, restate the purpose of the discussion and try to put the interviewee at ease. This is also a good time to start building the rapport with the person that will be invaluable later in the project, when you are trying to 'sell' and implement your solution. It is also a good idea at this point to mention that you will be taking notes, as this gives you 'permission' to pause from time to time in order to do so.

At the end of the interview the BA needs to do a few things. You should:

- Summarise the main points of the discussion.
- Make sure you have examples of any documents or forms mentioned in the interview (filled-in ones if possible, since these provide more information than blanks).
- Again, thank the interviewee for their time and their contribution to the analysis work.
- Provide some information about what happens next – interviewees often complain that they don't know where or how their information will be used.
- 'Keep the door open' with the interviewee in case you need to get further information.

Returning now to the body of the interview, this is where the main part of the questioning takes place. Needless to say, the BA should be careful to follow the agenda, but should also be prepared to go 'off piste' if necessary to follow up any particularly interesting points made by the interviewee.

There are various types of question that the BA may consider using, and each has its pros and cons. The main types are:

Open: These are questions such as 'Please tell me about …' and 'What are your views on …', and they serve to open up discussion and encourage the interviewee to speak. On the other hand, sometimes questions can be too open, leaving the interviewee a bit confused about what is wanted. An example might be 'Please describe the work of the invoicing section for me.'

Closed: These invite simple 'yes' or 'no' answers, and are generally to be avoided since they tend to close down conversation. However, they can be useful sometimes to get control over an over-garrulous interviewee, and where a definitive answer is required. An example is 'Does the invoicing section just deal with invoices?'

Limited choice: Here the interviewee is given a restricted set of options to choose from, as in 'Would you say the system is now better, worse or about the same as it was last year?' The downside of limited choice questions is the same as for closed ones – that they tend to shut down discussion – but they are sometimes useful if it is necessary to compare answers given by different interviewees. An example could be 'Are invoices produced before, after or on despatch of the goods?'

Leading: This type of question is often favoured by TV interviewers, and starts with something like 'Would you agree that …'. With a nervous or inexperienced interviewee, who might reply 'yes' just to be agreeable, these are dangerous; but they can sometimes yield interesting results when used carefully with more senior people to provoke

a reaction. An example is 'Do you agree that the design of this invoice is a bit difficult for customers to understand?'

Probing: These are follow-ups to other questions, for example: 'So each invoice may cover more than one actual customer order?'

Link: These are the most difficult to use, as the BA is making connections between different parts of the interview. An example might be 'So you produce 1,000 delivery notes per week, and earlier I think you said there were 750 invoices per week; does this mean that some orders are sent out in more than one delivery?'

None of these types of question is 'right' in all circumstances, and the BA must be willing and able to use all of them at some time or other. In general, though, avoiding too many closed, limited-choice or leading questions is good, since these tend to close down the conversation, whereas open questions tend to keep it going.

While all this questioning is going on, the BA should be making notes of the conversation and should pause as necessary to facilitate this.

Using interviewing

To a new BA, conducting an interview presents a very great challenge, and even experienced BAs can have some difficulties on occasion. The reasons for this include:

- The BA is trying to do several things at once – listen to and understand the interviewee's answer, make notes, think about the agenda and frame the next question.

- Interviewees usually have much more subject-matter knowledge than do BAs. This can make the latter seem inexperienced, and lead them to ask apparently silly or obvious questions.

- Often the interviewees are busy, and resent giving up their time in this way.

- If the interview takes place in the interviewee's workplace, there may well be interruptions and distractions from colleagues or the telephone.

The truth is, though, that most BAs get better at all this with experience, and find their own ways round the issues. For example, one can turn the lack of subject-matter knowledge into an advantage by asking questions such as 'This may be a silly question, but …', and one can also build rapport with interviewees and get them 'on side' by deferring to their greater knowledge.

Note-taking is also difficult for new BAs, as it often seems to slow down the interview process. Actually this is not entirely a bad thing, since it can help to 'pace' the interview – and one can use the note-making pauses to think about the next question. Some people do not take conventional notes, but use mind-maps (see Technique 21) with the 'branches' – which they can prepare before the discussion – representing the main points of the agenda. They then populate these with details as the interview proceeds.

However difficult interviewing is, a successful BA **must** master the technique, since it is one of those most frequently used, and it also creates a wonderful opportunity to build good relationships with the key stakeholders, which are key to the success of every business analysis project.

Technique 14: Workshops
Variants and aliases
Variants include facilitated workshops, joint requirements planning workshops and IBM's Joint Application Development Workshops™.

Description of the technique
A workshop is essentially a gathering of a group of stakeholders in a project for the purpose of:

- agreeing the direction and scope of the project;

- identifying and agreeing business and/or system requirements;

- examining possible solutions to the requirements;

- reviewing and approving the products of analysis, for example the requirements catalogue and the requirements specification.

Workshops are particularly important when cooperative approaches to development are being employed, for example in Agile approaches such as Scrum or the DSDM Consortium's Atern. IBM has also for some years employed what it calls 'Joint Application Development' (JAD) workshops, and has trademarked this term.

The basic process for staging a workshop is shown in Figure 2.3, and in the pages that follow we will examine each stage in more detail.

Figure 2.3 Workshop process

Plan the workshop	Conduct the workshop	Follow up
Objectives	Focus on objectives	Issue notes
Attendees	Keep on track	Invite feedback
Concerns	Ensure participation	
Structure	Keep a record	
Techniques	Summarise key	
Venue	points	
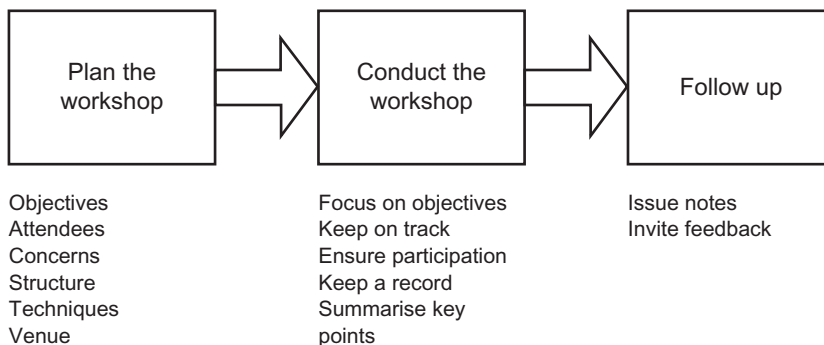
Plan the workshop
As with interviews, good planning is vital to the success of a workshop. The elements to think about at the planning stage are:

Objectives: The key question to ask is: 'Why are we staging this workshop?' Some of the possible reasons were outlined earlier, but it is important to be absolutely clear why this group of people has been brought together and what is the expected result. It may be that the outcome will be a set of detailed process models, or perhaps decisions will be made on the future of the project, or a signed-off specification of requirements produced. One common mistake is to make the objectives of a workshop too ambitious for the time available; this issue is discussed in the commentary below, under 'Using workshops'. Whatever the objectives are, they should be clearly stated on the agenda, which should be sent to the participants in enough time for them to prepare properly for the meeting.

Attendees: Clarity about the objectives should make it clear who the attendees should be. If the purpose of the workshop is to discover things, then priority must be given to people who have detailed knowledge on which to draw. If the workshop is expected to make decisions, then authority as well as knowledge is required. Sometimes knowledge and authority are not both found in one person, so the list of invitees may have to be widened to include more people. BAs organising a workshop must also decide whether they should facilitate the workshop themselves or ask a colleague to do so; the implications of this important decision are discussed below under 'Using workshops'.

Concerns: Once we know who the attendees will be, we need to try and find out what their concerns are likely to be, and thus from what 'angle' they will approach the workshop. This will enable the facilitator to think about what techniques to employ and how to manage the workshop.

Structure: The objectives will also point towards an appropriate structure for the workshop – getting all of the issues out on the table and assessing their significance before trying to find solutions, for example.

Techniques: The facilitator needs to consider the objectives and the attendees, and decide which techniques may be most appropriate to use. Some of these are considered below.

