Research project in information systems
T. Cornford, S. Smithson
IS3 159, 2790 159
2011

Undergraduate study in
Economics, Management,
Finance and the Social Sciences

This is an extract from a subject guide for an undergraduate course offered as part of the University of London International Programmes in Economics, Management, Finance and the Social Sciences. Materials for these programmes are developed by academics at the London School of Economics and Political Science (LSE).
For more information, see: www.londoninternational.ac.uk
# Contents

Chapter 1 ................................................................................................................ 1  
Introduction ..................................................................................................................1  
Essential reading for this chapter ...................................................................................2  
Further reading for this chapter ....................................................................................2  
Aims and objectives .......................................................................................................3  
Learning outcomes ........................................................................................................3  
A research project in information systems ......................................................................4  
Readings .......................................................................................................................9  
Online study resources .................................................................................................11  
Journals ......................................................................................................................12  

Chapter 2: Choosing your project topic ............................................................... 15  
Essential reading ......................................................................................................... 15  
Further reading ............................................................................................................ 15  
Learning outcomes ...................................................................................................... 15  
Introduction ................................................................................................................ 15  
Choose your topic area carefully ..................................................................................16  
Structure for a Topic Area Proposal ...............................................................................21  
Narrow your topic choice, refine the research question and prepare a Project Specification ................................................................................................................. 21  
Carefully develop your project title and frame your research question ..............................22  
Research questions ......................................................................................................23  
Format of the Project Specification ...............................................................................23  
A reminder of your learning outcomes ..........................................................................24  

Chapter 3: Planning and organising your project ................................................ 25  
Essential reading ......................................................................................................... 25  
Further reading ............................................................................................................ 25  
Learning outcomes ...................................................................................................... 25  
If you can’t plan it, you can’t do it ................................................................................25  
Projects that go wrong ..................................................................................................27  
Project support .............................................................................................................29  
A reminder of your learning outcomes ..........................................................................31  

Chapter 4: Collecting and analysing data for your project .................................. 33  
Essential reading ......................................................................................................... 33  
Further reading ............................................................................................................ 33  
Learning outcomes ...................................................................................................... 33  
Introduction ................................................................................................................ 34  
Literature reviews, references and bibliographies ..........................................................34  
Case studies .................................................................................................................42  
Surveys and questionnaires .........................................................................................43  
Interviews .....................................................................................................................47  
Other data collection techniques ..................................................................................50  
Analysing the data ........................................................................................................50  
A reminder of your learning outcomes ..........................................................................52
Chapter 1

Introduction

If you take this course as part of a BSc degree, you must have passed: 62 Information systems development and management and 138 Information and communication technologies: principles and perspectives.

The Research Project in information systems provides you with an opportunity to develop a substantial piece of work and to conduct some original research. It allows you to integrate the various subjects you have studied in your degree programme and to develop your understanding of information systems as you address a topic of special interest to you. If you work carefully and consistently on your project, you not only will be able to achieve a good mark for this course but will also be able to produce a polished document of which you will be proud. Students in information systems often report that they find the project to be one of the most interesting and testing parts of their degree – and one that provides them with a real sense of achievement. Students often also find their projects useful after they have finished the course: they can use them with prospective employers to provide concrete evidence of their abilities or as the basis for choosing to pursue further postgraduate study.

The syllabus for this course is, in one way, very simple and open-ended. You are asked to choose an area from within the domain of information systems, to study that area, and to write an account of what you discover. This report should be between 6,500 and 8,000 words long - and on no account more than 10,000 words. Please note that the word limit includes all elements of the project, except your reference list and the appendices. Note also that all projects require at least two appendices, as explained in Chapter 2 below.

Although Examiners do not usually count the words in a project (they have better things to do!), they are very experienced at estimating the size of a document. Students who exceed the word limit may be penalised, and in any case students who write too much are almost certainly wasting their own time in padding out their project report. A good project is a well-written one that conveys its message clearly and quite sparsely. There is no problem with a 7,000 word project if 7,000 words is what it takes to convey the essentials of the work; indeed it will almost certainly be better than a more verbose one of 10,000 words.

The very open-ended character of this assignment poses problems for you, however, because it means you must choose your topic and the approach you take with considerable care. For example, the focus of the project may range from a theoretical investigation into some aspect of information systems to a case study conducted in a cooperating organisation, an evaluation of some professional information systems practice, or the exploration of some new or emergent use of information and communications technology. Each of these types of project (and this list is not intended to be exhaustive) will require a slightly different approach, will draw on different prior knowledge and skills, and will dictate a rather different approach to organising the work. For this reason, we strongly advise that you take time to ‘construct’ your project, evaluate the resources available to you, and plan your work. Indeed, much of this subject guide is concerned with this type of advice.
You must also remember that this is a full course of your degree **and requires at least as much time for study as any other course** - probably more than some. For a full-time student who is taking four courses in a year, this suggests that about one quarter of the year’s study should be devoted to the project – on average more than one day per week. If you do not consistently allocate this amount of time to your work throughout a full academic year, but you try to economise in your project work, you really cannot expect to achieve a good mark. We also emphasise that consistent work is important. A good project is developed through various activities that need to be undertaken over time. It cannot all be achieved in one intensive month’s work – however devoted and focused you are; ideas and understanding take time to develop and mature and, for most people, writing is a slow process that requires time for reflection and revision.

Our advice, as given in the rest of this subject guide, is that you should work carefully and methodically on your project, devoting good chunks of time to it each week of the academic year. You should also work carefully and methodically through this guide. At the start of your work, we recommend that you read the whole subject guide and follow up on some of the recommended readings. Then, as you work on your project tasks, keep returning to the guide – chapter by chapter – and use it to cross-check your progress. If you are working on your project together with a group of other people, then it may be very useful to go through the subject guide together and to have a discussion about each chapter and how it relates to each person’s own individual topic and project. Indeed, a weekly or fortnightly ‘report on progress’ session is a very useful way for a group of students to motivate and support each other – even as they work on quite different topics.

---

**Essential reading for this chapter**


---

**Further reading for this chapter**


You may also wish to read selected chapters from the following, as appropriate to your chosen interests. These texts are simply indicative of the larger range of books that are available which introduce and summarise various aspects of information systems research. Searching in a library, or online, should reveal many more that can help you to find your way in your chosen area for the project.

Aims and objectives

This course is designed to:

- integrate various courses studied in the BSc Information systems and management and the Diploma for Graduates in information systems
- develop a deeper understanding of particular information systems topic of special interest through independent study.

Learning outcomes

Subject guides conventionally finish each individual chapter with a statement of learning outcomes that you should achieve having studied the material. Since this guide is rather different in its purpose to most you have used, the learning outcomes we provide are not quite in the format you may be used to. It is still appropriate, however, to state the key ideas you need to grasp as you work through the material; these serve the same purpose as those in other guides, by allowing you to monitor your own progress.

For this introductory chapter, the aims and outcomes are intended to cover the whole activity of choosing, planning and undertaking a research project, including writing up and reflecting on the work.

- identify the broad outline of the field of information systems and identify a number of key research areas within the constraints of the course
- select a study topic within the field of information systems and relate it to broader themes and debates within the field
- locate and review materials within the specific areas of interest, going beyond standard textbooks and including academic research literature
- design a research project, assess the resources and skills required to undertake it and prepare a plan
- select a research approach appropriate to the chosen topic, together with relevant research techniques
- undertake a project, select data sources, collect data and undertake analysis
- write a research report in an appropriate style and which conveys the essential detail of work undertaken, the research findings and conclusions
- monitor and assess progress and modify plans as required, in liaison with a supervisor or mentor, and others.
A research project in information systems

Before we get into the details of planning a project, we need to make one overriding point: this is intended to be a project on information systems. By this stage in your studies, you should have a fairly good understanding of what is encompassed by information systems as a field of study within the social sciences.