Venue: A suitable venue must be booked for the workshop. 'Suitable' covers various aspects, including size (not too cramped or too large, which would ruin the dynamic of the workshop), comfort (of chairs, temperature and so forth), convenience for the attendees, and services required (for example, catering and audiovisual equipment). A major decision is needed on whether the workshop should be held on site or off site, and some thoughts about this are given under 'Using workshops' later in this section.

Conduct the workshop

During the workshop the key elements for success include:

Focus on objectives:	It is the facilitator's responsibility to make sure that the agenda is followed and that the discussions are not allowed to drift off into irrelevancies. However, some latitude must be allowed, since it is not always clear initially where a particular point might lead, and the facilitator should not choke off any potentially promising lines of exploration.
Keep on track:	This is about making sure that the timetable is followed as far as possible. It can be very annoying to participants if a workshop appears to be bogged down on some point, or if they feel they are being 'railroaded' before they have been able to express their views.
Ensure participation:	In many ways this is the most important role of the facilitator – making sure that all of the people attending have a chance to participate. This may involve keeping the more vocal attendees under control and 'bringing out' the quieter, more reticent types.
Keep a record:	There is nothing more frustrating than attending any form of meeting and then finding afterwards that there is no record of what went on and, particularly, of what was agreed. This is true of workshops too, and someone must be deputed to keep a record of proceedings. If some of the diagrammatic techniques outlined later are used the records will create themselves, but otherwise someone needs to take the role of 'scribe', also discussed later.
Summarise key points:	At various stages during the workshop, and particularly at the end, the facilitator should summarise where discussions have got to and highlight any actions agreed. Doing this occasionally during the workshop helps participants to understand where they have got to and what they need to think about next.

Follow up

There are two vital responsibilities following the workshop:

Issue notes:	The notes should be issued as soon as possible after the workshop, before the 'trail has gone cold' and the attendees have had time to forget, particularly if they have any subsequent actions to take. Participants should be asked to correct any factual errors they spot, but they must be discouraged quite firmly from reopening issues that have been decided.
Invite feedback:	Feedback on the workshop should be sought, especially on the participants' experiences. This enables facilitators to hone their skills for future events.

Workshop roles

These are the main roles that need to be filled in a workshop:

Participant: What makes someone an effective participant in a workshop? It is difficult to generalise, of course, but some characteristics stand out, including:

- a willingness to contribute fully and to argue one's points;

- a good knowledge of the topics and issues to be explored and discussed;

- the authority to make decisions as necessary.

The last point is an important one. It is a waste of everyone's time if, at the end of a workshop, some of the people present will not (or cannot) bind themselves and their departments to the decisions made – 'I'll need to run it past my boss first.' In the process of organising the workshop it must be stressed to senior management that they need either to come themselves or to empower whoever they do send. There are some difficulties with this, however, and these are explored under 'Using workshops' later in this section.

Scribe: Someone needs to be responsible for making notes as the workshop progresses. For reasons we are about to explore, this should not, ideally, be the facilitator. Nor, where technical issues are to be discussed, can general administrators operate effectively as scribes, since they will most likely not understand a lot of the terminology used. The scribe therefore needs to be someone who has both an understanding of the topic under discussion and the close attention and note-taking skills required to keep an accurate record of proceedings.

Facilitator: The facilitator's role is clearly crucial to the success of the workshop. He or she must possess some necessary characteristics including:

- Good communication, and particularly listening, skills, so as to follow the discussion and make sure it is relevant to the workshop's objectives.

- Emotional intelligence', which, in this context, means being able to sense the mood of individuals and the meeting as a whole and to adjust one's own approach accordingly.

- Sufficient 'ego strength' to be able to manage the participants gently but firmly, to keep the more vocal ones under control and to draw out the less confident attendees.

It is a matter of some dispute whether the facilitator needs to have an in-depth knowledge of the subject of the workshop. One school of thought says that the aim of the facilitator is to be

objective, and that this is difficult for a person who has knowledge – and therefore opinions – of the matters under discussion. On the other hand, and particularly where technical subjects are concerned, a facilitator without any knowledge is surely unable to gauge the significance and relevance of participants' contributions. What is not in dispute, though, is that the facilitator is there to help the participants to reach a conclusion – but not any particular conclusion. We have more to say about the BA as facilitator later in this section.

Ice-breaking techniques

Depending on the purpose of the workshop, and also on whether the participants already know one other, the facilitator may want to use some 'ice-breaking' techniques to help people to start working together. These have to be judged rather carefully, however, as some techniques can put participants off, especially in a rather conservative, formal organisational climate. To some extent the degree to which participants will 'play along' with a technique may depend on the authority and 'presence' of the facilitator.

Assuming that the climate is propitious, however, the following may be tried:

Personal introductions:	This is the most commonly used ice breaker, and simply involves asking all of the participants to introduce themselves and tell the rest of the group something about them. This can be broadened beyond the workplace by asking them to include an 'interesting fact', but some people feel a bit awkward about that. As a variation, participants can be asked to interview their immediate neighbours and then introduce them to the rest of the group. This gets some conversation going.
Fact or fiction:	Each person writes down four things about himself or herself, one of which is not true. Participants then read these out, and the rest of the group tries to identify those that are untrue.
Marooned:	The group is divided into teams which have to assume that they have been marooned on a desert island. Each team is asked to choose five items that they would have brought with them. They write their choices on a flipchart, and then debate their ideas with the other groups. This one is good because it does get some discussion going, which is, after all, the object of the workshop.
Bodyguards and assassins:	This one is more active, and it can also be used as an 'energiser' if there is a dip in concentration or enthusiasm. Everyone stands up and secretly chooses one other member of the group as a potential 'assassin' and another as a 'bodyguard'. They then have to move around the room, all trying at the same time to get away from their own 'assassins' and closer to their own 'bodyguards'. The exercise can cause great hilarity and encourage a warmer and more dynamic atmosphere.

Discovery techniques
Here are some techniques that can be used to uncover information and stimulate creative thinking.

Brainstorming: This is the technique that everyone remembers when thinking about workshops. It involves simply announcing a topic or posing a question, and inviting participants to shout out ideas. (Incidentally, in some organisations keen on political correctness, the term 'brainstorming' is thought to be rather insensitive to people with epilepsy, and 'thought showering' or 'ideas storming' are preferred.) Brainstorming works well when participants are comfortable with one other and not afraid of being criticised, but these ideal conditions do not always exist in a workshop. Where people do not know each other, or there are big differences in status between those present in the room, or the culture is not conducive to making mistakes, only the bolder participants are likely to contribute; this can skew the results of the workshop. In these situations, something like a Post-it exercise (see below) can be more productive. Another problem with brainstorming is that the scribe or the facilitator may not be able to keep up with the flow of ideas, and so their slowness actually acts as a brake on the creativity of the participants. It is vital, by the way, that all ideas are written down, partly so that they are not forgotten, but also so that those who suggested them do not feel slighted or excluded.

Round robin: Here the facilitator goes round the table from person to person and invites each to make a suggestion. This does have the virtue that everyone is explicitly invited to contribute, but sometimes more reticent people feel they have been 'put on the spot'. Again, Post-Its may be a better bet.

Post-it exercise: The idea here is that each participant is given a block of adhesive notes and is asked to write a suggestion on each one. The advantage of this over brainstorming is that each participant has time to think, and they do not have to expose their ideas immediately to public scrutiny. The facilitator can collect the Post-Its in various ways, including the 'Columns and Clusters' and 'Talking Wall' styles described next. An advantage of this approach over brainstorming is that it produces some quantitative, as well as qualitative, data; in other words, if several people write notes on the same topic, we get a sense that this topic is quite important. Also, the process is not slowed down by the need for the scribe or facilitator to write things down.

Columns and clusters: Once the participants have finished completing their Post-Its, the facilitator asks them to come up and stick them to the wall, starting a new column (or cluster) each time they believe they have introduced a new topic. Each person sticks up their notes in turn, and they can explain what they have written as they

go along. Once the columns or clusters have been created, they can be reordered until the participants think they have them organised in a sensible manner.