Activity

As a first exercise in developing your project – and at an early stage – take time to write 200–400 words to set down your own definition and ‘map’ of the information systems field. Try to express what you see as the essential character of the field of study and, in particular, given that this is intended to be a research project, the key areas of research interest within the field. Reading Chapter 2 of Cornford and Smithson (2006) may help you here, but equally many other books on topics of information systems offer a broad coverage of what they understand the field to consist of.

You will not be able to, or wish to, address all of the areas you identify, but this activity should help you to become clearer as to which particular research area you wish to enter and contribute to in your work. Remember too that later in your project report you are going to have to relate your work, and your findings, to wider issues and concerns in the field, so this preliminary work will be of real use later on.¹

Whatever the style or focus of your project, you are expected to base it on a strong and identifiable information systems theme, and the project should demonstrate a direct link between the work that you undertake and the wider literature of the field. In this sense, a general requirement is that projects draw on and develop some of the material contained in the other information systems courses within the degree (60 Introduction to information systems, 139 Software engineering: theory and application, 62 Information systems development and management, 138 Information and communication technologies: principles and perspectives). You are also encouraged to use in your project ideas and concepts that come from other subjects you have studied – for example, from sociology, marketing or accounting. Sociology and organisation theory, in particular, are relevant sources of ideas and concepts to draw upon when you embark on the project. For example, you may recall that if you took 21 Principles of sociology or 10 Introduction to sociology you studied research methods and became familiar with ideas such as participant observation, the use of surveys and questionnaires, and interpretative and positivist approaches to social research. Now might be the time to dust off those old notes, to reread some of this material and to consider how it might be applied to your project work.

Telling the story

In your information systems project, we would usually expect to see some empirical work – some data from the world around you that you have collected, analysed, written up and related to your readers. In this way, you might like to think of your project as a ‘story’ you are telling. Think of the data collected as relating to characters or ‘actors’ in this story you are telling and as providing some account of their actions and motivations. Normally, some example of information or communications technology (the technical aspects of an information system) is needed, but deserving of the same attention are usually people and interest groups: managers, users, technology vendors or policy-makers. These people may be the users of the system or its developers, or perhaps they play a different role, for

¹ Note that Chapter 6 of this guide gives further information on the structure of the report and, in particular, asks you to relate your work to wider information systems concerns.
example as controllers, regulators, customers, beneficiaries or victims. Your story will tell of some interaction between the technology and the people, and it normally takes place within a particular context that has influence on what happens. This context (which is often a key part of the story) may be a particular organisation or class of organisation, or some other social setting, such as a school, a hospital, or even in homes. In addition, procedures or processes, plans or policies, and strategies or structures may constrain or shape the way things happen or how decisions are made. Not all of these elements will be presented strongly in all projects, but a project that does not need to consider most of them is rare. We therefore strongly advise you – as you start to shape your project and its empirical elements\(^2\) – to check the cast of characters in the story you are considering and its context. If your story lacks any of these characters or the wider context has not been adequately addressed, you should ask yourself whether you have missed something or whether your story is not about an information system at all.

Please also be clear that the Research project in information systems is not intended to offer the opportunity to undertake another software engineering project, nor should it be seen as a by-product or ‘offcut’ of the software engineering project. The course 139 Software engineering: theory and application is usually taken alongside this course and includes its own coursework assignment. You need to understand that, for this course, you will not be able to duplicate such technical and programming work. We must also emphasise that they should be two distinct projects that represent distinct approaches. We thus strongly recommend that students do not directly link their software engineering work to their information systems project. That is not to say that you cannot undertake a project with some practical, hands-on element, but such a project should not be in the form of a conventional software engineering project with software engineering deliverables (requirements, specifications, designs, test, coding, etc.) A practical project undertaken for the Research project in information systems for example, may involve the kind of analysis needed before any programming or software development (systems analysis) is undertaken or when you are considering the choice of software packages or alternative information architectures within a particular organisational context. We also emphasise that any such project should be done on the basis of a real requirement found in the world around you, and preferably a real client. Projects that are based on hypothetical or general sets of requirements usually are not acceptable.

Remember: this is a research project

Whatever your project is about, whatever topic it addresses and whatever degree of practical concerns it involves or sources of data collected, you need to be prepared to give your work a distinctive academic and theoretical focus. This project, even if you choose one with a strong practical element, is not about just (or even mostly) ‘doing something useful’, or writing a text book chapter. Rather it should be about reflecting on what is done, the extent to which it is useful (and for whom) and what we can learn from studying the experience – and all this must be backed up with data, an analytical or theoretical framework and a sustained argument. In this way, we wish to emphasise the research focus that your work should take and that the Examiners are looking for.

Indeed, we strongly advise you to conceptualise this project as a piece of research and regard yourself as a researcher. The project is not a company

---

\(^2\) By empirical elements we mean the ‘real world’ aspects of the topic that you study – in other words the data that you gather about what actually happens within information systems. You may at times hear a social scientist make a distinction between what are called ‘theoretical questions’, that can be answered by prior knowledge, current theory and logical argument, and ‘empirical questions’ that can only be answered by going out into the world and seeing what actually happens. In this project we expect you to balance these two aspects, with elements of both in your work.
report or a piece of flaccid consultancy, neither is it a form of journalism, speculation or science fiction.

What constitutes research?3

1. Something important that raises some element of doubt or choice is to be investigated, and things are to be found out and communicated. The topic should have some significance to other people – for example, to companies, managers, technologists, social scientists or governments – and should go beyond the very practical ‘how to’ issues. This usually rules out trivial projects, such as designing a database for student records. In Chapter 3 of the guide we return to this theme in the discussion of the ‘research question’.

2. The problem should be approached in a ‘scholarly’ fashion. This means that we have to be concerned with the methodology;4 i.e. ‘how’ we are doing the research to ensure that we have relatively reliable and un-biased results. Our findings should take account of evidence drawn from reliable sources. In other words, the information that we obtain from the literature and from empirical work (e.g. interviews, observation or a questionnaire) should be as reliable as possible. This normally means disregarding ‘findings’ that we find in commercial propaganda, marketing materials and advertising. It also means utilising some form of explicit theory or conceptual framework to guide the data collection and analysis – discussed further in Chapter 4.

3. We need to communicate our findings in an appropriate manner and in a way which will convince a slightly sceptical reader. This means that the style and presentation should be more in line with an academic paper and less with a sensational tabloid newspaper report. – discussed further in Chapter 6.

All in all, researchers are much like detectives. You have a problem to solve and have to sniff around gathering information, opinion and (where possible) ‘facts’ to support the case you are working on. You need to get seriously involved with the problem, looking hard for a resolution (which might not be just a solution), but also to keep a cool head and sometimes to step outside the problem to ensure that you are not being over-influenced by powerful players or circumstantial evidence.

Building on previous study

Students undertaking this project will generally already have taken 62 Information systems development and management and thus should be able to draw on that course’s material to a considerable degree. In particular, that course should have introduced you to a range of research literature in the field of information systems, some theoretical frameworks for study and, more generally, some of the academic journals in the field. Being able to work with such literature, and to develop a deeper engagement with it, is important, and we emphasise once again that good projects develop and draw upon earlier work in information systems. This should be reflected in the choice of topic and in the quality and variety of ideas and reference materials you choose, in the research approach you use and, finally, in the ‘contribution’5 your work makes.

As an example of the kind of development of ideas we envisage, consider soft systems methodology (SSM).6 Almost all students who take this information systems project will have been introduced to SSM in the subject 62 Information systems development and management, and you may feel drawn towards using SSM in your project. If you do, however, you must expect to return to and explore the original sources of

---

3 A useful review of research is found in the introduction to Denscombe (2002). Chapter 2 of Gates (2006) also addresses the question of the purpose and nature of research suggesting 12 different reasons we might have to undertake research.

4 Good research follows a methodology - just as good systems development does. In both cases, alternative and competing methodologies exist, and people are invited to choose one and apply it intelligently. The choice should be based on a careful understanding of what is being attempted and what resources are available. In general though, you should be clear that a systems development methodology and a research methodology are not the same thing. In some cases, however, for example in the case of soft systems methodology (discussed later), a great deal of overlap may exist.

5 Students often worry a lot about their contribution. They can become very concerned that it is impossible, or even unfair, to expect them to add to the stock of human knowledge! Our answer is that contribution - in the form of a better understanding of some phenomena, well organised and analysed data, a good example of an idea in action, or a useful critique - is well within the powers of undergraduate students.

6 Note that this is just an example: please do not interpret this as any kind of strong recommendation for using SSM.
this methodology – for example, in Peter Checkland’s books. Such study will soon make you aware that SSM is a quite sophisticated approach that requires considerable attention and reflection from those who try to apply it. It is all too easy to use it in a superficial way, lacking any insight into the essence and richness of the methodology. Our wider experience with student projects suggests that a serious attempt to use SSM can result in very worthwhile projects. The key notions of rich pictures, root definitions, conceptual models and the interplay of systems thinking with real-world concerns can provide a sound and substantial framework for many types of investigation. If SSM is used, however, it has to be used in a serious and sustained way, not in a ‘quick and dirty’ manner. The choice of SSM will need to be justified carefully: you will need to answer questions such as:

- Why use SSM?
- What other approaches might have been used?
- What fundamental assumptions about the area of study are implied in your choice?

Furthermore, to use SSM means that you will need to take time to read what other users of the technique have done, how they have judged it and what extra ideas they have developed. If you use SSM, you would need to also aim to make your own contribution to this broader debate. Could you, on the basis of your work, offer some insight into SSM’s strengths and weaknesses or add some new idea to the debate?

Taking a point of view
As your work develops and you start to write it up, you will also need to work to ensure that your project (and the report you submit) has a point of view or can argue a case; this means that you must avoid projects that are too general, normative or descriptive, or that just constitute a survey of the literature or the writing up of ‘notes’. The Examiners are looking for evidence that you have done something, not just read around a subject in standard textbooks. This means that you are in general expected to go out and collect information from the environment around you, and to seek out various sources of information including the academic and practitioner literature of information systems, experts in the topic area, experienced practitioners, and people who use and work with information technology. Evidence of such work is expected to be shown in the project report, and may include such elements as summarised accounts of interviews, the results of questionnaire surveys, or descriptions of how particular information systems were developed and operate.

Some students use the project as an opportunity to develop new skills or particular areas of knowledge. You may choose to learn about some new class of software or type of information system (for example, group decision support software or customer relationship management systems) or to explore the technical basis for some class of system (for example, neural networks used in financial management applications). Your project could also be the opportunity to study and practice a new systems development methodology – perhaps object-oriented analysis and the use of the unified modelling language (UML). The project almost certainly will help you to gain some more general research skills – for example, questionnaire design, survey processing, interviewing, and various forms of data analysis. However, just mastering a new skill or entering a new field is not likely to result in a good project. You still need to be able to tell a story, provide an account of ideas, relate your work to wider information systems issues and make your contribution in the form of findings and


8 By notes, we mean the kinds of notes you might write down to explain some concept to yourself.
conclusions. When we come to assess your project we want to be able to see that all the work you have undertaken adds up to something, that it has a distinctive perspective of the topic studied, and that you have an opinion (based on evidence) to express.

**The submission process**

When you have finished your project work you are asked to send your report to the University of London in a bound copy. The full details of how to do this are contained in the booklet Completing and submitting coursework and projects which is sent to all students taking project work each year. The exact format in which your work should be prepared, and the recommended chapter structure is also discussed further in Chapter 6 of this guide.

As part of the submission of your work, and as a final cross-check on your efforts, you are asked to complete a submission form on which you identify the main elements of your project work and briefly describe the overall research process and the outcomes you have achieved. This form is found in the booklet Completing and submitting coursework and projects.

You are also asked to include as appendices 1 and 2 of your project report specific ‘planning’ documents. First a **Topic Area Proposal**, and second a **Project Specification**. These are discussed further in the next chapter, but you must understand from the outset that these documents are a required part of the project report, and their omission will be penalised by the Examiners at the time of marking.

You will be asked to post a printed and bound copy of your report to London, to arrive by a due date, which is 1 May. You are also required to submit an electronic copy of your report to the virtual learning environment (VLE), by the same date. Again, further details are included in the Completing and submitting coursework and projects booklet. The purpose of requiring an electronic copy is twofold.

First it ensures that we have a back-up copy of your work should that be needed, and at times we may choose to do some of the marking from the electronic copy.

The second reason we require such a copy is so that we can submit the report to various electronic plagiarism checking software. The question of plagiarism is discussed further in Chapter 4 of this guide, but the essential issue is quite straightforward:

Your **project must be your own work and written in your own words**.

**With minor exceptions, for example when you directly quote another author and place the quoted text within quotation marks, the text you submit must be yours and not be taken from any other acknowledged or unacknowledged source. The same rules apply to figures and diagrams and data sources, for each of which you must give a suitable reference to the original source.**

Please refer to the Completing and submitting coursework and projects booklet for more information about plagiarism checking software.

---

9 Plagiarism covers all cases where a student has borrowed substantial text or ideas from somebody else and is trying to pass them off as their own. It might be on a grand scale, copying a whole report or paper, or on a smaller scale, borrowing a couple of paragraphs, but in either case it is wrong and will attract penalties.
Readings

Your main concern when identifying and obtaining reading materials for this course should be to find those that relate to your chosen topic. Since different students will study different topics, it is not possible for us to identify specific materials here. Rather, the reading we suggest here is mostly concerned with exploring the field of information systems in general and with providing guidance, tools and techniques for undertaking particular aspects of research. Our expectation is that most students will want to consult a few of these books in the early stages of their work, and they may wish to purchase one of the ‘guide books’. The books of readings in information systems cited below may also prove useful enough (or even interesting enough) for some students to want to purchase. Such decisions will depend, however, on the topic and approach you choose. In many ways, an intelligent use of a good library is the recommended approach for this course, and many students will be able to do excellent work without buying any books.

We recommend Cornford and Smithson (2006) as a main text.


In particular, we suggest that you read the first three chapters to get a better understanding of the field of information systems and the nature of research in this field. This book was in part motivated by experience with the previous International Programmes projects. A quite similar book, and one which provides a complementary coverage of many topics, and a more detailed coverage of some, is Oates (2006). The first three chapters are a very useful introduction to why we do research in the field of information systems, and how.


You may wish to consult many other texts or to use them as a guide; a number are listed below and are referred to in this guide from time to time.

The books by Bell (1999) and Howard and Sharp (2002) provide interesting reviews of the activities and skills needed to complete a research project. Howard and Sharp is quite general in its focus, and it provides extensive coverage of all aspects of research. Bryman and Bell (2003) is a very comprehensive text on research, but its focus is on more general issues of research in the field of business and management, rather than just information systems. Nevertheless, the book has excellent chapters on many relevant topics, for example on the difference between quantitative and qualitative research and their associated methods. The title of the Bell book may suggest that it is targeted at people who are undertaking educational research, but it is more general in focus and well worth reading as it offers much useful general advice. Many previous students taking this course have reported that they have found Bell’s book to be particularly useful.