Talking wall: This is like the Post-it approach (indeed, the little notes may be used with it), but it starts with several sheets of brown paper stuck to a wall. The facilitator asks the participants to write their ideas (or stick their notes) directly on to them.

Greenfield site: Here participants are asked to clear their minds of the baggage of history, and to imagine they are starting their organisation, department, process or whatever from scratch – on a greenfield site, in fact. If they weren't saddled with all their legacy approaches and systems, what would they do today?

Transporter: This one focuses on an organisation, or a group of people, or perhaps another nation, and asks: 'How would they do this in …?' Again, the idea is to get people to think in a different way about the issues, not constrained by the way things are done 'here, now and by us'.

Assumption reversal: Finally the participants could be asked to reverse their normal assumptions about a problem. For example, if the workshop starts from the premise that the organisation is the market leader in something, try assuming that it is one of the 'wannabees' instead.

Documentation techniques

The facilitator also needs to find some techniques for documenting the results of the workshop. Some of these are significant techniques in their own right, and hence are presented separately in this book. The possibilities include:

Notes on flipcharts: This is what seems to happen most frequently, and it has the advantage that all the participants can see immediately what is being recorded. Its success does rather depend on the scribe, or the facilitator, having reasonable handwriting, and it can slow proceedings down, particularly where the facilitator is also the one doing the writing.

Post-it notes: As we have mentioned already, one benefit of using these is that they are self-documenting, although at the end of the workshop someone will have to transcribe the results into the meeting notes.

Context and use case diagrams: These are very good for establishing the scope of a proposed IT system, and are covered in detail later in the book (Techniques 22 and 62).

Rich pictures: The idea of these is that they help participants to break away from the limitations of text. There is a description of rich pictures later in this chapter (Technique 20).

Mind maps: These represent the flow of thought, and provide a structure for organising the ideas of a group. They are described in detail later in this chapter (Technique 21).

Using workshops

Workshops have come to be the dominant technique for requirements elicitation and decision-making in projects, where once interviews seemed to reign supreme. The reasons are not hard to find: a workshop is less time consuming than a series of one-on-one discussions, especially in this time-pressured age; they give the opportunity to cross fertilise ideas and build consensus; and workshops somehow seem more democratic and transparent than decision-making by individuals behind closed doors. It should also be pointed out, though, that they are not always successful or universally accepted, and many people regard them as being just like any other meeting, and thus generally a waste of their time. Workshops, like any other technique, have their drawbacks, and some of the issues with them are examined next.

Right and wrong participants: The success of a workshop is very dependent on having the right people present. What 'right' means will obviously depend on the purpose of the workshop. If detailed information is required, then people who do the job, and can thus provide this, are needed; if decisions are needed, the workshop must include people who can make them. Sometimes it would be nice to have participants with both knowledge and authority, but this might mean including people who have different ranks within the organisation, which can make the dynamic tricky to manage. The facilitator can help here at the beginning by getting everyone to accept their equality within the workshop, and later by managing the workshop so that the most senior people do not unduly dominate proceedings.

The number of participants: A workshop can just be too big to manage effectively. Probably about a dozen is the maximum number of participants if each person is to contribute properly, and even this is a rather large group for a facilitator to manage. If large groups are unavoidable – perhaps because certain people insist on being present – then working in smaller subgroups and reporting back to the main meeting may be a good idea, though it will be difficult for the facilitator to manage and encourage all of the groups.

Over-ambitious agenda: Precisely because it is difficult to get a group of relevant people together in one place, there is a temptation to try and cover too much ground in a workshop. This can result in the agenda items not being covered properly, and the facilitator 'driving on' even though consensus has not been obtained on important matters, perhaps resorting to tactics such as voting, which achieve a decision but probably alienate some of the participants who were outvoted.

Duration: Winston Churchill is reported to have said: 'The mind can only absorb what the backside can endure', or something similar.

The point is that if a workshop goes on too long the concentration of the participants will waver, and they will become tired, bored and even fractious. The facilitator must sense when the energy is dipping, and call a break; and the workshop must finish on time. If, at the scheduled end point, agreement is very close, then an extension may be acceptable provided it is negotiated and agreed with the participants. Otherwise, unpalatable though it is, the only real answer is to reconvene – maybe with fewer people, just to finish off the remaining issues.

The venue: The venue can have a significant effect on the dynamics of a workshop. For example, having too many people crammed into a small room with no daylight is hardly conducive to creative thought; but having a small group in a ballroom can be equally off-putting. The venue needs to be the right size, with comfortable seating, good lighting (preferably natural) and sufficient space to move around. It needs to be properly equipped with flipcharts, whiteboards, pens and so forth. Ideally refreshments should be available 'on tap', so that the facilitator can take breaks at a convenient time in the discussions, rather than at prearranged times. Similarly, workshop participants should not have to waste a lot of time getting served at lunch (or dinner, if it's a whole-day event).

One issue to be addressed is whether the venue should be on site or off site. On site is obviously cheaper and perhaps easier, though meeting rooms seem to be in short supply in many organisations. However, there is always the temptation for people to sneak back to their desks during breaks, just to check their emails, and this can make timekeeping very difficult. Also, people may 'pop in' to grab someone's attention, a further distraction from the main business of the workshop. An off-site venue obviously overcomes these problems, but expense has to be considered, and some places – hotels notoriously – are not as good at hosting business events (providing refreshments on time, and so forth) as they should be. And even off site, the availability of mobile phones and portable communication devices means that participants are not completely free of distractions.

Choice of techniques: The facilitator must make sure that the techniques employed – especially those for discovery – are appropriate to the task in hand and the nature of the participants. Hard-nosed accountants, for instance, might be rather resistant to some of the 'softer' ice-breakers. The facilitator may, of course, wish to pull the participants out of their comfort zones, but this must be done deliberately and with a 'plan B' in mind if the attempt backfires. One thing that is a good idea in any case is to use a variety of techniques, so that participants do not get bored with yet another Post-it exercise or brainstorm.

Having a scribe:	Facilitating a workshop is a nontrivial undertaking. The facilitator has to manage the time, 'read' the people, phrase questions, watch the agenda, understand contributions, keep some people in line and draw others out, maintain their own 'presence' and composure and push the workshop forward all the time. This is hard enough on its own, but, if the same person is also keeping the record, it becomes very difficult indeed. For this reason, if at all possible the facilitator should recruit someone to act as scribe who can also, as it were, act as a 'deputy facilitator', drawing the attention of the facilitator to any points that have been missed in the heat of the moment.
The business analyst as facilitator:	BAs often end up facilitating workshops because they have convened them and have mastered the issues involved, but this is not necessarily a good idea. Apart from all other considerations, the BA has a personal interest in the outcome of the workshop and/or project and thus is not really objective (an important criterion for a facilitator). The facilitator may also have to act in the workshop to control participants, and this can make subsequent working relationships tricky. If at all possible, then, it is better to have an independent facilitator. If the budget will not run to hiring someone from outside, then maybe a BA from another project might be willing to act as facilitator; the favour can be returned at a later date.
Losing control:	Finally, nothing so destroys the benefit of a workshop, or puts people off attending further ones, than letting the whole thing get out of control – running over time, not covering important parts of the agenda, getting bogged down in trivia or irrelevances, or being dominated by the loudest voices rather than the most thoughtful brains. It is down to the facilitator to ensure that this does not happen, and that the workshop results in satisfactory conclusions for the participants.

Technique 15: Observation
Variants/Aliases

Observation comes in various forms, and several are discussed in this section. Variations on the observation theme include **structured observation, STROBE** (STRuctured Observation of the Business Environment), **shadowing, protocol analysis** and **ethnographic study**.

Description of the technique

Observation consists of BAs going and looking at work – business processes for example – for themselves. There are some very good reasons for it, including these:

- Business users often have trouble describing clearly or concisely what they actually do on a day-to-day basis, and it can be much more productive for the BA to watch what goes on rather then trying to elicit such information through interviews or workshops.