Overviews of information systems

The books below are recommended to help you gain an understanding of research in information systems – and the kinds of issues that are researched and the approaches taken – but note that this is in no way an exhaustive list and many other books are available and worthy of your time. With the exception of Ciborra (2002), these are edited books – that is, an editor has collected together a number of chapters by other authors, usually based on academic articles, and has arranged them in some sequence with a linking commentary. You thus get in one ‘package’, a set of ideas and points of view. Remember too that the value of readings like these is often found in the text references to other authors. By following these links, you are able to quite rapidly enter into the detailed concerns and established frameworks for thinking in any particular topic area.


Earl (1996) provides a useful collection of papers that consider many issues of information systems management and successful deployment of new technologies. It contains 24 chapters on topics ranging from groupware to strategy making, as well as outsourcing and project management.


Currie and Galliers (1999) has 19 chapters from authors in Europe and North America on diverse topics ranging from information systems development to structuration theory. The introductory chapter, by Alan Lee, ‘Researching MIS [Management Information Systems]’, provides a useful review of research in information systems from an ‘MIS’ perspective.


Ciborra (2002) provides, in a quite concise and dense format, a challenging vision of what information systems is about and of the really important aspects with which we should concern ourselves.


Kling (1996) is a huge collection of papers by a variety of authors, which consider the social aspects of computerisation. The book provides a very useful starting point for all manner of topics concerned with people and their use of computers.

Further readings on research and research methodology

Throughout this guide, we will make references to other texts that are more focused on the ‘how to’ questions and that may be of some use to you in your work.


Denscombe (2002) is a book that tries to answer the questions ‘what is good research?’ and ‘how can you do good research?’


Gillham (2000) is a useful short guide for designing and using questionnaires.

Hart (1998), as the title suggests, is mostly concerned with undertaking a literature review, however the book has much useful and relevant advice on many aspects of undertaking a research project, including selecting a topic and writing up research.


Wisker (2001) gives a lot of usable and inspirational advice on how to do research. It is aimed at postgraduate students, but plenty of the content is relevant to your work.


Bauer and Gaskell (2000) explore a number of qualitative research approaches - both how to collect data and how to analyse it. Although much of the book is focused on work that is perhaps beyond what you will attempt, it contains plenty of good advice - for example, on interviewing and the different types of interview research that can be undertaken.


Flick (2006) provides a useful overview of undertaking qualitative research, including designing research projects and undertaking analysis of qualitative data.


Yin (1994) is the classic reference for those undertaking case study-based research.

**Online study resources**

In addition to the subject guide and the Essential reading, it is crucial that you take advantage of the study resources that are available online for this course, including the virtual learning environment (VLE) and the Online Library.

You can access the VLE, the Online Library and your University of London email account via the Student Portal at: http://my.londoninternational.ac.uk

You should receive your login details in your study pack. If you have not, or you have forgotten your login details, please email uolia.support@london.ac.uk quoting your student number.

**The VLE**

The VLE, which complements this subject guide, has been designed to enhance your learning experience, providing additional support and a sense of community. It forms an important part of your study experience with the University of London and you should access it regularly.

The VLE provides a range of resources for EMFSS courses:

- **Self-testing activities**: Doing these allows you to test your own understanding of subject material.
- **Electronic study materials**: The printed materials that you receive from the University of London are available to download, including updated reading lists and references.
• Past examination papers and Examiners' commentaries: These provide advice on how each examination question might best be answered.

• A student discussion forum: This is an open space for you to discuss interests and experiences, seek support from your peers, work collaboratively to solve problems and discuss subject material.

• Videos: There are recorded academic introductions to the subject, interviews and debates and, for some courses, audio-visual tutorials and conclusions.

• Recorded lectures: For some courses, where appropriate, the sessions from previous years' Study Weekends have been recorded and made available.

• Study skills: Expert advice on preparing for examinations and developing your digital literacy skills.

• Feedback forms.

Some of these resources are available for certain courses only, but we are expanding our provision all the time and you should check the VLE regularly for updates.

Making use of the Online Library

The Online Library contains a huge array of journal articles and other resources to help you read widely and extensively.

To access the majority of resources via the Online Library you will either need to use your University of London Student Portal login details, or you will be required to register and use an Athens login: http://tinyurl.com/ollathens

The easiest way to locate relevant content and journal articles in the Online Library is to use the Summon search engine.

If you are having trouble finding an article listed in a reading list, try removing any punctuation from the title, such as single quotation marks, question marks and colons.

For further advice, please see the online help pages: www.external.shl.lon.ac.uk/summon/about.php

Journals

Notwithstanding the recommendations above, most information systems research is found not in books but in academic journals. Some journals are very focused on particular issues or approaches, but the following are examples that offer a broad range of information systems research coverage – from the technical to the managerial and societal. In each case, you will be able to find a website (see Chapter 4) where you can review the tables of contents at least.

To help you read extensively, all International Programmes students have free access to the University of London Online Library where you will find the full text or an abstract of some of the journal articles listed in this guide. You will need a username and password to access this resource. (See Online study resources.)

If you have not used this library before now is the time to start. Full information on using the library is available on the website.

Even having online access to the full text of many academic journals, it is probably still a good idea to take a bit of time if you can in a real library to browse through paper copies and pick up the flavour of the journal
and the kinds of work they report. Below we give a list of a number of mainstream journals in the information systems field that you may wish to review. Often you can directly find the publishers’ website that, while not giving full access, does allow you to review the table of contents of issues, and sometimes to read the abstracts of articles.

- Communications of the ACM
- Communications of the AIS
- European Journal of Information Systems
- IEEE Software
- IEEE Computer
- Information Systems Journal
- Information Society
- Information Technology & People
- Journal of Information Technology
- Journal of Strategic Information Systems
- MIS Quarterly

**Activity**

Using the University of London Research Library Services Online Library review the contents of two recent issues of three of the following journals.

- Communications of the ACM
- MIS Quarterly
- Information Society
- Information Technology & People.

You should be able to locate them through the library website using the journal search page. Note that you may need to be a bit clever here. For example, the journal Information Technology & People is listed with an ‘&’, and you won’t find it if you use the word ‘and’. The best way is to search on a limited part of the title, say ‘information technology’, and then browse the various journals that are shown.
Notes
Chapter 2: Choosing your project topic

Essential reading


Further reading


Learning outcomes

By the end of this chapter and the associated reading, discussion and thinking, you should be able to:

• outline a broad justification for undertaking your project in one or more relevant areas of the field of information systems
• list the requirements and resources that are needed to complete a project
• develop a working title for your project that encapsulates both the area of study and the specific project proposed
• prepare a Topic Area Proposal for inclusion in the final report as appendix 1.
• write a specific Project Specification which identifies the research question, and sets out a small number of research objectives and key activities to achieve them

Introduction

As ever in education, you will get more out of your project the more you put in. So you must take care to choose an area of study that interests you and then go on to tackle it with enthusiasm!

We separate the task of choosing a project to do into two main activities.

1. Choosing a topic area within which you wish to work.
2. Planning the particular project that you are going to undertake within that area.

This two-stage process is intended to help you arrive at a project that interests you, is achievable, and satisfies the Examiners. To help you through this stage of the work we ask that all students prepare two
specific documents as part of their project work, and include them in the final report. These are first a Topic Area Proposal, and second a Project Specification. These are intended to be working documents, positively helpful in steering you towards an interesting, creative and doable project. Don’t worry too much about making them perfect, but use the experience of preparing them as a guide to ensure that you are taking your project work in the right direction.

Undertaking this ‘thinking through’ process is a requirement of the project and projects that do not contain these two elements will be penalised by the Examiners.

Choose your topic area carefully

The choice of the general area in which you wish to work needs to be made with care. To address all the issues that need to be considered in establishing a valid topic you are required to prepare a written proposal. This is referred to in this guide as the Topic Area Proposal, and it must be included in your final report.¹ In this proposal, you set out your case for undertaking the project and evaluate the resources available to you. We require you to include the Topic Area Proposal in the final report to show that your initial choice of project was well considered. It may be that the final work does not meet all the aims in the initial proposal or moves off to consider some other related topics. This is quite acceptable, as long as you explain why the project changed direction.

You should seek the opinions of other people as to the suitability of the topic you have chosen and work at refining your proposal. It is appropriate to undertake two or three revisions of the proposal before moving on. The final proposal document should be dated, and it then becomes part of your final project report.

When choosing your topic area and writing your Topic Area Proposal, you need to take into consideration a variety of factors including:

• the extent to which the topic attracts your interest
• the availability of materials and equipment
• if anything is happening in that topic area
• the access you can have to organisations and people from whom you would need to gather data
• the techniques and skills you will have to master
• the extent to which the topic might be of interest to others
• your understanding of the theoretical approaches available to support such work
• the extent to which the topic will meet the requirements of the Examiners
• the fact that some topics are just not a good idea.

¹ Remember, the Topic Area Proposal must be included in your submitted report as Appendix 1. More information on the report format is given in Chapter 6.

The extent to which it attracts your interest

The project that you choose must absorb your attention for a period of at least six months and perhaps longer. It is important therefore that you feel attracted to the topic and that it will be able to sustain your interest. If you have broader areas of interest, perhaps in terms of your future career plans or past work experience, then consider how this broader interest may be reflected in a project theme. For example, a student who has worked in health services management might choose to study the information
systems used in hospital management, while a student who has developed a particular interest in organisational analysis might wish to use this as a basis for a study of some aspect of user participation in information systems design.

**The availability of materials and equipment**

There is no point in choosing a project area in which there is no possibility of access to the required materials or equipment. On the other hand, you must do your best to locate what is available and to secure the best access possible. When choosing your topic area, you need to evaluate the general resources available to you to support work in a chosen area. On this basis, you will be able to make sensible choices as to the particular form of the project you undertake. A most important resource for any student undertaking a project is access to the best library possible. We understand that some students will have a rather limited access to books and journals in their paper versions, but you need to make as resolute an effort as possible to ensure that you can work with up-to-date and relevant materials. Thus, while you may not have access to a well-stocked university or national library, you do have access to suitable online resources through the digital library. Our experience is that good students do manage to find relevant and up-to-date materials – wherever they are in the world.

**Is anything happening in the topic area**

Many students are attracted to information systems, and information technology in particular, by its newness and its potential impact on organisations or society. This is generally laudable, but it does not necessarily fit well with the research focus of the project. Normally, you can only research the present or the past – that is, what is happening now and what has happened. The future comprises largely the realms of speculation and astrology. It may well be that a particular technology may have important implications in five or 10 years' time but this is very hard to research now. Thus, our advice is to stick to something tangible that is happening, or has happened, in today's real world.

The only exception to this time-orientation concerns feasibility studies or their variants. Organisations (including governments) do have to take decisions now about the introduction of new technologies in the future, and we – as researchers – can contribute to this. So, for example, you could investigate the feasibility of introducing an enterprise resource planning (ERP) system into a particular company or broadband networks into a geographical region. You should focus more, however, on the present drivers and constraints and less on a rose-tinted, long-distant future. By all means mention the promises, but do not treat them as inevitable and ‘just around the corner’.

**The access you can have to organisations and people from whom you would need to gather data**

You are encouraged to view this project as an opportunity to go out and gather information from the world around you. Our experience of many hundreds of students' projects tells us that, in general, people are very pleased to talk to students and are very generous in supplying them with information and time. Some organisations are eager to have students undertake some work for them in the form of a project, but you need to make the first contact and then to assess whether you will have enough access and support.
It is also important that you follow up a number of directions for access and contacts. Projects that depend totally on access to one organisation or the cooperation of one person are risky. A safer strategy is to work towards developing links with a number of people or organisations that can all contribute to your work.

**The techniques and skills you will have to master**

When considering the topic area, you need to understand the particular techniques and skills you will need to master to complete the work. It may be very exciting to try to interview information systems managers about their attitude to risk when developing strategic systems, but do you know anything about risk or about how to conduct interviews? You need to assess realistically how much time you need to give to developing these skills and understanding – and where you can find appropriate resources.

**The extent to which it might be of interest to others**

You will need to involve a number of other people in your project, at the very minimum your supervisor or mentor, and probably other people to whom you will go to for information and advice. If you are working within a college, you will probably have a fairly formal process to be allocated a supervisor. If you are working on your own, it may not be quite so easy, but you will probably still want to find a suitable person (or persons) who can give you advice and guidance and review your work. In any case, to get the best from these people, they need to be at least a little bit interested in your work, and a topic you find very exciting may not seem at all interesting to them.

One solution to this is to seek out a project that is suggested by some other person or outside organisation. This is acceptable, but you need to be sure that such work will meet the Examiners’ requirements and, in particular, will result in a research project. In practice, this probably means that you will need to adapt the project in some way to meet the requirements of both the client and the Examiner. In any event, even if someone else suggests the project, it must very soon become yours, and you must take full responsibility for bringing it to a successful conclusion.

For example, an outside sponsor may suggest doing the systems analysis for a database to support a marketing manager in recording client contracts and supporting the direct mailing of advertising literature. This could be a good starting point for a project, but to meet the Examiners’ requirements, you will probably need to expand and reshape it to look at some of the following elements:

- the decision-making behaviour of such managers
- the managers’ information needs
- the extent to which a proposed system might provide the expected benefits.

You will need some supporting theory or framework to allow you to talk about decision-making and how information resources can help (or hinder). You may need to look at similar existing systems, or available software packages to do the job. You may even be able to build the system and then undertake a post-implementation review. All of this would need to be backed up by some evidence of your understanding of the key issues involved in using information systems in customer relationship management and to draw on the considerable literature in this field.

---

2 We discuss supervisors and mentors further in Chapter 3.

3 In this hypothetical example, we suggest here that you could ‘build the system’, but it should be understood that such work should not form the basis or core of an information systems research project. In this example, a database package might be enough to deliver a quite simple end-user application - all developed over a weekend.
Your understanding of the theoretical aspects of the area

In order to carry out research in any particular area you must equip yourself with the necessary conceptual tools, drawn from the ‘toolbox’ of theories and research frameworks that are used in information systems and related disciplines. We discuss these in more detail in Chapter 4 but, at this stage, you must realise that such tools are needed and you should understand how to use them. Information systems is a multi-disciplinary subject and various fairly general social, economic, business and technological theories are available and used in such studies. These include, for example, transaction cost analysis, institutional theory, socio-technical theory and actor network theory. In addition, each sub-area of information systems (e.g. strategy, knowledge management, outsourcing, systems development) tends to have its own particular frameworks or set of concepts, which help researchers to understand the issues involved and to collect and analyse data. For your work in your chosen area, you will need to identify and use a suitable theory, or conceptual framework to work with and you must be sure that you understand it fully.