- Equally, tacit knowledge – which we might define as 'what we know but don't know we know' – by its very nature seldom comes to light in interviews or workshops, unless the BA is very skilful indeed or has a lot of domain knowledge to draw on. Watching people do their work can lead BAs to notice things that the business users may not have mentioned before, and they can follow this up by asking why these things are done and what value they add to the business processes.

- The fact that people do not necessarily do in practice what they have told the BA they do – or what, perhaps, the laid-down procedures say they should do – must also be faced. People are naturally inventive, and they find shortcuts to make their jobs easier. Sometimes these are a good thing and result in increased efficiency, but on other occasions problems arise because a defined procedure is not followed. In either case, these departures from the established procedures are unlikely to come to light unless the BA has a look to see what is happening in practice as well as in theory.

So observation is a valuable supplement to the primary elicitation techniques such as interviewing and workshops; and observation can spark off additional lines of enquiry and investigation for the BA.

The simplest form of observation consists of BAs just sitting with a user, or a group of users, and noting down what goes on and anything unusual that strikes them. Of course, common courtesy – not to mention maintaining good relations with the workers and perhaps with their union – dictates that this be agreed in advance with the people concerned and their managers.

As a more planned alternative to such an approach, we might employ structured observation, sometimes referred to as *STROBE*. Here the BA goes out with a checklist to look for specific pieces of information – for example, how many phone calls are answered each day, how many orders are taken, how far workers have to walk to access files, and so forth. This form of observation obviously depends on some preliminary investigations, probably via interviews or workshops, to identify what activities to look for.

Shadowing can take two forms. In one, the BA follows workers around and notes everything they do, thus obtaining a good overview of the pattern of work. In the other form, BAs take the role of an 'apprentice' and ask the worker to train them in the job, thus gaining personal insights into the details and challenges of the job.

Protocol analysis consists of workers performing their duties while providing the BA with a commentary on what they are doing.

The term '*ethnographic study*' originates from the world of anthropology, and means researchers spending a protracted time living with a group of people, such as an Inuit hunting band for example, immersing themselves in the culture and lifestyle. An anthropologist undertaking such a study is trying to discover things about the way the society works, what its norms are, where the power is in the group, what is acceptable and unacceptable behaviour, and so on. Although this might seem to be a world away from business analysis, in fact

the approach can be very useful, since it helps BAs to understand the type of organisation they are studying, and into which they may later introduce new procedures, processes and systems. For example, a few days immersed in a high-energy sales team may reveal the hopelessness of trying to introduce procedures for capturing customer information through the use of detailed forms or input screens.

Using observation

So far we have been rather enthusiastic about the benefits of the various types of observation that a BA might consider using. However, there are several very practical issues to be borne in mind when planning the use of observation and, later, understanding and interpreting the results.

The first is what scientists refer to as the 'Heisenberg principle'. Loosely expressed, this means that the results of the observation are affected by the presence of the observer. If people know they are being watched, they may try to influence the results of the observation by, say, finding more work than they would normally have at that period or performing the work differently. Even if there is no deliberate intent to deceive the observer, the fact is that being watched is unnerving and people may find themselves behaving atypically because of this. Although the Heisenberg principle is real enough, however, it is also true that people soon get used to being observed, and either tire of trying to fool the observer deliberately or just revert to normal patterns of working. What this means in practice is that, to be useful, an observation must take place over an extended period; and the BA must be prepared to write off some of the earlier observations as part of the 'settling down' period.

Leaving aside the Heisenberg effects, though, having someone watching one's work does have the potential to interrupt 'business as usual' – especially if the observer is also asking questions all the time to find out what is going on. This is the main reason why it is important to set up the observation in advance by discussing it with the people affected and with their managers, explaining what it is for and what it is designed to discover. If this preparation is done properly, it should help to overcome a lot of the problems described so far.

Even if the observer intends to stay in the background and not to interrupt the work, this can be difficult to achieve. Often – and especially with clerical and 'knowledge' work – it is difficult for an observer to determine what is going on without asking. And how does an observer interpret the sight of people just sitting and apparently doing nothing at all? They may, in fact, be doing nothing – or, equally, they may be thinking through a particularly difficult business problem. The only solution to this is, of course, to ask what is going on or – as with protocol analysis – to ask the person to provide a running commentary; but sometimes people feel awkward or embarrassed about doing this.

When using a structured approach like STROBE the BA may concentrate too intently on the checklist and fail to spot something significant that is not listed on it. The BA therefore needs to be aware of this possibility, and be alert to something occurring that is relevant to the study even if it is not on the list.

When shadowing someone, another pitfall to think about is that the day, or the week, may not be a typical one. For example, there may be some cyclical peak or trough of work, and if the period of study happens to coincide with this, the results will not give a representative picture of work more generally. To avoid this, the BA needs to conduct some preliminary discussions with the workers and their managers and to select a study period that is reasonably typical. If an atypical period cannot be avoided – perhaps due to project time pressures – then other records may have to be consulted so that an adjustment can be made to the results.

It will have been apparent when reading the description above of ethnographic studies that this is likely to be a time-consuming exercise. Unfortunately such time is not often available in the hard-pressed world of work. This is a shame if significant business change is being proposed, the introduction of which will be immeasurably smoothed if the cultural context is properly understood.

It has to be acknowledged, too, that observation does not, of itself, yield reliable quantitative data; at best, it produces a view of the situation as seen by a – hopefully – impartial observer. If more 'hard' data is required, to be taken forward to a business case (perhaps to prove the value of tangible benefits), then a more quantitative approach, such as activity sampling, may be required.

Finally BAs need to be aware that informal observation can be combined with interviewing if the discussions take place at the subject's workplace. While giving full attention to interviewees and what they have to say, the BA should keep an eye open for what is going on around them, and look for any aspects of the working environment that may be relevant to the final business solution. It may have to cater for lots of interruptions, for example.

QUANTITATIVE INVESTIGATION

Technique 16: Questionnaires
Variants/Aliases
These can also be called **surveys**.

Description of the technique
Questionnaires are among the range of techniques that a BA can use to elicit requirements or gather other information, or to validate with a wider group of people the information already gained from smaller groups by using, for example, interviews or workshops (Techniques 13 and 14).

Questionnaires are probably best thought of as a second-line investigation technique, designed to supplement, test or amplify information gained first through other means. For example, the BA might already have convened a workshop with a few representatives of a particular job role, and may now wish to find out if what these people have said is typical of the wider population. Similarly a BA may want to see whether the views of a few interviewees are shared more widely.

However, there are some situations where the use of questionnaires becomes a primary fact-finding technique. This usually happens where the 'user population' is widely dispersed, and it is not practical to conduct lots of one-on-one interviews or a workshop; this occurs particularly with widely dispersed, for example multinational, organisations. If this really is the case, then the BA needs to be particularly aware of the limitations and difficulties of questionnaires, as discussed in the section below on 'Using questionnaires'.

The keys to success in the use of questionnaires include:

- Being clear about what purpose they are to serve. Obviously gathering data is one such use, but BAs may also use questionnaires to gain the involvement or engage the enthusiasm of a dispersed group.

- Being realistic in their scope. An unrealistic approach often leads to a questionnaire so long that few people bother to complete and return it.

- Designing the questionnaire, and particularly the questions, in a way that makes its purpose clear and its completion easy.

- Realising that low response rates are typical with many questionnaires; and thinking about how to factor in the possibly different views held by non-responders.

BAs planning to use a questionnaire should consider carefully how they are going to analyse the data once it is collected. For example, if we are asking the question 'Do you believe the situation is better, worse or about the same as it was this time last year?', do we want to know the mean response – the simple arithmetic average of all the responses, or the mode – the answer given by the highest number of respondents?

In terms of design, a questionnaire actually has four parts, as shown in Figure 2.4, and we shall consider each element in turn.