The extent to which it will meet the requirements of the Examiners

Your project will be assessed by the Examiners and, although the requirements that they set are broad, the Examiners are concerned that projects fall firmly within the domain of information systems and that the project follows a broadly research-oriented approach. For example, a project on economics, accounting or organisational analysis alone will not satisfy them – even though elements of any of these subjects may be essential to pursuing a particular information systems project. So remember to keep asking yourself the key question: ‘Is a concern with information systems at the heart of this project?’

Some topics are just not a good idea

You may find that your enthusiastic ideas for a topic start to run into fundamental problems. Perhaps you find it hard to keep hold of the information systems issue at the centre, perhaps you have chosen a topic that is more about speculation and some wonderful future world or perhaps you have found a topic area to which it is too difficult to do justice. Finally, you may have chosen a topic that will lead you (potentially) into real trouble – an experimental investigation of money laundering, international espionage, cyber crime or pornography. If so, please stop and use your common sense. There are plenty of good, safe, solid and interesting information systems issues with researchable questions. You only need to find one.

Help in finding your topic area

How can you start to look for a topic area for your project? It may be that either nothing occurs to you as interesting or worthy of your study, or perhaps that too many ideas occur to you. For most students the topics they choose arise from their own areas of interest, or events that stimulate their curiosity. Other opportunities for finding a project idea may come from reading in and around the field of information systems. This may include reading in academic literature (textbooks or journals), but also from magazines, trade papers or business literature. Browsing in a library can be a good starting point to find an area of current significance that may be of interest to you, and will stimulate your thinking. You may also be able to draw upon your work experience to identify interesting themes,
<table>
<thead>
<tr>
<th><strong>Topic Area Proposal</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Author:</strong></td>
</tr>
<tr>
<td><strong>Working title:</strong></td>
</tr>
<tr>
<td><strong>Main theme:</strong> (A description of the general area)</td>
</tr>
<tr>
<td><strong>Research questions:</strong> (possible questions drawn from the area)</td>
</tr>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
<tr>
<td><strong>Outline of argument or position:</strong> “In this project I will investigate … and try to argue that ….”</td>
</tr>
<tr>
<td><strong>Links to wider Information Systems issues (potential area of contribution)</strong></td>
</tr>
<tr>
<td><strong>Links to syllabus of other courses within the degree (useful material to draw on)</strong></td>
</tr>
<tr>
<td><strong>5 key words or phrases for use in an online search e.g. of the ACM Digital Library</strong></td>
</tr>
<tr>
<td><strong>Alternative ways to research the topic and to collect data:</strong> (if possible, give examples of other people’s work and the approach they have used)</td>
</tr>
<tr>
<td><strong>What research framework (theory or set of concepts) do you propose to use in this work?</strong></td>
</tr>
<tr>
<td><strong>Required resources and issues of access:</strong></td>
</tr>
<tr>
<td><strong>Assessment of required skills or techniques to be applied:</strong></td>
</tr>
<tr>
<td><strong>References to 5 articles or books relevant to the topic and that you have read</strong></td>
</tr>
<tr>
<td><strong>Justification of interest to others:</strong> “This topic is of importance and wider interest because…”</td>
</tr>
</tbody>
</table>
Chapter 2: Choosing your project topic

as well as from quizzing friends or acquaintances who work around IT; for example, asking them what are their current preoccupations or problems.

Looking in the academic literature early on in your search can be very helpful. For example, it is common for authors of academic papers to suggest areas of further research that others can build upon. More generally, reading such literature can give you an idea as to what has and has not been researched and help you to avoid re-inventing the wheel. Academic papers will also give you an early lead on the literature related to a topic.

Structure for a Topic Area Proposal

The Topic Area Proposal must be included in your final report as Appendix 1. The exact format that you use to prepare it is not set down, but Table 1 shows a format that covers the main issues you need to address.

Narrow your topic choice, refine the research question and prepare a Project Specification

So far, we have spoken about choosing a topic area or finding an opportunity to do a project. Once this is done, you need to move on to plan the specific project that you are going to undertake and the activities that it will require. You have only a limited time to work on your project, and it is important that you set out on a path that will allow you to produce a good result within the time available. This means that you will have to narrow down your interest from a topic area to a specific project with a clearly understood underlying research question, a set of research objectives and a specific method or approach to satisfy that question and objectives.

In doing this, you need to be certain that you are defining a real problem or studying a real issue and that you can learn enough about it, analyse it properly and write it up convincingly in the short time allowed. The single most common cause of problems with projects comes from trying to tackle a too large, complex or ill-defined topic. When you are able to specify your project in terms of a clear research question and six or so concrete objectives, each with associated activities and clear deliverables, you have probably narrowed it down enough. This is the purpose of the Project Specification.

This specification should contain a refined title for your work, a statement of the particular research question you pose, the objectives of your work, the principal activities envisaged and the resulting deliverables.

This document should be dated and become a part of the project report as Appendix 2. As with the Topic Area Proposal, if the project objectives are revised substantially as the project progresses then include the revised version too or explain why things changed. The idea of a Project Specification in terms of a limited set of objectives, activities needed to reach those objectives, and the form of the final deliverable from each objective are discussed in Cornford and Smithson (2006) in Chapter 3.
Carefully develop your project title and frame your research question

Good projects flow from good project titles: does your title frame an interesting or important question and will it attract a reader’s interest? It is important that you know from this early stage what it is that you are trying to do – if for no other reason than to secure the cooperation of other people for your research and to be able to explain it to them. This is not to say that project titles should be carved in stone, but it is good discipline to try to distil the essence of your work early on.

Titles can take a number of forms but they should be short – say 5–15 words.

They can be in the form of a question, for example:
• Will open source software be able to find a market on the desktop?
• How can schools benefit from networking with parents?

They can be in the form of a transition from the general to the specific (often by the use of a colon):
• Technology for data mining: the case of mobile phone marketing
• Health informatics for developing countries: two case studies in rural India

Or from the specific to the general:
• The prima clinic information system: a study of health informatics in developing countries

A good title tells us something about the project, attracts our attention and gets us ready to read on. An example of a poor title that fails these tests, taken from a recent project, was:
• Evaluating, developing and implementing an information system in an organisation

The project itself was good and received a quite high mark, but that title hardly sold the project!

Here are some recent project titles. See which ones you think pass the test and are informative and interesting. Which ones would you feel are less successful? Can you improve them?
• Targeting terminal terrorism
• Development of a system to improve the efficiency of the back-office operation of a boutique fund manager
• Innovative information technology and customer relations in the manufacturing sector
• Teachers’ attitudes to web based learning materials
• The privatisation phenomena: do information systems matter?
• Customer relationship management systems play a key role in organisational success in the banking industry
• Evaluating the business value of internet-based e-commerce for small- and medium-sized enterprises in Tropicana
• Is information technology critical to the success of mergers and acquisitions?
• Information systems and competitive advantage
• Internet usage in Ruritania
• The challenge of maintaining computing infrastructure in secondary schools: a case of creative chaos

Research questions

In developing a good project title we need to understand the research question or questions that underlie the work. However, a short title cannot express this clearly enough, and it is necessary to spend a little time on refining your question - this certainly will be needed in the introduction chapter of the final report where you establish the exact aims of your research. For some types of research the question is clear and indeed may come first in your thinking. For example, you may be interested in how people make the choice between using email, instant messaging, telephone calls or text messages in various work-place contexts. Such an interest presents itself almost directly as a question – what factors influence the choice of electronic media? In other cases the broader topic area, or an available case study site may come first, but without an obvious or well formed question. In such a case, you need to appreciate that you cannot just rely on the research situation revealing some interesting ideas or that some research theme will just turn up. Rather, you need to work to identify a clear theme to pursue that can be expressed as a clear research question.

For example, a student may have the opportunity to study the implementation of an ERP package in the shipping department of a trading company. This may be a great opportunity, but an opportunity for what? Is the focus to be on practices of implementation, on user resistance, on approaches to training, on effects on inter departmental coordination, or on the roles of consultants vs in-house technical staff? There could be twenty more possibilities of a focus for such a study – but you need to identify just 1 (or at most 2), and make sure that your subsequent work remains targeted at offering some kind of an answer to the identified question.

So, to develop the first option mentioned above, the research question may end up as: To what extent and in what balance is the work of implementing large and comprehensive software systems a responsibility of their users or of the technical specialists? Note that this research question is deliberately more general than the specific case study site. We want a research question that is of broader interest and relevance to the IS field, rather than too narrow and specific to one particular context. In the end the readers of your report want to be given some general insight into IS issues, albeit based on your detailed study of one situation.

Format of the Project Specification

Here we do not specify any detailed format in which the Project Specification should be presented but it should clearly state:

• the project title
• the research question you have identified
• the main objectives of the work (up to say 5), as well as the activities that are needed to achieve these objectives.

In writing up the main objectives of the work and the relevant activities you will also need to briefly indicate the types of data gathering activities you will employ (e.g. interviews, literature review, questionnaires etc.)
A reminder of your learning outcomes

Having completed this chapter and the associated reading, discussion and thinking, you should be able to:

- outline a broad justification for undertaking your project in one or more relevant areas of the field of information systems
- list the requirements and resources that are needed to complete a project
- develop a working title for your project that encapsulates both the area of study and the specific project proposed
- prepare a Topic Area Proposal for inclusion in the final report as appendix 1.
- write a specific Project Specification which identifies the research question, and sets out a small number of research objectives and key activities to achieve them.
Chapter 3: Planning and organising your project

Essential reading

Further reading

Learning outcomes
By the end of this chapter and the associated readings and exercises you should be able to:
• prepare and use a plan for your work
• monitor progress against your plan and adapt it as necessary during your research
• recognise the need to change your project as you meet problems or new opportunities along the way
• make the best use of your project supervisor or mentor, so that they can help you produce your best work.

If you can't plan it, you can’t do it
By definition, a research project is a ‘one-off’ affair, with a definite start date and a definite end date, and therefore, like any other project (e.g. constructing a building), it needs a rather different form of management compared with regular everyday tasks. If you are to deliver a satisfactory ‘product’ by the deadline, timing and organisation are extremely important. You have various resources available to you, particularly your own time and skills, and these need to be managed carefully.

Any project comprises a number of different activities; some of these have to precede others, while some can be performed in parallel. It is essential that you meet the project deadline, and the only way to be confident of achieving this is to plan out the project in advance. Many student projects have been almost ruined because the student spent too much time on the initial activities and had to rush the later parts – the reason: the lack of a project plan.

Apologies for writing rather than coming to talk to you, but it’s always so hectic in the afternoons that I thought it would be best to write.
The plan should comprise a list of activities with planned execution dates. Each activity should produce a ‘deliverable’ (in terms of, for example, a recorded interview or a draft chapter). The first activity, then, is to identify the activities and their associated deliverables. These then need to be scheduled.

Producing a project plan encourages completeness; it is an opportunity to ‘think’ your project through and seriously consider how long particular activities are going to take. With a plan, you can trace your progress as the weeks go by and recognise when you start to run late. It is also much less likely that you will forget an important task.

**Schedule your work realistically**

We cannot provide a single draft timetable that would suit every type of project but when you prepare your own please bear in mind the following:

- Do not make the plan too detailed; it should be no more than one A4 page. An old, apposite adage says: ‘Keep it Simple, Stupid’, or KISS. This means that you should not make your project (or your life) too complicated. Projects are pieces of work done by many people around the world, and managing a project is not ‘rocket science’.
- Break your work down into manageable chunks that are achievable within two or three weeks. This will put you in a better position to monitor your progress.
- It is useful to be able to identify certain key ‘milestones’, which often represent the production of significant deliverables: for example, completion of all your interviews. Such milestones, probably a small number (certainly less than eight), need to be highlighted. They may also match particularly important dates, such as Christmas, your birthday or the end of a term.
- Allow enough time at the end of the project for your supervisor or mentor to read a full draft of the report, and for you to take into account their comments. This means that a project should in general be completed one month before the deadline for submission.
- Also allow enough time at the end for the final production of the report. It is surprising how long it takes to proofread the final copy, to draw diagrams and tables, and to produce an attractive report layout. Even printing, photocopying and binding all take time.
- Build in some slack. Some things will go wrong or take longer than you first expected. Thus, the plan should not be too rigid and you should not follow it blindly. If you do diverge from the plan, however, especially if you start to run late, then reformulate the remainder of the plan to see what changes, if any, you have to make to finish on time.
- Try to structure your project in such a way that you are achieving solid results as soon as possible. Do not develop a project so that everything depends on the last few activities. For example, structure the work in such a way as to produce materials for direct incorporation in the final report.

You should start developing your ideas for a project as early as possible. Although you may not want to start work in earnest until after you officially sign up for the course, it is very useful to begin preliminary tasks earlier. This is especially important if you need to write letters and wait for responses, or when you need to make special arrangements with a company or other organisation.
Show your supervisor or mentor the plan; he or she is likely to be experienced with such projects and, in a ‘walk-through’, they should be able to point out any feasibility problems. These may include too much or too little time allocated to an activity, a missing activity or a final draft appearing when the supervisor is not available.

Even something as straightforward as background reading takes time. You may have difficulty locating the books and journals that you require, and reading itself can be time consuming. You should also take care that you know when to stop reading; it is surprisingly easy (and even pleasant) to read around the same topic for months on end, but you have to move on with your work and get to the next stages.

Once you have produced your plan, do not lose sight of it – pin it on the wall of your study or workroom and tick off the activities completed as the weeks pass and as they are finished. Another (true) old saying is that ‘projects become late one day at a time’. Left alone, projects tend to wander like lost souls in the wilderness. They need to be managed actively.

It is essential that you write draft sections of your report as you go along. Apart from anything else, this will help you to practise writing and to improve your ability. It is also true that most people need to write things down to be able to really think about them. When you write, some of the apparently easy things may seem a bit less easy, and equally, some of the things you are confused about may become a bit clearer. Certainly do not leave the writing until the last weeks. It is too late by then. Supervisors and mentors can only give final advice if they have seen the product develop, so you should try to arrange for your supervisor to review a full draft of the work well before the submission deadline.

A final suggestion: it is often a good idea to keep a special project diary or notebook. This is useful for noting relevant names and telephone numbers, new ideas, hints on using software, references to relevant literature that you find and other miscellaneous jottings. It is extremely easy to forget some of this key information, so, as soon as you have a new thought or receive some relevant information, note it down in the diary. When you have a slack period, browse through the diary to make sure that you have acted on all the appropriate notes.

## Projects that go wrong

Projects go wrong in many ways but it is your responsibility to manage the risks. You are the project manager for this project and you need to be conscious of this. Common risks include:

- starting too late
- loss of interest
- research questions that turn out to be trivial or impossible to answer.