Figure 2.4 The elements of a questionnaire

Title	
Heading section	• Explanation • Incentive • Return
Classification section	• Categories • Ranges
Data section	• Questions • Possible answers • Comments

Title

Bearing in mind the low response rates typical of questionnaires, it is worth giving the document some sort of catchy title that engages the interest of the survey population. A title like 'Survey into business processes in the despatch department' probably will not achieve this, whereas 'Making the despatch work more interesting' just might.

Heading section

This section seeks to do three things:

- It should explain to the recipients what the questionnaire is about, and its importance.

- It should give some incentive for people to complete and return the questionnaire. In public opinion surveys respondents are frequently offered a place in a prize draw if they return the questionnaire, but this sort of incentive may not be appropriate, or available, in a BA study. Instead the BA needs to find some 'hook' for respondents, some way in which they can gain something from completing and returning the survey. This could take the form of a lessening of their workload, the removal of some tedium from their tasks, or something else that the workers may appreciate. (Incentives such as increased company profitability, although probably dear to the hearts of senior management, are of less direct interest to workers than the effect on their jobs.)

- Finally it should be clearly spelled out how and to whom the questionnaire should be returned. If the questionnaire is on paper, an addressed and, if relevant, stamped envelope should be included for the purpose.

Classification section

This section is needed when the BA wants to find out more about who is completing the questionnaire, and whether there are differences between the various groups of respondents. For example, are the views of men different from those of women? Do older people have different views from younger ones? Are there divergences between the ideas of senior managers and front-line workers?

Classification can be achieved in two ways:

- by asking people which of a number of groups they fall into (such as males and females, for instance);

- by offering ranges (such as ages 16–25, 26–35, and so forth).

Data section

This is the part of the document where the actual questions are asked. Three types of question might be posed (it is worth comparing this list with the broader set given in the earlier discussion on interviewing – see Technique 13).

Open: Open questions invite free-format answers. They allow respondents to state their real views, but the answers can be difficult to analyse.

Closed: These questions ask for simple 'yes/no' answers, and can be used to secure definitive information. It is a good idea to offer 'don't know' as another possible answer, since respondents may resent being forced into a 'yes/no' choice with which they do not agree.

Limited choice: Here a set of choices is offered, such as a range of monetary values.

Where closed and limited-choice questions are used, respondents should also be provided with the chance to make comments that explain their choices.

Using questionnaires

One real problem with questionnaires is the low response rate typically experienced. In commercial situations the researchers can offer some sort of incentive for the return of the questionnaires; an entry in a prize draw for example. BAs might have to find some other incentive, such as the potential benefits to the respondents' jobs.

Another issue to consider with poor response rates is how to interpret the results that are obtained. Is it safe, for example, to assume that the people who responded are typical of the larger population? Probably not; it is just as likely that those who returned their questionnaires had a particular axe to grind. What this means is that a small sample has to be 'taken with a large pinch of salt'.

To increase the likelihood that people do respond to questionnaires, respondents are sometimes guaranteed anonymity. However, this can be compromised by questions asked in the classification section of the questionnaire. For example, if we ask for grade, age range and gender, we may have narrowed the respondent population to the point where specific individuals can be identified.

Another problem with the classification section is that some respondents react adversely to some types of question: those relating to salary range, for instance, seem to be particularly unpopular. Before using a specific classification, therefore, the BA needs to be certain that it really is necessary to classify respondents in this way. It may also be advisable to add to the classification section an explanation of why the questions are being asked.

The phrasing of each question should also receive careful consideration, and it is a good idea to test questions out on a small sample of respondents before using the questionnaire more widely. For example, if we asked 'Have you recently stopped smoking?', the answer 'no' would be the same for people who have never smoked, those who gave up a long time ago, and those who continue to smoke. What's more, what does 'recently' mean in this situation? Some poorly phrased questions may, in fact, be impossible to answer sensibly, and this can antagonise respondents – and cause them not to complete the questionnaire.

Even if most of a questionnaire contains closed or limited-choice questions, respondents should be given some open questions, or at least be allowed some comments, so that they can qualify their responses; otherwise, they may feel that their views are being inaccurately represented, which, again, can worsen the response rate.

Nowadays, of course, we are not limited to sending out paper questionnaires, and online surveys can be very effective – especially as we can get at a large population relatively easily. However, online surveys must be carefully designed for ease of use and navigation. Respondents are easily put off by surveys that are hard to use or difficult to understand, or that do not allow for changes of mind. The best principles of good web design should be followed in the creation of online surveys.

Technique 17: Sampling
Variants/Aliases
Related techniques are **activity sampling, work measurement** and **record sampling**.

Description of the technique
Sampling is one of the techniques that can be used to obtain quantitative data during a business analysis assignment – particularly data about how people spend their time. This is valuable because it enables the BA to understand where the real problems and issue lie, and it also provides input to the business case for change.

One of the problems with the information gleaned from interviews and workshops (Techniques 13 and 14) is that it is, to some extent, subjective – it represents the views and opinions of individuals. These individuals may see something as a great problem that, when it is subjected to measurement, is found to be irritating but not really significant in terms of the time spent. Observation will help to put these views into perspective, but there is nothing like measurement to get to the real heart of a problem.

We may also employ special-purpose records to get quantitative data, but, as we show in the description of Technique 18, they do rather depend on the memory and the goodwill of the people completing them; the memory in that they need to remember to complete them, and the goodwill in that they have to complete them accurately. These difficulties are overcome with sampling, though it does have some problems of its own, which we discuss later in this section.

Before embarking on a sampling exercise the BA needs to prepare the ground. To do this:

- Talk to the managers of the department or area concerned, and also the people working there, to explain the purpose of the exercise. Where the workforce is unionised, the agreement of the trade union representatives will also be needed.

- Find out what activities are likely to be seen during the sampling period, and check whether the period is a reasonably typical one (not hitting an atypical year-end period, for instance).

- Decide the sampling interval. To get a reasonable picture of the work, something like once every 15 minutes is usually good enough.

Based on this information a sheet like that in Figure 2.5 can be created, to record the results of the exercise. In this case the samples are for a section within a bank call centre that fields certain types of customer enquiry.

Figure 2.5 Activity sampling sheet (completed)

Date/time	Person						
4th January	Angie	Jack	Tom	Claire	Petra	Darren	Tracy
09:44	1	1	2	1	4	5	6
10:00	1	5	2	4	7	4	1
10:33	4	4	2	1	1	6	7
10:55	1	1	4	1	1	1	1
11:21	1	4	2	4	4	1	5
12:17	6	6	2	1	6	1	4
12:19	6	6	4	1	6	1	1
13:08	4	4	6	6	1	6	6
13:22	4	1	6	6	1	6	6
13:28	5	1	6	6	1	6	6
13:37	3	1	6	6	1	6	6
14:26	3	1	2	1	5	7	1
15:14	3	4	2	4	4	1	4
15:57	4	4	4	1	6	1	7
16:20	3	1	2	2	1	1	5
16:39	3	1	2	2	1	4	4
17:08	3	1	2	4	1	5	6

Activity codes

1 = Amending account details

2 = Setting up new account

3 = Setting up new standing order

4 = Making interaccount transfer

5 = Discussions with supervisor

6 = Not working

7 = On other work

It will be noticed that in Figure 2.5 there are roughly four observations per hour, but they are not exactly at 15-minute intervals. This is to avoid the possible problem where the intervals coincide with some regular process and thus give a skewed result.

On the first day of the survey the BA turns up at the intervals stated, and notes down what each person is doing during each timed observation. With clerical work it is sometimes hard at first to see what someone is doing (it is usually easier with manual work).

Once the day's observations have been made, the results are summarised on an analysis sheet like that in Figure 2.6.