## Starting too late

Psychologically, starting a project is a big step, and it is too easy to keep putting it off until ‘tomorrow’. You need somehow to take that first step and to find a way to keep going. Everyone has bad days (due to illness or interruptions), but it is important to get started and keep making progress. To achieve a good mark in this project, you certainly need to start work at the beginning of the academic year – and not to leave it all until January or February.
Loss of interest

After a while, you may find that your initial enthusiasm starts to wear off. You may begin to think that your project is boring and that maybe you should have chosen a different topic or you may encounter difficulties with the people or material that you are dealing with. This may be time to talk to your supervisor, or to a friend. Most students go through a difficult patch during projects but things usually work out. A job has to be done, and you just knuckle down and do it through thick and thin. A particular variant of this problem is ‘writer’s block’: you sit down and just cannot seem to write anything that seems sensible and relevant. Prevention is better than cure, and this is less likely to happen if you write up your project regularly as you go along and do not leave everything until the end. For such a common problem, however, numerous ‘cures’ are available – take some exercise, go for a walk, find somebody to talk to about your work or take a day off. You just need to find what works for you (but don’t take too many days off!).

Research question turns out to be trivial or impossible

With the best of advance planning, it sometimes happens that, for any number of different reasons, you really cannot carry on with the project as originally formulated. Sometimes you may find that someone has already done exactly what you were planning to do or else, due to events totally outside your control, the project becomes impossible to complete. Perhaps you cannot gain access to some vital information or the host organisation cancels the project. This may be very worrying, but you should not immediately assume that you will fail the course or even the degree. You should design your project in such a way that it is robust and does not depend on particular interim results or responses. You have to expect some setbacks along the way, and you have to be prepared to react accordingly.

Sometimes you might be able to treat a project that goes wrong as an opportunity. Why did it go wrong? What does that tell you? Is there a good story to be told? In our experience, students can often find a new beginning for a project within the wreckage of the old.

An example of this comes from a project undertaken by a student for a London borough council. The initial project was to develop a design for a database system that would be used by the council’s personnel office to prepare job advertisements and to deal with the replies from those applying for jobs. The student was halfway to finishing the project when he discovered that there already existed another design for the system, prepared by a rival department, and furthermore that a standard commercial software package was available to do the job. At first, the student felt disheartened to have been involved in what was just a political ploy by a department, which was using him to show that they too could ‘come up with the technical stuff’. On further reflection, however, the student was able to redirect his project to consider the management structures used by the council to direct its information technology activities and to suggest how they might be improved. The project report was good and told the whole story; the really happy ending came when the council offered him a job on the basis of his insightful analysis of how their information technology management system was not working.
Project support

Although the project is an individual one, you are not expected to undertake it completely unaided. You will almost certainly need advice and guidance from a variety of people who have the expertise and experience that you lack. You are unlikely to be working in an area where nobody has ventured before and, although you are required to make your own contribution, you should beware of ‘reinventing the wheel’. Such advisors are normally a valuable resource that you, as the de facto project manager, need to manage carefully. Before you start the project, you should spend some time identifying those who may be useful to you. During the project, you should pay careful attention to maintaining these relationships, as often a few key words of advice can save you many days of fruitless effort.

A supervisor or mentor

The exact nature of the help and supervision that is available to students varies. Students who take the University of London International Programmes degrees do so in a wide variety of institutional settings, and this means that they have varied opportunities for support and supervision when undertaking their projects. If you study in a formal college environment, you can perhaps expect to have a direct supervisor who will be your principal source of advice and comment. Even if you do not study within such an environment, however, you are strongly advised to try hard to find somebody who can act as mentor for your work – and who can provide you with vital feedback. Such a person will probably be an experienced information systems or computing professional, but anybody with experience of academic projects or research assignments should be able to give you help. You should not expect such a person to become highly involved in the detail of your work, but you should try to get them to undertake two main tasks:

• to assess your project proposal in the early stages and to determine whether it is achievable in the time available, whether it is coherent and complete, and whether it relates to the field of information systems in an appropriate way

• to review the later drafts of your project reports and to make suggestions for improvements in the presentation of the results of your work.

Take advantage of the supervision available to you. Arrange to meet your supervisor or mentor regularly. Show them your timetable and agree on intermediate deadlines when you will present work such as outlines, preliminary drafts, data or preliminary analyses. Remember that a supervisor’s or mentor’s job is not to chase you, and you must take the responsibility for arranging meetings. You alone are responsible for developing your project, but you should do your best to meet and discuss progress with your supervisors regularly. It is a good idea to draw up an agenda, before the meeting, and perhaps to send it (politely) to your supervisor in advance. This way you are more likely to achieve your aims smoothly.

Supervisors will often review drafts of projects, but, before submitting a draft, you should check the spelling and grammar, so that the supervisor can concentrate upon the content. You should only pass a draft for review when you can make no more improvements to it. If you know that it can be improved in some way, do the work before and make the changes before your supervisor sees the draft, rather than wasting his or her time.
and have them tell you what you already know. In this way, you are able to improve the quality of the feedback you receive.

Drafts should be legible and preferably laser or ink-jet printed. For drafts, unlike final reports, use double-line spacing as this gives the supervisor more room to insert comments. You must remember that supervisors have many other calls on their time, and you must be able to fit into their (often very busy) schedule. For example, you may have to wait some days before your supervisor can give you an appointment, and you may have to give them plenty of time to read drafts. It usually is sensible to pass them the draft and arrange an appointment to discuss it one week or so later, at their convenience, rather than arranging an appointment just to hand them the draft. Remember that supervisors are human: they take holidays, they become ill, and your supervision is not usually their main priority.

**Working with a client**

As discussed above, you may decide to undertake a project that is based around a real problem for a real organisation. This is certainly encouraged. In this case, you will have a client, the person or organisation for which you are working. The client, of course, is most interested in getting the job done – not in your project report. Even more so than with a traditional supervisor, a client is typically under external pressures that may mean sudden changes to your support environment. For example, you may be working in an area in which the client has some interest and can provide a high level of support, but this may be drastically reduced if the resources suddenly are needed elsewhere. In some cases, rather than withdrawing support, the client may feel they have to press ahead quicker with their work than is convenient for your timetable. In such cases, you will need to try to negotiate a new arrangement with the client that is still mutually beneficial. One possibility is to recast your project into a more theoretical form, using what you have learned so far, but assessing it within a broader framework of ideas.

To satisfy a client, you will probably need to produce slightly different outputs than are needed to satisfy the requirements of the university. As long as you are aware of this, it should pose no particular problem. This is where the use of a word processor particularly is helpful – it is easy to reformulate texts, switch blocks of text around and change the layout so as to produce two slightly different reports. Students should be be aware, however, that, although this solves most of the low-level problems, it does nothing to resolve any real conflict of interests that might occur between your primary goal of presenting a good project to the university and addressing the needs of a client.

**Experts in particular aspects of the project**

Your supervisor or mentor may not be completely familiar or up to date with every aspect of your project, and it is not their job to carry out research on your behalf! You may have to approach other experts, therefore, but first you need to identify them. Your supervisor or mentor may be able to suggest relevant people and perhaps arrange an introduction for you. If your supervisor is not available, however, you should not waste your time just waiting. Depending upon the nature of the problem, it may be relevant to contact another academic or practitioner (perhaps someone who has published in the area) or a trade association or similar body.
Remember: Despite all the help and encouragement that a client, supervisor or mentor may give you, this is your project. You alone must take responsibility for the work and for the final presentation.

A reminder of your learning outcomes

Having completed this chapter, and the associated readings and exercises, you should be able to:

• prepare and use a plan for your work
• monitor progress against your plan and adapt it as necessary during your research
• recognise the need to change your project as you meet problems or new opportunities along the way
• make the best use of your project supervisor or mentor, so that they can help you produce your best work.
Notes