Figure 2.6 Sampling analysis summary sheet

Date	4th January			5th January			6th January		
Activity	**Number**	**%**	Moving avge %	**Number**	**%**	Moving avge %	**Number**	**%**	Moving avge %
1	40	34	34	32	29	21	28	27	30
2	12	10	10	15	13	12	12	12	12
3	6	5	5	8	7	6	7	7	6
4	24	20	20	20	18	19	22	22	20
5	7	6	6	9	8	7	8	8	7
6	26	22	22	25	22	22	20	20	21
7	4	3	3	3	3	3	5	5	4
Total observations	119			112			102		

The next question to be addressed is: how long should the sampling exercise last? Statistical formulas can be used to determine the size of the sample (Wood 2003; Rumsey 2003), but a pragmatic approach is to calculate a 'moving average' at the end of each day (in other words, an average of all the observations so far); when this moving average settles down, the sample size is probably big enough. We can see in our example that the averages settle down quite well after three days, so that probably gives us a reasonable picture of the pattern of work.

The analysis sheet thus gives us a view of how the staff in our call centre spend their day. If the figure for 'not working' seems rather alarming at 21 per cent,

we need to remember that, with a eight-hour day, an hour for lunch and two 15-minute coffee breaks, we would expect to lose just under 20 per cent anyway, so this result seems about right. We can see that amending customers' account details is the most significant activity, followed by making transfers. If we want to improve the efficiency of the section, therefore, it is on these processes that we need to concentrate our attention.

Using sampling

As we have seen, the use of sampling techniques gives us reasonably reliable quantitative data with which to plan the business analysis work (in other words, to select which are the most significant activities to study), and also provides input to the business case by giving a picture of the situation 'as is'.

We can combine sampling data with information gleaned from other sources to measure transaction times. For example, during the three-day exercise shown in Figure 2.6, a total of 6.72 hours was spent setting up new accounts (7 people × 8 hours per day × 12%). If we find out that 40 new accounts were opened in that period, we get a time of about 10 minutes per transaction (6.72 hours × 60 minutes divided by 40). We can compare this time with that for any improved process that we may propose, and thus offer the decision-makers a properly costed and justifiable tangible saving as part of the business case.

Two issues that do worry people with sampling are that being watched in this way can be unnerving for the workers, and that the workers may behave atypically (particularly by working faster or slower than usual) precisely because they are being measured. These are real possibilities, but practical experience suggests that people get used to the sampler's presence, which they soon begin to ignore; and again people rapidly tire of trying to distort the survey, and settle back into their usual pattern of work. If the BA does suspect some problem like this in the early stages of the project, one answer is to extend the study by a couple of days and discard the first two days as a settling-down period.

Technique 18: Special-purpose records
Variants/Aliases
Timesheets are often used for this.

Description of the technique

Often in business analysis work it is useful to gather quantitative as well as qualitative data. For example, if we are examining the work of a complaints-handling section, it would be useful to know how many complaints are made, what they are about, how long it takes to respond to them, and so forth. One method of getting such data is to conduct an activity-sampling exercise (Technique 17). However, activity sampling is time-consuming for the analyst and can be unnerving to the people being studied. The use of special-purpose records, whereby business users keep a tally of what they have been doing, is an alternative way of collecting such information.

Let us continue to use a complaints-handling section as our example. We could devise a special-purpose record for it, which in its simplest form might look like that shown in Figure 2.7.

Figure 2.7 Special-purpose record for complaints handling

Issue	Mon	Tue	Wed	Thu	Fri
Non-delivery	~~IIII~~ III	IIII			
Late delivery	III	II			
Wrong product	II	III			
Defective product	II	I			
Poor service	III	II			
Other	III	~~IIII~~			
Daily totals:	*20*	*17*			

In Figure 2.7 we have listed six categories of complaint that might be handled. To identify these we would previously have conducted an interview with the section manager, or perhaps held a workshop with some members of the section. The latter is a particularly good idea, since it gives the BA an opportunity to explain why the exercise is being conducted, and the importance (for the participants' jobs, ideally) of the results.

The subjects are then asked to use a 'five-bar gate' system to record every time they get a call, and, at the end of each day, to total how many complaints of each type they have dealt with.

A more elaborate timesheet is shown in Figure 2.8, where the subjects are asked to assess, at the end of each day, how much time they have spent on various sorts of activities; such timesheets are often used already in organisations such as consultancy firms and law offices, where clients are charged on the basis of the amount of time spent on their business.

Using special-purpose records

The most obvious downside of special-purpose records is that they may not be completed accurately. One reason for this is that people forget to do it until the end of the day – probably because they are very busy doing their actual work – and then just make something up to keep the pesky BA happy! Another possibility is that people deliberately inflate the results, and this is very likely when they are worried about retaining their jobs or are angling for an increase in staffing levels or improved compensation. There is no sure-fire way of avoiding this, but the BA can often improve accuracy by building a good relationship with the subjects beforehand and explaining why accurate information is important for all parties.

A well-designed form can aid completion, by being easier to fill in and making the whole exercise look more professional. In addition, it's a good idea not to ask

Figure 2.8 Detailed weekly timesheet

Issue	Mon	Tue	Wed	Thu	Fri
Non-delivery	*1.00*	*1.25*			
Late delivery	*0.50*	*0.50*			
Wrong product	*0.50*	*0.50*			
Defective product	*0.50*	*0.25*			
Poor service	*0.75*	*0.50*			
Other	*0.75*	*1.50*			
Daily totals:	*4.00*	*4.50*			

for too many different things on one form, since this adds to the burden of completing it. If a wide variety of information is required, consider giving different sheets to different subgroups of subjects, so each person can concentrate on a narrower set of information.

Technique 19: Document analysis

Description of the technique
Document analysis is the systematic examination of data sources, usually forms, but also screen layouts and reports if there is an existing system, to analyse the data requirements of a proposed computerised information system.

The starting point for document analysis is to discover worthwhile data sources to examine. In the early days of IT, such sources would always be physical things, usually forms, ledgers and so forth. Today, where one is more likely to be moving from an existing IT system to a newer one, the range of sources can also include screens and reports from the current system.

The information shown on each document is examined systematically and recorded on a form like that shown in Figure 2.9.

The heading rows of the document specification are used to record information that enables the document to be identified. These include the name of the document, its file reference, a short description, its stationery reference (if relevant) and its size. We also record how it is currently prepared – in this case by hand. The remaining information to be recorded includes:

Filing sequence: This provides insights into how the users will want to access this information once it is computerised; although, of course, unlike manual filing, an indexed computer system allows the information to be accessed in a variety of ways.

Figure 2.9 Example of a document specification form

Document specification				
Project ID and name: *P027HR System Study*				
Document name: *Training record sheet*	**Project file reference:** *Doc 10*		**Description:** *Record of training courses attended by employees*	**Sheet:** *1 of 1*
Stationery ref: *Form TR01*	**Size:** *A4 (landscape)*	**Number of parts:** *1*	**Method of preparation:** *Handwritten*	
Filing sequence: *Alphabetical by surname*	**Storage medium:** *Loose-leaf cards*		**Prepared by/maintained by:** *HR clerk or HR manager*	
When created: *When employee joins*	**Retention period:** *3 years after leaving service*		**Storage location:** *HR Department*	
Volumes per: *Month*	**Minimum:** *0*	**Maximum:** *10(new employees)*	**Average:** *3*	**Growth rate/ fluctuations:** *Not applicable-volume fairly static*
Users/recipients: *Personnel Department* *Line Manager* *Line Manager* *Subject*	**Purpose:** *Review training* *Review training* *Appraisal* *To check*		**Frequency of use:** *As required* *As required* *Annually* *As required*	
Data item:	**Format/description:**		**Value range:**	**Sources of data:**
Name	*Alphanumeric(25). First and surname*		*Any*	*Application form*
Payroll number	*Numeric(6)*		*00000–1999999*	*Application form*
Date of course	*Numeric(6) (DD/MM/YY)*		*Dates*	*HR clerk*
Name of course	*Alphanumeric(50)*		*Any*	*Brochures*
Training provider	*Alphanumeric(50)*		*Any*	*Brochures*
Result if tested	*Alphanumeric(4)*		*Pass/Fail*	*Training provider*
Comments				*Not used*

Storage medium: This shows how the information is stored at the moment – and identifies the source from which the new computerised files will need to be created.

Prepared by / maintained by: Here we show who records the information initially and who maintains it. Again this gives us information about who will need to have access rights once the system is computerised.

When created: This helps to identify the business event that causes the information to be recorded initially.

Retention period:	Now we begin to understand how long information will need to be held and to be available in our computerised system.
Storage location:	This indicates where the forms (if that's what they are) are stored at the moment, and thus the location from which they will have to be obtained for data creation.
Volumes:	Here we can record the number of new documents per month, per year or whatever, and what the overall growth in numbers is. This, clearly, is of some importance in working out how much space must be reserved in the system for the data.
Users / recipients:	Apart from the people who record the information initially, we are also interested in who needs to access it and for what reason. Again this will influence the access privileges we define for the computer system.
Data item information:	Finally, for each data item on the form, we record its name, its format and description, whether there are defined ranges within which the values must fit, and where the data comes from. This is extremely useful in modelling the data for the proposed system (for details of which, see Techniques 63 and 64, entity relationship modelling and class modelling), and, again, in sizing the proposed system.

Using document analysis

Some commonsense has to be used in the selection of data sources to be documented in this way. We do not necessarily need to examine every form, screen or report currently used. Instead we need to select those that will give us the best overall picture of the proposed system's data requirements.

Some BAs may feel that such detailed work on data is not really part of their job, leaving this to the systems analysts or even the developers. However, it must be remembered that the BA probably has the closest contact with the system's proposed users and is therefore in the best position to search out the relevant data sources.

DOCUMENTING THE RESULTS

Technique 20: Rich pictures

Description of the technique

Rich pictures were popularised in the soft systems methodology, put forward by Professor Peter Checkland and his associates in the 1980s (Checkland 1993). The idea is to capture in pictorial form the essential elements of a business issue or problem, to facilitate a more holistic understanding and analysis of it. There are no rules as to what may or could be captured in a rich picture, nor about what symbols should be used, so it is a very free-format technique indeed. Typically, though, the sorts of things we want to represent in a rich picture include:

- the principal actors in the business process or system;
- the views, ideas and concerns of those actors;
- anything we know about the structure of the organisation (including its actual structure – hierarchical versus flat for instance – but also issues like its geographical location, fragmentation across sites and so forth);
- impressions of the business processes – bureaucratic at one extreme, or very informal at the other, for example – and the IT systems that support them;
- an impression of the culture and climate of the organisation: for example, is it a supportive environment or a blame culture?

The best way of understanding the technique is to look at a rich picture, so one is presented in Figure 2.10.

Figure 2.10 Example rich picture (of a sales organisation)
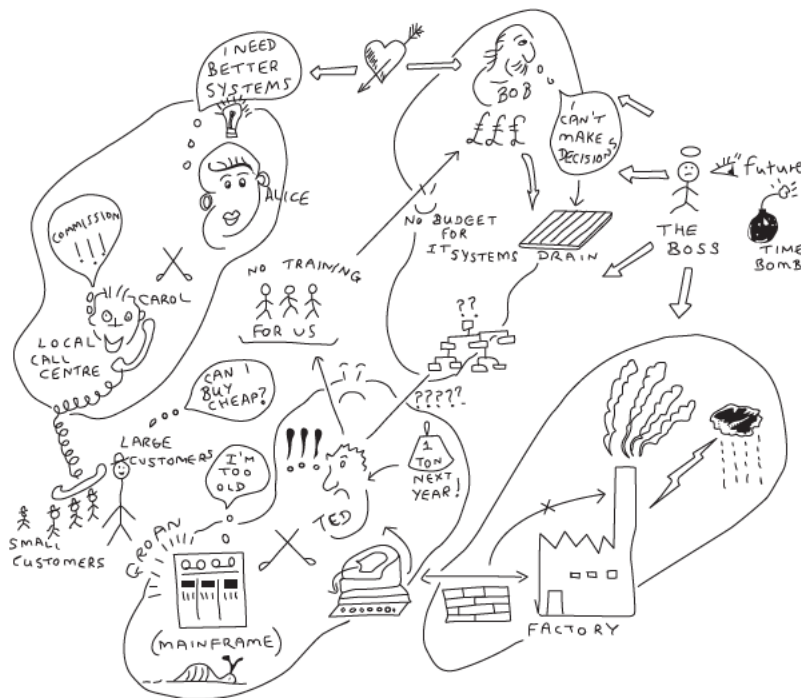
Although Figure 2.10 may appear somewhat whimsical at first, it does in fact contain a vast amount of information that would probably take many pages of text to capture. For example:

- Bob is extremely concerned that money is going down the drain in the firm;
- Alice is frustrated by the inadequacy of the IT systems;

- the IT systems are both old and slow (notice the snail);

- the boss sees the future as a ticking time-bomb, if the organisation does not improve its performance;

- there seems to be an overall lack of training within the firm;

- there is a black cloud hanging over the firm's factory – mainly because the sales people reckon they get lower prices and better service by going to outside suppliers;

- there is tension between Carol and Alice (the crossed swords), but Alice seems to see eye-to-eye with Bob (the heart);

- there is a bit of a query about where Ted (the head of IT) fits into the organisational structure.

In effect, then, this rich picture is a 'brain dump' of everything the BAs have discovered in their initial studies, and it also provides a 'shopping list' of issues that need to be investigated further. For example, is it true that the factory does a worse job than do outside suppliers, or does this just represent the prejudices of the salespeople?

Using rich pictures

Rich pictures, like the mind maps we discuss next, seem to arouse strong reactions when people are first introduced to them. Some people love the freedom of expression they permit, and relish the way they avoid the tedium of long textual descriptions of problems and issues. Others, however, find this very freedom somewhat unnerving and prefer more structured diagramming techniques, such as those found in the IT world.

It is also true that not everyone is equally gifted with drawing skills. Drawing is essential to the use of rich pictures, but if one cannot, for example, draw people as in Figure 2.10, stick figures will do just as well.

An element of this may be related to organisational culture, too: a highly visual technique like this might be just the thing in a creative organisation like an advertising agency – but perhaps less acceptable in a staid law firm?

The authors have used rich pictures very successfully for many years, for example to bring together and summarise the results of several interviews conducted by different analysts. We are not so sure, however, that rich pictures necessarily provide a particularly good method of communication back to the business stakeholders, since what is clear to the author of a rich picture may be very obscure to someone else viewing it. Again, this might depend on the culture of the organisation being studied.

We would urge BAs at least to give rich pictures a try, to see if they will work for them, in their environment.

Technique 21: Mind maps
Variants/Aliases
Similar techniques include **semantic networks, webs** and **concept maps**.

**Description of the technique**

The basic concept of a mind map as a visual representation of a set of ideas, words, things or tasks and the relationships between them is actually quite ancient but their popularity at the present time is probably due to Tony Buzan, an author and broadcaster on psychology, who, in his TV programmes and books, has introduced them to a wide public (Buzan 2006; Buzan and Buzan 2006). Mr Buzan's organisation has registered the term 'Mind Map' as a trademark in the UK and the USA.

A mind map can be used in several situations, including team building and other cooperative endeavours, for note taking during interviews or other meetings, and, of course, in workshops. It is probably in the interview or workshop situation (Techniques 13 and 14) that most BAs will make use of the technique.

Figure 2.11 presents an example of a mind map, in this case one showing the development, content and presentation of a business case. This mind map has been developed on a computer, but, more often, they are created by hand, probably on a flipchart or whiteboard during a meeting or workshop.

The mind map starts with a central idea, in this instance that of a business case. This represents the 'trunk' of the model. It then shows the subsidiary themes, the main 'branches' of the idea – in this example the main components of a business case. These branches can then be developed into more and more detail.

Figure 2.11 Example of a mind map
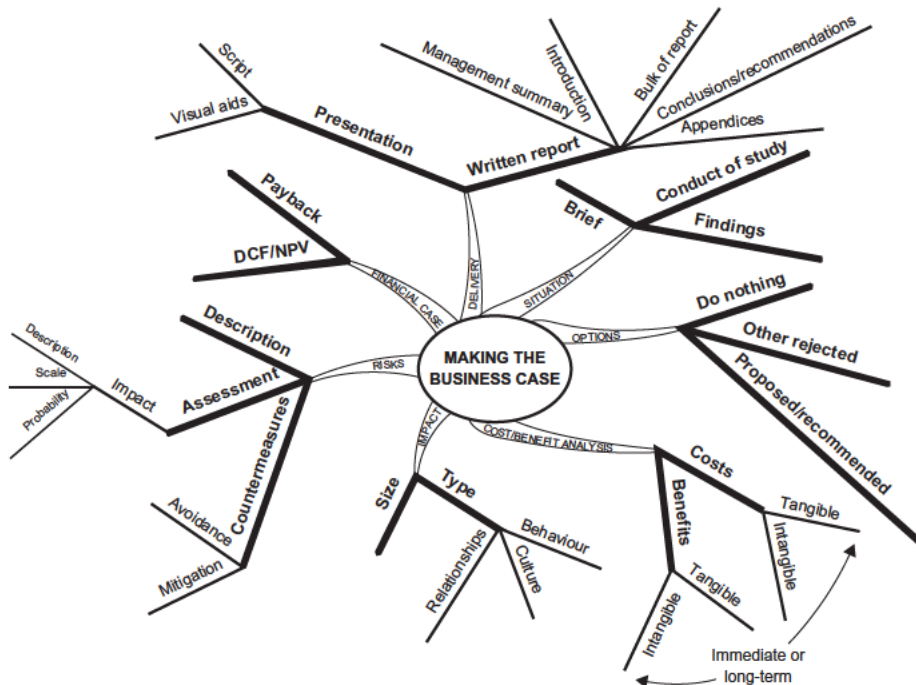
Notice, too, how cross-connections can be made between the different 'twigs', as with that between tangible and intangible costs and benefits at the bottom right of the diagram.

This example uses only words, but mind maps can be even more powerful if images are used as well or instead.

When using it to support interviewing, the BA can create the outline mind map – the trunk and main branches only – from the agenda and then populate the rest of the diagram with information supplied by the interviewee. Because only a few words need to be written down, this can simplify note taking and allow for greater eye contact with the subject.

When it is used during a workshop, the facilitator can create the mind map as participants suggest ideas. Alternatively, or additionally, participants can be put into smaller groups and asked to explore particular aspects of the issue under discussion and present their findings back in the form of mind maps.

Using mind maps
Tony Buzan claims that mind maps work because they reflect the way the human mind organises information – a central theme leading to subsidiary concepts and thus down into lower and lower levels of detail. It is fair to say that his claims are not necessarily supported by other experts in thinking and, when this book was being written, somewhat of a controversy was raging on Wikipedia about the effectiveness of mind maps.

Not everyone gets on with mind maps. One of the present authors, for example, does not find them particularly intuitive or useful, although this may be due to a lack of persistence in working with and mastering them. Those who do like them, however (a group which includes the other two authors), seem to like them very much and find them a very powerful alternative to conventional note taking. Certainly they provide focus, clarity and brevity where more conventional notes, though containing the information, sometimes obscure key issues with irrelevant detail. It may be that whether one 'gets' mind maps has something to do with individual thinking styles – whether one thinks in words or in pictures, for instance – although Mr Buzan's view seems to be that they are suitable for everyone. Our advice would be to try the technique – and maybe persist with it for a while if it is not instantly accessible.

Technique 22: Context diagram

Description of the technique
The idea of a context diagram has appeared in various 'structured' approaches to development over the years. Both Tom DeMarco and Edward Yourdon, for instance, pioneers of structured methods, refer to context diagrams in their books (DeMarco 1978; Yourdon 1989), and these diagrams also appeared in the Structured Systems Analysis and Design Method (SSADM) in the guise of a 'level 0' data flow diagram (SSADM Foundation 2000). What we shall describe here, however, is the latest manifestation of a context diagram within the Unified Modeling Language (UML) (Arlow and Neustadt 2005).

The essential idea of a context diagram is that it shows a proposed (or existing) IT system in relation to the wider world – to the people and other systems with which it must interface. The system itself is regarded as a 'black box' with things (yet to be defined) going on within it. Later we can go inside the 'black box' and define these things in more detail.

The basic technique is quite simple, and an example of a context diagram is shown in Figure 2.12. The proposed system is drawn as a box in the centre of the diagram. Around it are positioned the 'actors' with which it is expected to interact by receiving input or providing output. Actors in this case include:

- user roles – a person or job title within or outside the organisation (the latter category including customers, for example);
- other systems;
- time.

Figure 2.12 Context diagram
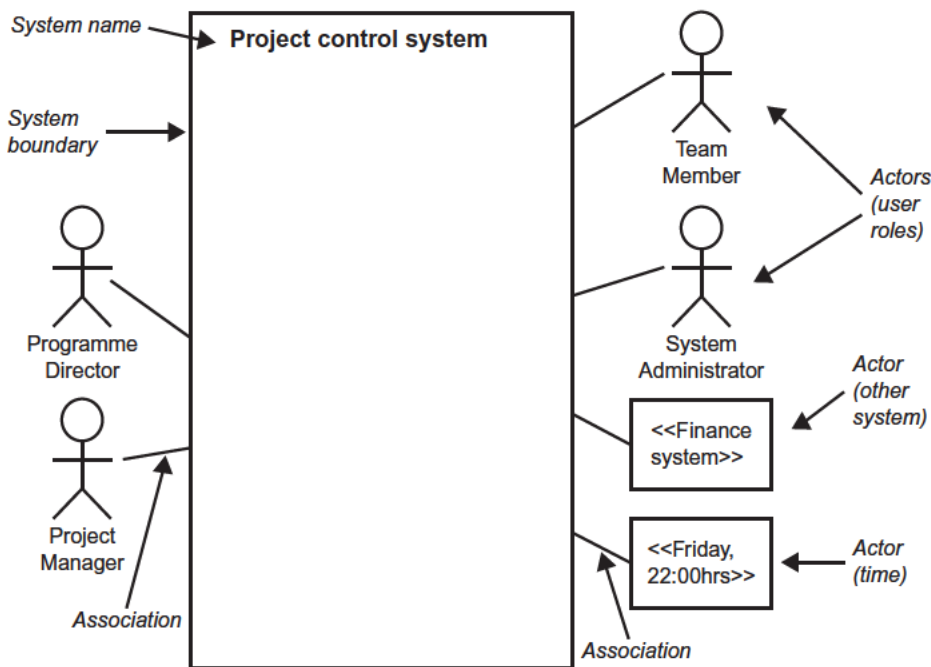
The 'user role' type of actor is usually represented by a 'stick person' with the name of the role underneath. These symbols can also be used for other actors, too, but that might look a little odd. Instead a box can be used, as in Figure 2.12, showing the name of the system. A box can also be used for time, with, if it is known at this stage, the time or date that actually triggers processes within the system.

The 'association' – the interaction – between the actors and the system is indicated by a line between the actor and the system boundary. Notice that the line is not arrowed, since it does not show the flow of data. It just shows the existence of a relationship between the system and the actor.

Using context diagrams

Context diagrams can be developed by BAs based on the research they have done through interviews, workshops and so forth. Having drawn a diagram a BA then needs to review it with the various actors to check that it does represent their understanding of how they will use the proposed system. If the system is replacing an existing one, study of that earlier system's documentation will also reveal the various interfaces that will be needed, particularly with other systems and with time.

However, context diagrams are also a powerful tool for use during a workshop with the various stakeholders (Technique 14). The BA (or other facilitator) can draw a box representing the proposed system on the whiteboard or flipchart, and then ask participants to shout out the names of the actors they think need to interact with it. Alternatively participants can be invited to come up and add actors themselves. This way, the group can generate very quickly a diagram that shows the scope of the proposed system and the way it fits in with the wider world. If time permits, the group can then go on to explore the types of function within the system with which each actor will interact – and thus begin to develop a more detailed use case diagram (Technique 62).

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